



The new game of innovation in the world automotive industry: how the structuring of new industries and the restructuring of old ones are changing the rules?

23rd Gerpisa International Colloquium
Paris: 10th of June – 12th of June 2015

Submission of proposals online (<http://gerpisa.org/en/node/2776>).

Deadline extension: Monday 30th March 2015.

The propositions should include the title of the presentation, the name, position, affiliation and email address of the author(s), an abstract between 350 et 450 words showing the context of the study/research question, the research question and hypotheses, the presentation of the research object, and the main results well developed. The colloquium proceedings/booklet will be issued with these abstracts.

In 2012 Gerpisa launched its 6th international research programme on “the structuring of new automobile industries and the restructuring of old ones”. Its main hypothesis was that these two processes were interlinked and would have crucial consequences for the geopolitical balance of the world automotive industry. Since 2012 the work conducted and presented at Gerpisa's annual international colloquiums has confirmed this assumption, but some of the radical changes we expected to take place in product policies (from global models to local heterogeneity) and productive organization (from global platforms to multi-domestic ones) remain to be confirmed. Yet, it is the very organization of innovation activities within the automotive sector that is perhaps undergoing the most radical changes both in its geographical distribution amongst mature and emerging countries, and its division of work between carmakers, OEMs and new players, and between traditional R&D centers within these firms, new R&D subsidiaries and external partners.

This Call for Papers thus asks for submissions that examine if and how these radical changes are taking place. More generally, we will welcome papers that explore how restructuring processes in old automotive industries (TRIAD) and structuring processes in new automotive industries (BRIC and new emergent markets) affect innovation, and how new patterns of innovation alter the overall balance of the global automotive industry. How the challenges coming from new markets, new green regulations and new patterns of mobility, are changing the rules of the innovation game? How the structuring/restructuring process and the greening of automotive industry are redistributing the cards amongst incumbent and challengers? Who (amongst carmakers, OEMs, service providers) and where (amongst TRIAD and emergent countries) is winning the game and why?

In order to explore these questions, 6 specific series of questions are proposed below. We also draw your attention to the special issue of the international journal IJATM that will be based on a selection of the best papers presented during the colloquium, including the winner of the young author's prize (*vii*).

- i) **Automobilisation of societies, new and used car markets, and business opportunities in the industry**
- ii) **New powertrains and new forms of mobilities: global tendencies, politics and markets**
- iii) **Carmakers at a crossroads: new product architectures and new productive organizations?**
- iv) **Fragmentation of supply chains and growth of international transactions**
- v) **Industrial policies in American, Asian, and European automotive industries: regionalisation and innovation**
- vi) **Employment relationships: competencies in transition?**
- vii) **IJATM special issue (GERPISA colloquium) and the young author's prize**

i) Automobilisation of societies, new and used car markets, and business opportunities in the industry

Coordinators

Bruce Belzowski, University of Michigan

Bernard Jullien, GERPISA, ENS Cachan

The 6th international research program of GERPISA aimed, among others, at examining with particular attention the issue of automobile demand in a broad sense along two main hypotheses.

The first hypothesis consisted in saying that, for both structural and political reasons, the automobile demands in emerging markets would be quite specific. If that was the case, then the product policies traditionally developed in the headquarters of big carmakers would not be able to meet these new demands. The traditional ways of internationalization by exportation, adaptation or decontending of car models initially conceived for mature markets would be destabilized and the performance of less global and more multi-domestic organizations might be superior.

The second hypothesis was that in mature markets and in many emerging markets the place of car in mobility systems was questioned and would lead to important technological and organizational innovations. Besides the issue of emissions, that of congestion appeared in 2012 sufficiently universal, so that the new regulation measures and the several "new mobilities" offers might become fundamental drivers of mature markets' restructuration processes, as well as emerging markets' structuration.

Four years later, these hypotheses, which consisted in considering that at these two levels the probability of seeing huge changes was great, seem relatively invalidated: the most profitable carmakers are not necessarily the most innovative, the most dynamic markets in the developed world are not those where new powertrains and/or new mobilities are favoured. Indeed, the Chinese market, which is today the locomotive of the world auto industry, does not force carmakers to develop specific product policies, and to fundamentally reposition cars in the mobility chains.

How work-in-progress and past researches allow us to grasp this gap between the powerful reasons to see fundamental changes taking place and the slowness of the recorded evolutions? How do traditional policies and practices preserve themselves? Which difficulties do innovative practice face in order to become more convincing and important? What kind of organisational barriers encounter carmakers and suppliers when they are engaged in innovative projects or practices? How do public policies succeed (or not) in altering these evolutions?

In order to conclude the 6th programme as well as to prepare the 7th, those are the issues we would like to be addressed in priority in the proposed communications.

ii) New powertrains and new forms of mobilities: global tendencies, politics and markets

Coordinators

Giuseppe Calabrese, IRCrES-CNR

Yveline Lecler, Université de Lyon, Sciences Po

New powertrains and new forms of mobilities have been mainly debated in the last GERPISA conferences with regard to the technological trajectories and the role of the newcomers in the industry on the one hand, and the blurring of the boundaries between public transport and private transport on the other hand. In respect to these approaches, this year we plan to shed light on the new business models designed by incumbents and newcomers. Papers on the respective role of market, which might be covered by each technology, are welcome: electric large and micro vehicles, full and plug-in hybrid vehicles, fuel cell vehicles, LPG and CNG vehicles. A major hurdle regards the electric vehicles massive diffusion and it is significant to understand how companies should design and implement new business models, implying the design of new contractual relationships with all the players and stakeholders. If new mobility patterns entail regime change, papers are welcome on empirical cases and analysis of the services implemented in different countries or cities in relation to strategies of carmakers, of batteries makers etc. but also of other firms involved: car rental or carsharing companies, parking companies, public/collective transport companies (urban train/metro, buses), as intermodal shift is at stake in most cities to avoid traffic jam but also CO₂ emission. The business model related to all these new mobility services is still not clear and of course more analysis on it are necessary.

We also need to describe how and why both trends are linked to the current dynamics in the global automotive industry, how politics are correlated to the recent economic crisis and existing patterns in Japan, Europe, the US, and emerging markets. To which degree do new powertrains – and their use through new “sustainable” mobility services – transform the sector’s structure and institutions, new markets and business practices? How do OEMs react to this challenge? Which patterns of collaboration and innovation emerge? Based on which concepts can we grasp the scope of technological, societal and political transition we are facing? How to evaluate the rise of national and regional support schemes, how do they operate, what explains success or failure? What is the role and impact of public (environmental or transport) politics in shaping the integration of new and old technology?

Eventually, new topics might be addressed. The national legal framework, that is regulations and laws which may favour or on the opposite break the introduction of new

mobility services in cities: depending on the legal framework, services which can be provided will of course differ leading to different strategies and business models. Second, it might be useful to suggest papers taking a demand approach of the market of new powertrains vehicles and new mobility services, including customers/citizens' needs and mobility patterns but also their acceptance to change their behaviour, the incentives that cities and/or companies implement to promote new mobility services. Third, the issue of charging infrastructure that might be linked to public and private investments (public policies, but also carmakers investments or even commercial facilities investment to attract EVs owners, to get an eco-image). It might also be related to energy questions depending on charging resources which are focussed on. Fourth, one key challenge is that an increased number of EVs could put excessive demands on the electric energy balancing or the electric distribution network. The potential interactions between an EV fleet and the electric power grid (Vehicle to Home V2H, or vehicle to Grid, V2G) require technical solutions which involve industries and different market and regulatory environments.

This year's conference is going to look deeper into these issues in a global comparative perspective, and we invite papers that reflect and describe these new developments in the existing automobile system.

iii) Carmakers at a crossroads: new product architectures and new productive organizations?

Coordinators

Bruce Belzowski, University of Michigan

Holger Bungsche, Kwansei Gakuin University

Tommaso Pardi, GERPISA, ENS Cachan

Hua Wang, Kedge Business School

One of the main hypothesis at the core of the 6th international programme was that innovation would become increasingly important for carmakers: 1) to build new competitive advantages by designing product policies dedicated to new markets; 2) to take advantage of new powertrain and information technologies either as a way to sustain dominant positions for incumbent global players or as a way to leapfrog to the front for challenger firms in emerging markets.

These processes were also expected to accelerate the decentralization of the engineering organization of carmakers and to increase the autonomy of these decentralized R&D centres. If in 2015 it is clear that these processes are taking place and that the organization of innovation activities inside and outside the carmakers is rapidly changing, it is still very difficult to characterize the nature of these changes. Are we looking at progressive changes that do not modify the relative position of the main global players and the hegemonic role of their traditional R&D centres? Or do these changes entail a more radical transformation not only in the geography of innovation activities, but also in their organization, content and purpose?

From this perspective we welcome communications that will allow to better differentiate the approaches of each carmaker to emerging markets:

- Do we see the emergence of multi-domestic companies capable of developing more dedicated products and productive organizations?
- How global companies manage the increasing decentralized activity of their engineering organizations?

- Are the relationships between R&D centres and factories around the world changing in order to cope with the faster introduction of new technologies and product architectures?
- Is the upgrading of carmakers subsidiaries in emerging markets changing the nature of their relationship with the traditional R&D cores? Are they becoming more autonomous? If yes, what does this entail in terms of innovation activities? If no, what are the main reasons that prevent subsidiaries from engaging in more sophisticated R&D activities such as product development?

We also welcome papers that will explore the catching up and leapfrog strategies of Chinese and Indian carmakers in terms of innovation capabilities both in product development and production. Papers focusing on the strategic approaches of carmakers to the development of new powertrain technologies in terms of innovation activities and organization will be also very welcome, as those that will explore the emerging issue of new mobilities and big data (car-sharing, optimised intermodal transport, connected vehicles, smart cities and roads, etc.) from such a perspective.

IV) Fragmentation of supply chains and growth of international/regional transactions

Coordinators

Jorge Carrillo, El Colegio de la Frontera Norte

Vincent Frigant, Bordeaux University

Stephane Heim, GERPISA, ENS Cachan

Thomas Klier, Federal Reserve Bank of Chicago

Mario Salerno, Polytechnic School, University of Sao paulo

National supply chains have undergone a process of regionalization/internationalization of transactions in recent years, such that the question of their fragmentations is on the top of the research agenda. In a context of growing competition and greater cost pressures due to the regionalisation of the auto industry, carmakers face the dilemma between on the one side reliance on historical suppliers, and on the other side co-development of newcomers' capabilities. The purchasing strategies of carmakers, as well for the buying of modules, components, parts and raw materials, as for the scale (global/local) of their value chains, greatly determine the development of national value chains. It is then crucial to understand how in America, Asia, and Europe, the value chains evolve over time through the leadership and the policies set by the carmakers. Is there a tendency of regional integration of transactions and national disintegration of production? How do product policies and organisational policies of carmakers interact, and how do these interactions affect the national value chains in mature and emerging countries? The question of regional integration of transactions also deserves to be linked with the strategies of suppliers. There is no need to say that mega-suppliers, such as their carmakers' clients, are largely internationalized in terms of production, innovation and profitability. However, we know little about the innovation and purchasing strategies of these mega-suppliers, and their impacts on national value chains. Their competitive patterns, especially the way they position themselves on a scale of technology/profitability products, might say a lot about the evolution of global value chains. At the other end of the value chain, the SMEs are still important actors of their clients outsourcing policies, as well in terms of number

as production coverage. Facing the regionalization/internationalization strategies launched by their traditional clients in mature industries, SMEs have to develop specific product and manufacturing policies to adapt themselves to the many requirements (technical, costs, fiscal, etc.) in their evolving environments. How do they deal with the dilemma between diversification of clients and products, and exclusive relations with a limited product portfolio? How do newcomers and traditional SMEs penetrate and expand on emerging production market? Eventually, the regionalization of transactions does not only affect the relationships between clients and suppliers on a country-level, but it also raises the question of the political measures to maintain/develop national supply chains and/or regional supply chains. This institutional aspect is central when we consider the national innovation systems thought and deployed to strengthen the supply chain. In national innovation system, suppliers can capture a wide range of resources that can be used by several companies. They can also guide the development of the national supply chains. The question is then to know how do countries react to the movements of carmakers and suppliers.

We welcome papers dealing with these various aspects of supply chain' fragmentation in any country of the world, and in particular with those which can include comparative approach about the internationalization/regionalization of national automotive supply chains which impacts the structuring and restructuring of the industry at local, regional, national or supranational levels.

V) Industrial policies in American, Asian, and European automotive industries: regionalisation and innovation

Coordinators

Evlalia Amygdalaki, GERPISA, ENS Cachan

Bruce Belzowski, University of Michigan

Boleslaw Domanski, Jagiellonian University

Bruno Jetin, Research Institute on Contemporary Southeast Asia

Sigfrio Ramirez, University of Copenhagen

The Great Recession has greatly affected the geographical balance of the global automobile industry. In particular major markets of the supranational trade areas around the Triade (NAFTA, European Union and ASEAN) have experienced a relative stagnation of domestic demand, whereas the BRIC countries have, on the contrary, maintained an increasing demand as part of active industrialisation strategies directed by their home states to preserve a large part of their markets for the auto companies on their soil. Automotive policies have become more salient than ever, with new instruments dealing not just with taxation measures, competition policy or international trade agreements, but also with innovation policies as a logical extension of the research and development public policy tools. In the European Union, the debate about industrial policies has found a new momentum with the automobile sector singled out as a strategic industry. A central concern of these automotive policies is the possibility for the EU to create supranational markets through bilateral preferential agreements like the EU-Japan Free Trade Area or the Transatlantic Trade and Investment Partnership (TTIP). At the same time Japan and the USA are involved in various attempts to integrate markets between both parts of the Pacific including Asian and Latin-American countries.

The industrial policies in the automotive sector appear then more supranational oriented and focused on innovation than ever. In that respect, we might expect that they

have a greater influence on carmakers and suppliers product strategies, employment policies and productive organizations. In terms of impact on product strategies launched by firms, the question is whether and how national and regional innovation policies especially for new powertrain solutions, determine the technological orientations taken by carmakers, suppliers, and newcomers. In China for example, numerous measures were and are taken to tackle the problem of air pollution in cities, measures that do not just raise taxes, but also foster innovations. Yet, though there exist some voluntaristic industrial policies, China does still not appear to be the leading driver of change in the product policies of carmakers and suppliers. We might find numerous other examples like that in America, Europe and other Asian countries. This is the reason one aspect of industrial innovation policies that has to be examined, is their impact on firm strategies.

We welcome papers dealing with these various aspects of automotive policies in any country of the world and in particular with those which can include an historical perspective about how governments at various levels have developed automotive policies and the results of such policies for the structuring and restructuring of the industry at local, regional, national or supranational levels.

VI) Employment relationships: competencies in transition?

Coordinators

Antje Blöcker, Ruhr Universität Bochum

Holger Bungsche, Kwansai Gakuin University

Martin Krzywdzinski, WZB

Tommaso Pardi, GERPISA, ENS Cachan

The restructuring of mature industries and the structuring of new industries in emerging countries are having direct and important consequences on employment relationships across the globe. But rather than witnessing clear encompassing common trends in each country/region, it seems that local labour markets and firms' distinctive human resources strategies keep shaping different patterns in the evolution of employment relationships.

As in previous years, we welcome papers that analyse both the common trends at national/regional levels and the specific patterns of transformation of employment relationships at local/firm specific levels.

A special focus will be made this year on the transformation of employment relationship in innovation activities. It must be said that little attention has been paid so far to the employment relationship in R&D centres and engineering organisations. Yet, there are clear signs that important changes are taking place at this level concerning the content and organization of work and the employment conditions and contracts. For instance, with the recent decentralization of engineering activities, the inter-sites competition that has been shaping for decades the employment relationships in factories starts to be applied to R&D centres. The trend toward more open forms of innovation activities also entail important transformations in the work and employment practices due to the reduction of internal resources and the increasing reliance on external resources to get the job done (cooperation with other firms and universities, joint public financed projects, involvement in clusters and technological platforms, etc.). Such changes not only have important consequences for work practices and conditions which are now coming up in the agenda of social dialogue, but they also entail the

development of new skills and raise therefore important challenges for human resources managers and organizations.

We welcome therefore papers that will take up any of these issues both in traditional core R&D centres and in the new decentralized R&D subsidiaries.

Innovation activities though do not only concern employment relationships in engineering centres, but also in factories. The topic of smart factories, factories of future and factories 4.0 is indeed becoming more and more central to the development of the automotive industry both in mature and emerging countries. It raises many important questions concerning the transformation of work, the upgrading of skills and the impact of new technologies on work practices and employment.

Papers can directly focus on these questions, but can also look from this perspective at the current organization of work and employment in automotive factories: for instance, what are the limits/problems of the current lean factories? Does the relentless search for competitiveness raise efficiency? How the introduction of new technologies in products (new powertrains and vehicles) and processes (new production lines and robots) is dealt at the shopfloor level?

VII) IJATM special issue (GERPISA colloquium) and the young author's prize

The International Journal of Automotive Technology and Management (IJATM) published by Inderscience publishes each year a special issue based on a selection of the most relevant papers presented during the GERPISA yearly colloquium. For the third year, one or two papers from young authors will also be published in this special issue. An evaluation committee, composed of members of the GERPISA's international steering committee, will assess the papers during the colloquium (young authors and others). The criteria of the assessment are based on the relevance of the topic inquired, the presentation and the accuracy of the results, the quality of the methodological work, and the review of the literature. A variety of work in the field of social sciences (history, management, economics, sociology, geography, political science, etc.) dealing with automobile industry is welcome. After the decision of the GERPISA's steering committee, the selected papers will be refereed through a double-blind process, and then published in a special issue of the International Journal of Automotive Technology and Management. We are looking forward to reading your papers and attending your presentations.

The Young Author's Prize of GERPISA, consisting of the publication of the winning paper in a special issue of IJATM and a 1500 € reward, aims at recognizing the work of young researchers on topics related to the automobile industry, encouraging them to develop their enquiries on automobile industry. In 2014, the first prize was attributed to Yoann DEMOLI for his paper "Social Inequalities in the Costs of Automobility in France (1980-2000)".

Requirements to submit a paper proposal for the young author's prize:

1. Master, Ph.D. students, post-doc, etc. (no full-time associate professor, professor or researcher) needs to be less than 37 years old (papers co-authored with a senior researcher will not be assessed);

2. Paper based on the analysis (whether theoretical, methodological, or empirical) of the automobile industry (topics have to cover one of the six themes of the colloquium);
3. Presentation of the paper during the 23rd international colloquium, Paris, 10th of June – 12th of June 2015;
4. Submission online (for one of the 6 above-mentioned themes, specifying that the papers are for the prize), and email (name, date of birth, nationality, status, University, topic, abstract) to Giuseppe Calabrese (g.calabrese@ceris.cnr.it), and Tommaso Pardi (tpardi@gerpisa.ens-cachan.fr) **before the 13th of March 2015.**