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## Editorial

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### Adriana Marotti de Mello\*

Business Department,  
School of Economics, Business and Accounting,  
University of São Paulo,  
Av. Prof. Luciano Gualberto, 908 – CEP 05508-010 Cidade  
Universitária, São Paulo/SP, Brazil  
Email: [adriana.marotti@usp.br](mailto:adriana.marotti@usp.br)

\*Corresponding author

### Roberto Marx

Production Engineering Department,  
Polytechnic School,  
University of São Paulo,  
Av. Prof. Luciano Gualberto, 1380 – CEP 05508-010 Cidade  
Universitária, São Paulo/SP, Brazil  
Email: [robemarx@usp.br](mailto:robemarx@usp.br)

**Biographical notes:** Adriana Marotti de Mello is an Associate Professor at the School of Economics, Business Administration and Accounting at University of São Paulo (FEA/USP), Brazil. She holds a Chemical Engineering degree in the Polytechnic School of University of São Paulo, in 1993. She has completed her MSc in 2006 and PhD in 2010 in Production Engineering from the Polytechnic School of University of São Paulo. She was a Visiting Scholar at the Fudan University – China, in 2019. She belongs to the Production and Operations Management Research Group of Business Administration Department.

Roberto Marx is an Associate Professor at the Polytechnic School, University of São Paulo – USP, Brazil. He holds a Production Engineering degree in the Polytechnic School of University of São Paulo, in 1980. He has completed his MSc in 1987 and PhD in 1996 in Production Engineering from the Polytechnic School of University of São Paulo. He was a Visiting Fellow at the Institute of Development Studies (IDS), University of Sussex, in 1992–1993. He belongs to the TTO Research Group (Work, Technology and Organisation) of Production Engineering Department.

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Automotive industry has been a socially and economically important industrial sector for South America, especially in Brazil and Argentina. As the 21st century unfolds, however, many changes in this industry landscape are taking place:

- Sustainability concerns: Although less evidently and with less force compared to what is observed in Western European countries and Japan, for example, the pressure for sustainable products and services is also growing in South America (Botin Moraes et al., 2021). A fundamental aspect to identify the difference that

exists between these regions is the difference in income between strata of the population: in South America, in general, a large part of the population has low purchasing power, which tends to keep it away from access to some more sustainable transport/locomotion alternatives. A paradoxical fact in this regard is the number of people who, in order to get to commute to work walk long distances to save on bus or metro fares (Vasconcellos, 2018). If the act of walking can be considered the most sustainable means of transport, the use of this alternative being explained by the user's income is still something undesirable from the point of view of social policy and access to paid means of transport, be they whatever. How to reduce inequality (income, and consequently) in access to means of transport, especially those that are more sustainable? This is an immense challenge in most South American countries.

- **Mobility needs and markets change:** For a few years now, new alternatives for transporting people have emerged, such as apps for hailing and or sharing rides or autonomous vehicles. In South America, in general, taxi calling applications have spread extensively, while new business models based on sharing and vehicles based on electric and/or autonomous motorisation have a much slower and uncertain diffusion than which is observed in more developed countries (Mello et al., 2021). This is reflected in the automakers installed in the region, especially in Brazil, which concentrates most of the installed production capacity and engineering competence of the continent. The use of the term *lock-in* is often cited as a risk to the future of industrial operations located in the region. The scenario of closing local plants or their aging over time is already a reality. Given the lack of interest of the headquarters in investing in new models and especially in new technologies such as electric and autonomous motorisation in South American countries, this is something that cannot be minimised when thinking about the future of the mobility industry in the region. How can this situation be reversed? How to re-establish the importance of local engineering in (Marx et al., 2020) these countries and how to combine this effort with the offer of products accessible to consumers and companies in the region?
- **Global value chains in transformation:** The emergence of a new technological paradigm, electric motorisation and the autonomous and connected vehicle tend to substantially change the international division of labour and the design of global supply chains. Replacing internal combustion with electric motorisation will certainly have a deep impact the engine supply chain. Modularisation should be an increasingly present phenomenon in this new chain, since the electric motor is much simpler and easier to design and manufacture compared to the previous paradigm. The production base should change and there is a good chance that plants manufacturing these engines will be relocated to locations closer to large consumer markets or even in central countries that in recent decades have exported such factories to lower-income countries. On the other hand, regarding the development of autonomous cars, much of its current development is carried out by consortia of companies, often called innovation ecosystems, most of them concentrated in China and secondarily in other central countries, where headquarters are located. Such aspects pose more challenges to South American countries, which are usually not historically relevant in the development of new products in this industry.

- Challenges after COVID-19 crisis: The pandemic has brought consequences that have not yet been fully mapped and understood, but we can already point to some reflexes, especially in low-income countries such as those prevailing in South American countries: remote work, health concerns and reduction of the average income of users accompanied by a general increase in prices led to a reduction in the use of public transport. How far this reduction will continue is still difficult to predict. In any case, the models for contracting private bus services by municipalities, the economic viability of public transport such as the subway, known to be dependent on state subsidies, should be very relevant issues in the years to come.

All those challenges are interconnected, and their in-depth understanding is central for the formulation of solutions and public policies aiming to address the specificities of South American countries and improve the quality of life of these populations at the same time as sustainable solutions for the economic-financial point of view can be implemented. This special issue aims to discuss these issues, posing the following questions:

- 1 How could auto industry in South American catch up to the acceleration of electrification of products/digitalisation/automation of processes/supply chains in main markets?
- 2 What would be the role of South American subsidiaries in global value chains? How to maintain/develop local innovative capacity?
- 3 How is the South American auto industry dealing with new business models in mobility?
- 4 How and what public policies could affect innovation, sustainability and social inequality in transport mobility?

We selected five articles, from authors from Brazil and Argentina, to address the aforementioned questions.

de Oliveira Filho et al. discussed public policies for advancement of electromobility in Argentina, Brazil, Chile, and Colombia, stressing the importance of institutional context and territoriality to transition towards sustainable mobility. They identified different pathways in the region, namely:

- 1 the electric bus segment stands out in the regions, concentrating on private initiatives and public policy support, giving rise to new businesses and projects of technological experimentation
- 2 a political glimpse of insertion in the lithium production chain for batteries
- 3 technological dependence of the light vehicles and two wheelers segment.

As electrical mobility advances (even in small-scales), another sustainability challenge is the management of end of life vehicles and batteries. Aiming to support decision makers to understand how to improve the management of end of life ion lithium batteries, Volan et al. brought the article 'End-of-life electric vehicles batteries in Brazil: modelling ways after the first use', where they applied system dynamics approach to understand long-term effects of EV diffusion and batteries disposal.

Antoniali et al. in their paper ‘Artificial intelligence as a determinant for reshaping the automotive industry and urban mobility services’ provided a framework on how public policies incorporating AI and automation in mobility solutions can help design a sustainable and inclusive mobility in a country where efficient public transportation system is still lacking, using Curitiba (Brazil) as case study.

The article ‘Industrial public policies and open innovation in Brazil: proposal of a performance measurement system at Fiat Chrysler Automobiles’, by de Carvalho et al., compiled lessons learned during the application of the Brazilian industrial public policy concluding that the public policy favoured the expansion of open innovation projects in the case of 12 R&D projects conducted on Fiat-Chrysler (FCA).

And finally, Dulcich et al. discussed the transition for electromobility and the challenges and opportunities for Argentina automotive industry. Although Argentina lags behind in the production and diffusion of electric vehicles and has a low deployment of the charging infrastructure, this transition would be an opportunity for the country to reposition itself in the regional automotive value chains, with its growing specialisation in pickups.

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