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## **Editorial**

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### **1 Introduction**

Electronic business, conceived in its broadest meaning, *i.e.*, along the whole value chain, from early design stage up to aftermarket and eventually dismantling and recycling, from computer-aided design up to online commerce, has been a very 'hot' issue within the automotive system (Banville and Chanaron, 1991) since the mid-1990s. However, since the so-called 'collapse of the new economy' during the later part of 2000, the level and intensity of interest given to e-business by the major 'actors' of the system, *i.e.*, the OEMs and the first-tier global suppliers has reached its peak and is slightly declining since then, at least at an operational level.

Meriau (2002), then director for the e-business program at Renault, stated that the first semester of 2001 has been a period of dramatic shifts in the e-economy, in particular in the automotive industry. He stressed that such adjustments were absolutely necessary, as he joined most experts of the internet industry in pointing out that there was an urgent need to 'professionalise' the e-business community.

Although the initial euphoria of e-business subsided after the collapse of the new economy, the basic fact has not changed that the OEMs and their industrial partners see e-business as a crucial strategic weapon in their permanent quest for competitive advantages. E-business is a formidable tool for all stages of their value chain since the New Information and Communication Technologies (NICT), and in particular the internet, could bring easier, better, faster and more standardised information in the whole system.

Many researchers in industrial economics and management sciences, as well as industry experts and consultants all over the world, are investigating issues related to e-business. Despite such an interest, however, the available academic literature is currently still scarce, possibly due to the extremely rapid evolution of virtual business. Changes in business conditions are extremely rapid, not only in the production side but also in the consumption side. Reflecting this ever-changing nature of e-business, papers about e-business appearing in refereed journals and books are mostly descriptive, exploratory in nature, and often rather speculative, especially in the field of automotive studies. In particular, the aspects of e-business are not uniform but rather quite heterogeneous among countries. Thus, there is an urgent need to put accumulated knowledge of e-business in automotive studies around the world in a coherent way, not only to understand the current movement but also to bridge theories and practices.

This special issue puts together five papers selected from those presented at the second Franco-Japanese conference on e-business in the automotive industry held at Rishho University in Tokyo on October 5–6, 2002. They have been updated and modified

according to the comments and suggestions formulated during the conference, as well as to the usual refereeing process. The conference is a sequel to the first Franco-Japanese conference on e-business held in 2001. The papers selected from those in the first conference are published in the first special issue of the *International Journal of Automobile Technology and Management* on E-Business (Chanaron and Nishimura, 2002).

The conference was truly international. Participants included Thomas Roemer of the USA; Jonathan Brown of UK; Jean-Jacques Chanaron, Raffi Duymedjian, and Patrice Piccardi<sup>1</sup> of France; Wujin Chu and Ki-Chan Kim of Korea; Takahiro Fujimoto, Koichi Shimokawa, Hiromu Shioji, Masataka Morita, Oh, Je-Wheon, and Kiyohiko G. Nishimura of Japan.

Two papers on e-learning were added later on because of their relevance to the theme of this special issue. They have been blind-peer reviewed and modified accordingly.

This special issue also has a special meaning. The University of Tokyo, to which Fujimoto and Nishimura are affiliated, has established the Manufacturing Management Research Centre in April 2004. The new centre is now a focal point of automotive researches. This special issue commemorates the inauguration of the new centre.

## **2 E-business to business**

Ki-Chan Kim, Changsoo Sohn, Thomas Roemer and Ali Yassine present a paper on 'Configuration and coordination of activities within a supply chain, exploring the synergy between modularity and information technology'. Based on the system theory, their research aims at investigating the impact of IT networks on modularisation, a well-known philosophy in automobile design and manufacturing, through activity coordination and configuration. Their central assumption is that the quantity and the quality (reliability, validity and integrity) of exchanged information lead to a more efficient coordination among the actors of the module design process, *i.e.*, the OEMs and the module suppliers.

The authors construct a model and derive structural equations to be tested from data collected through questionnaires sent to Korean first-tier suppliers. They got 177 complete and valid responses. Respondents are suppliers to Hyundai-Kia, GM-Daewoo, SsangYong and Renault-Samsung.

The structural equation tests show acceptable fitness and validity between the variables and the constructs. The paper clearly demonstrates that: firstly, sharing maximum relevant information is crucial in order to set up a modularisation strategy; and secondly, quality is more important than quantity, a truism in e-information. Quality means accuracy, timeliness, consistency and satisfaction of users' need.

The paper of Wujin Chu and Hynsik Kim, 'Online-offline channel conflict: a game-theoretic model with application to the automobile industry' is a natural complement to the paper of Kim, Sohn, Roemer and Yassine. They consider the impacts of the internet on the other side of business-to-business relationship in automobile businesses: distribution channels. As internet infrastructure improves, many firms attempt to distribute their products and services through the online medium. However, these firms cannot dismantle old brick and mortar distribution channels since the majority of consumers still buy from the old channels. Thus, we sometimes have severe conflict between online and offline channels of distribution.

Arguing that internet channels have lower costs than traditional channels, Chu and Kim show that the introduction of internet channels increases profits of the manufacturer. However, it may not be the manufacturer's interest that efficient internet distribution channels should drive traditional channels out of the market altogether. Chu and Kim explain that the manufacturer may use discriminatory wholesale-price policy to keep traditional channels. They also show that this discriminatory price policy may be desirable for the society as a whole: such discriminatory policy may improve social welfare. Thus, their results show the intricacies of the the internet's impact on industrial structure.

### 3 OEMs-customer relationships

This is obviously one of the hottest topics as far as e-commerce is concerned.

Two papers, still at a rather speculative stage of research, deal with the relationships between the car manufacturers and the final customers with particular attention focused on the assumption that the automobile market is shifting from a product-based (hardware) or artifact orientation towards a service-based approach.

Sandrine Ansart and Raffi Duymedjian present a paper on 'What relationship does the French car industry have with its clients? The customer-experience concept applied to the websites of two manufacturers'.

The paper is based on the concept of 'customer experience', *i.e.*, the shift from a purely transactional exchange to a relational one in which the customer buys not only a product to use but also an experience to live. For the OEMS, there is a need to properly manage the relationship with the customer in order to get his/her trust and loyalty. Such management is indeed highly facilitated by the new communication and information technologies and in particular, the internet.

The authors deal with three definitions of experience:

- 1 immediate and nonreferential knowledge such as brand image and pleasure in driving
- 2 mediate, inferred or induced knowledge resulting from acquired sensorial data such as previous use of a particular model
- 3 scientific knowledge through comparative tests.

They apply such vision to the automobile market and identify 12 stages in the customer experience process: being aware, choosing, financing, ordering, insuring, taking possession, learning, using, maintaining, repairing, upgrading, and disposing.

The OEMs should pay attention to the whole process. The analysis of current websites demonstrates that only a few phases are dealt with, namely, choosing, financing and maintaining. All other stages are not yet explored. One of the key conclusive assumptions of the paper is the need to develop these other stages in order to get customer loyalty.

In their article 'Co-production of the car as a service: involving customers in the value chain', Sandrine Ansart, Jean-Jacques Chanaron and Raffi Duymedjian speculate on the assumption that e-business might contribute to a radical change in the OEM-customer relationship and in the traditional vision of the value chain dominated exclusively by industry experts, towards involving the customer in the chain, thanks to the new information and communication technologies. The customers would then contribute to the co-makership philosophy, already put in place between the OEMS and their suppliers.

The key conclusive hypothesis of the paper is the potential use of the internet to 'teach' the customers and to get their full involvement. Such a 'revolution' requires three basic conditions: a common language, mutual trust and a balanced governance of the interaction.

The paper of Masataka Morita and Kiyohiko G. Nishimura, 'Consumer attitudes and automotive transactions: the difference between new-car and used-car markets in Japan' explores the impacts of the internet and other development in information and communication technology on consumers' attitudes in purchasing their cars. They examine whether a tremendous increase in information available to consumers has changed the consumers' way of negotiating prices with car dealers. They also integrate new-car market analysis with used-car ones, since impacts of the internet and other new modes of transactions are much more pronounced in used-car markets than in new-car markets.

Using large-scale sample surveys on automobile users, which are rather rare in this field, they find that many consumers are becoming increasingly sophisticated. There is synergy between internet usage and active information gathering. Consumers who are active in information gathering and terms-of-trade negotiation are able to obtain better prices than those who are not as active. Especially, the internet has a significant impact on these consumers' ability to negotiate in used-car markets, where the internet usage is more prominent.

Morita and Nishimura also get several intriguing results, showing the very complex nature of the effects of information and communication technology development. For example, they find that some consumers negotiate heavily, but in vain, for their new car prices using all the information obtained from various sources, including the internet. However, they neglect the fact that they can get very good terms on their trade-in cars if they negotiate for these trade-in prices with the same intensity. This apparent 'limitation' of their rationality is not only interesting but also important in devising business strategies. Whether this is a transitory phenomenon or not is an important topic of future research.

#### **4 E-learning**

Chanaron's series of two papers on e-learning present an extensive background on evaluation results from an experimental training programme through multimedia and in particular from online courses, dedicated to SMEs supplying the automotive industry in Europe.

## 5 Conclusion

E-business in the automobile industry is still evolving very fast. The development of information and communication technology has changed the outlook of manufacturers, suppliers, dealers and consumers profoundly. Although the initial euphoria is gone, this does not mean that we are back to the old way of doing business. On the contrary, we have already passed the point of no return. Moreover, it is now becoming increasingly clear, as studies of this special issue shows, that the effects of e-business have become more complex and still have many facets to explore. This collection of papers signifies only the beginning of a long list of e-business investigations to come in the automobile industry.

## References

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## Note

- 1 Replacing Sandrine Ansart.