
Editorial

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The last international colloquium of Gerpisa was organised in Paris (France) and marked the conclusion of the 6th international programme on the structuring of new automotive industries and the restructuring of mature ones. Back when we started it (in 2012), we believed that the whole sector was on the verge of a series of radical transformations (Jullien and Pardi, 2013).

We thought in particular that the fast growth of emerging markets could not follow the same development track of mature ones and would lead to a rapid diffusion of cheaper and smaller vehicles based on electric powertrains and/or other alternative technologies to internal combustion engines. This hypothesis was grounded on several well-established facts: oil prices were high and were expected to keep growing; megacities in these countries appeared to be already confronted with 'unsustainable' levels of pollution and traffic jams; and several ambitious national programmes for the promotion of electric vehicles had been launched in most of these countries.

China was of course prominent in our thinking. Not only because of its \$15 billion plan announced in 2009 to support electric vehicle development, but also due to the

already large diffusion of electric bikes and scooters and the presence of domestic producers ready to start mass production of electric vehicles, such as BYD and Geely (Wang and Kimble, 2010, 2011; Balcet et al., 2012). The other BRIC did not seem ready for a rapid shift towards electric mobility, but they all appeared to be characterised by increasingly specific markets, whose fast growth supported strong national policies aimed at industry upgrading and new products development in line with sustainable development's targets (Marx and Marotti De Mello, 2014).

For all these reasons, we also believed that global carmakers would have to drastically change their way of thinking about emerging markets. Up to the early 2000s, most of the volumes and profits were in mature markets, and new markets in emerging countries were systematically treated as peripheral ones. Typically, new products for these markets were based on old models conceived for mature markets, marginally transformed and 'decontented' in order to reduce costs and take advantage of less stringent safety and environmental regulations.

We expected this dominant 'imperial' approach to internationalisation to be increasingly challenged by new strategies based on product policies and productive organisations dedicated to new markets. Local newcomers were naturally tempted by such product policies as a way to differentiate their models and take advantage of local resources in research, design, development and production. This was clearly the case of Tata in India and its \$2,500 nano model, and we expected companies like Geely and Byd to follow the same path (Wang and Kimble, 2010; Bruche and Wäldchen, 2013). Also, the success of low speed vehicles in China (Wang and Kimble 2012) suggested the emergence of new very specific and dynamic markets structured by local producers. Furthermore, several global carmakers had also started to follow this way. The most striking example was of course Renault, and its Renault/Dacia 'entry' range of products mostly developed and only produced in emerging countries (Jullien et al., 2012). But it was not the only one. Toyota had also launched a low cost model in 2010, the Etios, for the Indian market. Other examples were the GM's low-cost Chevrolet division powered by its Korean Daewoo subsidiary, the GM-SAIC Joint-Ventures Baojun and Wuling focused on dedicated low-cost products, and particularly autonomous subsidiaries such as Fiat do Brazil.

Another reason to anticipate a weakening of the imperial global approach to emergent markets was linked to the other side of our international programme of research: the analysis of the restructuring process triggered by the impact of the 2009/2010 financial crisis on mature economies. Here, markets that were already stagnant before the crisis had fallen dramatically. Most of the global carmakers suffered massive losses and had to be rescued either directly or indirectly (scrapping schemes and other forms of support to demand) by their states. The crisis appeared as structural as far as not only the revenues and profits of the whole sector were affected, but also the very core of the system based on expensive privately owned cars propelled by ICE was called into question by governments and consumers (Jetin, 2015). State aids in all their different forms were clearly aimed at promoting greener cars and smarter new mobilities.

Amongst the many examples of this new dynamic, the most impressive was the French 'Electric plan' launched in 2009, which anticipated a 15% market share for electric cars by 2020 with the 'national champion' Renault in pole-position after its announced range of full-electric cars and commercial vehicles. But also much more reticent players, as the German specialist and generalist carmakers, appeared to be quickly moving towards full-electric cars. The targets set by the 2012 EU's legislation of

130 grams of CO₂ for the average fleet of new cars sold in 2015 and of 95 grams of CO₂ in 2020 clearly required a much larger diffusion of alternative vehicles by all the players.

In the USA, the ‘green deal’ demanded by the Obama administration to rescue GM and Chrysler from bankruptcy also implied a dramatic shift in the nature of products put into the market. The planned 2011–2016 Corporate Average Fuel Economy (CAFE) target of 35.5 miles per gallon by 2016 against an average of 27 in 2009, and also the announced fiscal reforms of gasoline tax system clearly pushed very hard in this direction (Klier and Linn, 2010).

Finally, while traditional carmakers did not seem to have anymore the choice but to introduce at a much faster speed new powertrains and green technologies, in the background, we were starting to witness the entrance of new players coming from services and TIC, developing new solutions for carsharing, carpooling, autonomous cars... and potentially capable of reshaping and taking control of the mobility systems (Donada and Attias, 2015).

At the core of our thinking, there was the hypothesis that the structuring process of new automotive industries in emerging markets and the restructuring process of mature ones were interdependent and would reinforce mutually. For instance, faster introduction of new green technologies and applications in mature markets appeared as a key strategic asset to keep the technological lead in emerging markets whose specific dynamics were becoming more and more central for all the players.

To sum up, we had two exciting scenarios: either the global dominant carmakers would step up in introducing new green technologies by changing their product policies and productive organisations and by cooperating with a whole range of new actors, or these new players amongst batteries’ producers, Chinese and Indian domestic carmakers, electric vehicles makers, service providers, TIC companies... would take the lead in all these new technological fields and markets.

This is what we thought in 2011. Now, five years later clearly neither of these scenarios has come true, and, what is even more important, it looks today as it is much less probable that they will ever do. Not only global traditional players still dominate this industry, but also the most important emerging market – China – has become the Eldorado of conventional and luxury cars. Furthermore, electric cars have taken everywhere the very low road in terms of diffusion and the mobility services revolution is not really taking place and it does not affect the automobile business.

So, what did we get wrong? Were we wrong in timing or were there more fundamental reasons that explain the resilience of the existing ‘unsustainable’ automotive systems?

Of course, nobody expected the oil prices to fall more than 70% since June 2014. In fact, we thought that the prices would keep growing. And this changes many things, because it has taken away one of the most compelling reasons for developing countries like China, which has become in 2016 the world’s biggest crude importer, to reduce their dependence on oil by developing electro mobility. Yet, oil prices were not the only factor at play, and as we have stressed above there were many sounded political and strategic reasons that justified our ‘radical’ scenarios.

The papers presented in this special number of *IJATM* contributes to this intriguing debate by casting some lights on the underlying reasons that explain the gap between what we expected and what has happened in the global automotive industry during the last five years.

Concerning China, Smitka clearly shows that what we expected was that the country would follow the policies set by its central government. What we did not expect was for almost all these policies to fail. What was targeted was the development of a domestic industry, capable of consolidating around few ‘national champions’, of producing the utilitarian ‘people’s car’ in line with sustainable development targets and of exporting. What has emerged is a particularly unconsolidated industry, dominated by foreign brands, producing conventional high-end vehicles with almost no exports. In line with previous contributions to Gerpisa’s special numbers by Lüthje and Tian (2015) and Li (2015), Smitka shows how market and industry forces have played against the central government’s will. What had been underestimated in particular was the capacity of the foreign carmakers to recruit allies within the Chinese administration at regional and national levels as well as the speed of the market growth, which has made the sale of conventional models by JVCs so profitable that almost all alternative paths of development became problematic.

Concerning the restructuring processes in mature countries, Brincks, Klier and Rubenstein provide insights into the resilience of the European ‘national champions’ since the early 1990s up to the present crisis. Their paper shows how VW, Renault, PSA and Fiat have adjusted themselves to the creation of the single market and the challenges represented by Japanese and later on Korean transplants by shifting their production base eastward, taking advantage of the fall of the iron curtain. While these important changes in the European geography of production have triggered significant restructuring processes in most of the home countries of these carmakers, in particular during the recent crisis, they have also largely contributed in reinforcing the competitive position of the European ‘national champions’.

By comparing the aborted diffusion of electric cars in the period 1880–1920 with the current pattern since 1985, Dijk wonders whether the electric car will finally take its revenge upon ICE. He argues that while electric cars can be considered in both periods as niche products contesting the existing regimes, the present configuration differs on at least one key point. At the turn of the previous century, the electric car was in direct competition with ICE cars as a niche product contesting the dominant regime of horse-drawn mobility. This is not anymore the case today and, as the development of full and mild hybrids suggests, the electric car mobility is already in the process of being integrated within the ICE mobility regime. Dijk emphasises though that under these conditions the chances for a regime change are still not favourable because ICE remain the best all-round vehicles available. Yet, he suggests that a public policy driven change towards car sharing, for instance in polluted and congested urban environments, could still trigger a change of regime towards electric mobility.

The analysis by Flamand of the patent portfolio in energy storage solutions (ESS) detained by the main world carmakers confirms that far from being in the ‘Kodak’ position before the digital revolution, most of the incumbent actors of the automotive sector have taken strong proactive positions in this innovation field by comparison with new players producing their own batteries as Tesla and BYD. While important differences exist between carmakers in terms of their involvement in ESS, it appears quite clear that if an electric revolution will take place, incumbent players will be ready to deal with its outcomes.

Finally, the paper by Black and McLennan shifts the focus on what is going to happen next: on the new frontiers of the automotive sector that will be at the forefront of our next international colloquium in Puebla (Mexico – <http://gerpisa.org/node/3137>) and of our

seventh international programme. The focus here is on Sub-Saharan Africa (SSA). Black and McLennan show that SSA has an enormous potential as the next big fast growing market for new cars, but the task appears fraught with difficulties. Two problems appear as particularly complex to solve: first, SSA's markets are today fragmented, and without stronger regional integration there will not be a market big enough to justify investment and production; second, without a strong regulation of the imports of second hand cars it is almost certain that sales of new cars will not take off.

As for the case of China, the fate of European domestic bases or for the prospects of electric mobility, here too the role of public policy and of political leverage will be central in determining what will come next.

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