

To remain competitive and increase exports, Brazilian agribusinesses rely on the "Open Innovation" concept, and on integrating the entire production chain and their partners.

# Open Innovation to Leverage Agribusiness Competitiveness

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## Introduction

The importance of Agribusiness in Brazil has grown in recent years, having contributed not only to GDP growth but also to the country's balance of trade, with an impressive volume of exports. The increasing demand for healthier food of higher quality is not the only driver for agribusiness. In addition to food, agriculture has contributed greatly to sectors such as paper and cellulose, with Brazil boasting the world's largest cellulose production plant. The energy sector has increasingly relied on agriculture, such as to produce ethanol fuel, which is now even being considered for aviation, as an element of better sustainability. Biodiesel shows a similar trend, aiming to represent 25% of the diesel that powers a significant portion of the country's transportation.

Yet, there is much more to agribusiness.

Throughout its history, Brazil has experienced various highs and lows in agriculture, causing it to lose its leadership position in several markets, such as cocoa (today, it is the seventh largest exporter) palm oil, and several other products. Recently, this industry has focused more consistently on productivity and product diversity – key elements for agribusiness growth.

Since the 1960s, the FAO (Food and Agriculture Organization), part of the UN (United Nations), has measured the agribusiness productivity index per capita, which represents the sector's level of productivity compared to the population of the countries involved. The graph shown in Figure 1 below focuses on agriculture and does not include livestock, fishing, or other agribusiness subsectors, and clearly indicates the country's consistent and healthy rate of growth in the sector. It is interesting to note a more balanced trend than what we see in even more mature (*non-emerging*) economies.

## AT A GLANCE

### KEY TAKEAWAYS

Agribusiness needs to continue innovating to maintain the pace of its contribution to GDP and the balance of trade.

New opportunities in agribusiness, such as in sustainability, regenerative agriculture, carbon credits and offsets, and the energy matrix are heavily dependent on technology and constant innovation.

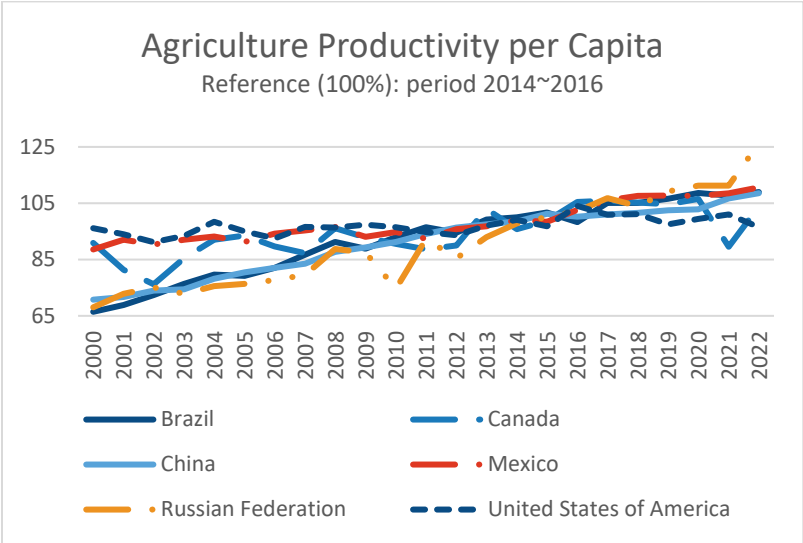


FIGURE 1: **Agricultural Productivity Index per Capita**  
Source: FAO UN.

It is vital to maintain this competitiveness and allow it to evolve in a commodities market, and this is what has allowed Brazil to increase its export rate. As shown in the graph in Figure 2, this rate has also grown consistently, even during the COVID-19 pandemic, in part due to other countries’ inability to maintain productivity at the time.

With all these positive developments resulting from continuous innovation in the sector, Brazil is once again a global leader in products such as soybeans (56% of total exports), corn (31%), coffee (27%), sugar (44%), orange juice (76%), beef (24%), and poultry (33%). In the first quarter of 2024, total agribusiness exports reached US\$37.44 billion (source: Ministry of Agriculture and Livestock)

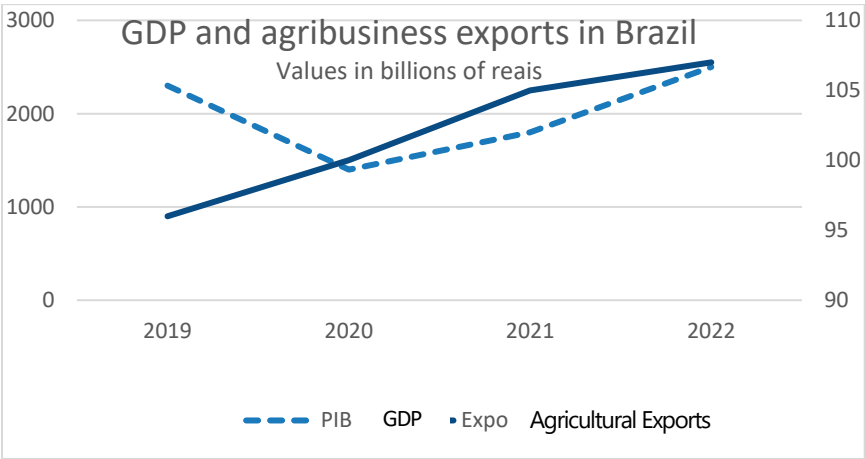


FIGURE 2: **Agricultural Productivity Index per Capita**  
Source: IBGE.

## Benefits of Open Innovation

Innovation is a proven catalyst for markets, offering the capacity for agile growth and distinguishing the players who implement it best. Without innovation, a market stagnates or even regresses.

We added the concept of "open" to the notion of innovation. In a way, it is a synonym for collaboration, which is already a tradition in the Information Technology (IT) sector, for example. Open since its first version in 1991, today Linux has become the Operating System with the greatest implementation in the corporate environment, being used on all platforms, from small devices to the mainframe, as well as in practically all supercomputers. The open concept has been extended in IT to many crucial elements, and today it is the most sought-after modality for LLM (Large Language Model) platforms, which represent the basis for Generative Artificial Intelligence.

Contracting for innovation is very different from purchasing raw materials, and the multiplication of open innovation requires a different positioning and attitude than traditional innovation, demanding the acculturation of the parties involved to achieve the most significant gains. Agribusiness has been sensitive to this trend in Brazil and increasingly embraces these concepts.

## Trends

The agribusiness market has made intense use of technology for its development. The first big step is connectivity to integrate and monitor solutions. Currently, a small portion of Brazil's agricultural sector is covered by 4G/5G (19% according to ConectarAgro). Although this requires great expansion, it is already possible to implement some of the technologies that have been growing in the agribusiness world. However, there is still much to develop. IDC estimates that between 2022 and 2036, the volume of data collected by agribusiness each day will grow by 800%, with the proliferation of sound reinforcement in the field (source: IDC, Data Revolution in Agriculture, 2022)

- . **IoT**, Internet of Things, such as sensors and actuators for soil moisture, weather stations, automated irrigation
- . **Precision agriculture**. e.g. tractors and drones monitored by GPS and guided remotely
- . **Genetic optimization of crops** using AI, e.g.: providing pest resistance or drought tolerance
- . **Digital agriculture** with software focused on agricultural management and analysis of collected data, as well as traceability solutions using Blockchain
- . **Automation and mechanization** at all production chain phases, from seed handling to harvest distribution
- . **Biotechnology**, such as the development of biofuels and the resulting improvement of the energy matrix
- . **Research and development** to create new crops, control pests, and improve crop yield and quality

The best ways to implement these technologies, with optimized times and costs and the necessary regional adjustments, are strongly enriched by interactions with local communities and open innovation hubs.

The adoption of technology has been a fundamental element for the most recent range of products offered by agribusiness, which is growing significantly: **Sustainability**, both in agribusiness production, such as regenerative agriculture, and in new demands such as *carbon offsets and credits, the energy matrix, and others*.

## Company Profile

PWC is globally recognized for its activity in several areas, including auditing and business, corporate, and tax consultancy. Within the technology sector, it is well-known for its implementation of solutions. From the perspective of vertical markets, it operates traditionally in sectors such as Finance and Health, and its involvement in Agribusiness has grown significantly in Brazil in line with the country's business trends.

AgTech Garage, an Open Innovation Hub, was founded in 2017 in the city of Piracicaba, São Paulo by a group of three companies. The region is a strong hub for agricultural development, which includes a university (the "Luiz de Queiroz" School of Higher Education in Agriculture - ESALQ), several private and public agricultural research centers, and almost 200 national and global agribusiness companies in this ecosystem. In 2019, the open and collaborative innovation hub practically doubled the 1,100 m<sup>2</sup> of facilities already designed for co-working and interaction.

PWC was also involved as a member of the AgTech Garage until 2022 when it purchased the company. In 2024, it changed its name to PWC Agtech Innovation. It represents a space where ideas arise to connect innovation partners such as Bunge, Ceva, Dexco, John Deere, and OCP Brasil to dozens of Ecosystem partners, ultimately reaching almost one and a half thousand startups. Broadly speaking, the hub and its members seek to provide innovative solutions for everything related and contributing to agribusiness, including banks, insurance companies, technology companies, education, and universities.

Due to its international experience, PWC is able to address the particular aspects and requirements of local markets, such as distribution and large cooperatives which are more prominent in Brazil than in the North American market. This is reflected in the direct sales of fertilizers which do not reach 20% in the country.

PWC AgTec Innovation's main objectives are:

**To connect** – Agtech Innovation strives to connect the entire agribusiness chain. The reach is global, and there are already cases in which solutions developed in Brazil have generated opportunities for clients in other countries. In addition, the innovation frontier is not restricted to agribusiness; startups from other sectors, such as the automotive industry or education, have adapted their solutions and businesses to agricultural challenges. Agtech orchestrates the connection between those who develop solutions and those who depend on them for business continuity and relevance.

**To train** – In addition to connecting, Agtech Innovation acts not only on behalf of its directly associated participants, but also for the whole ecosystem, developing learning practices related to innovation, technology, and agribusiness. The hub offers training, content, workshops, webcasts, and programs to help navigate this new innovative context in the field of Agribusiness.

PwC has also supported Agtech members in acquiring new innovative solutions and in participating in open innovation initiatives. Throughout the year, whether in the dozens of in-person and online lectures produced by its associates, or in the three-stage, two-day Agtech Meeting event, PwC seeks to foster the entire ecosystem, from real estate to the high-tech industry.

**To facilitate** – In addition to connecting and training innovation agents (corporations, startups, entrepreneurs, academics, investors, and rural producers), Agtech is dedicated to facilitating innovation processes and practices. In various projects and services, they establish innovation processes within corporations by updating concepts and awareness dynamics in order to prepare businesses for complex and innovative futures, while simultaneously reinforcing a culture of innovation. Examples include investment planning and execution, support and guidance for mergers and acquisitions, structuring teams and methodologies/tools, as well as the adoption of new technology. In this context, PWC Agtech Innovation has contributed to the expansion of the agricultural ecosystem. On a recent visit to Agtech Innovation in Piracicaba, two IDC analysts had the opportunity to interact with some of Agtech’s associates and to capture their participants’ satisfaction with the results obtained there and with the integration with the entire innovation and business development environment.

### Challenges

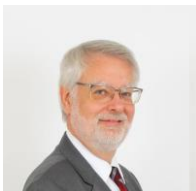
PWC has managed to seamlessly integrate several regional and international agribusiness companies. The more challenging initiative now is to reach and deliver the benefits of the innovations they have produced to farmers throughout the country, both directly and/or through partners at the Piracicaba and Uberaba HUBS. PWC has already begun the first initiatives to that effect. The next step could be to create a feedback mechanism extending to the edge of the field, thus enabling continuous improvement of the open innovation process.

### Conclusion

The evolution of agribusiness, its productivity, and its contribution to the country is highly dependent on innovation, as it competes with several global markets, including mature countries. For agriculture, acquiring and incorporating the necessary technology and innovation in an agile and productive way means immersion in a shared innovation hub (open innovation). IDC believes that global corporations like PWC and its Agtech Innovation will continue to contribute to this positive movement in the field of agribusiness.

Due to its importance in the economy, agribusiness is bringing innovation to several other industrial sectors in Brazil.

## About the Analyst



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## MESSAGE FROM THE SPONSOR

The challenge of feeding an increasing population, preserving the environment and the planet for the next generations, requires enormous efforts from the entire society. At PwC Agtech Innovation we believe that the key to it comes from innovation and cooperation, building an ecosystem of important actors, such as corporates, entrepreneurs and farmers around the same goal of how to build the future of agribusiness in a responsible and sustainable way.



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