



Where are we going with new generation automation technologies?

Empirical learnings focusing on value creation and human role

29 September 2021

9.30 - 13.15 (France) | 16.30 - 20.15 (Japan)

Online | In English

Registration: <https://forms.gle/bcp6iKGYSW68GXa77>

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Recently, mobility service sector experiences different changes represented by CASE: Connected, Autonomous, Shared, and Electrified. For example, autonomous driving is a representative social implementation of so-called "Artificial Intelligence". Car-sharing service and ride-share service with dynamic pricing are enabled thanks to the diffusion of smartphone. As a result, a new business model like Mobility-as-a-Service (MaaS) platform emerges and this may promote a shift from personally-owned modes of transportation towards mobility provided as a service. A common component across these innovative services is that there is an automation somewhere as a driver of innovation. The introduction of next generation automation technologies is not limited to the mobility service sector since new generation automation technologies can process not-purely-numeric data such as image, human voice, natural language text and biological data.

Big things have small beginnings

The main objective of this workshop is to address the fundamental question of the relation between technology and human. How do Connectivity Technologies* redefine the human role? How do CTs transform the value creation process? Is there any specific necessity in stakeholder management? How can CTs change the competitive environment? By answering these questions, this workshop aims at prefiguring the opportunities and challenges towards technology-oriented business model innovation.

*Connectivity Technologies (CTs) is defined here as a group of technologies that execute data-collection, data-transfer, data-process, data-communication (system to human) and data-projection (software to hardware).

Programme

09.30 | Opening Remarks

Sébastien Lechevalier (FFJ-EHESS), **Jean-Luc di Paola-Galloni** (Valeo), **Haruki Sawamura** (FFJ-EHESS / Ecole Polytechnique)

Session 1: Mobility

Discussant: **Alexandre Faure** (FFJ-EHESS)

09.40 | Diffusion of Connectivity Technology and changes in human role in business organization - Empirical learnings from Japanese mobility service provider

Haruki Sawamura (FFJ-EHESS / Ecole Polytechnique)

10.00 | Democratisation and agility improvement in urban management with ICT: challenges towards Urban as a Service

Tatsuki Yamanami (Scheme verge)

10.20 | The role of local government in solving mobility problems in the periphery by autonomous vehicle

Soichiro Minami (Policy Research Institute for Land Infrastructure and Transport (PRILIT))

10.40 | Autonomous, Connected mobility ideal types, what is the role of human beings?

Marc Alochet (Ecole Polytechnique)

11.00 | Discussion

Session 2: Artificial Intelligence

Discussant: **Haruki Sawamura** (FFJ-EHESS / Ecole Polytechnique)

11.25 | The promises and pitfalls of machine learning for programming languages

Daniel Perez (Imperial College London)

11.45 | Social implementation of AI in the retail domain and natural language processing domain: Business case of ELYZA

Hiroki Matsu-ura (Elyza)

12.05 | The risky quest for standard XAI tools

Véronique Steyer (Ecole Polytechnique), **Louis Vuarin** (Ecole Polytechnique)

12.25 | Art Thinking Incubates Innovation

Koichiro Eto (FFJ-EHESS, National Institute of Advanced Industrial Science and Technology (AIST))

12.45 | Discussion

13.10 | Concluding Remarks

Opening Remarks and Chair (alphabetic order)



Alexandre Faure (FFJ-EHESS, Post-doctoral fellow)

Alexandre Faure is a post-doctoral fellow at the Fondation France-Japon de l'EHESS (FFJ) and as such coordinates its theme 4. He also acts as secretary to the editorial committee of the FFJ publications. Alexandre Faure joined EHESS to study the relationship between political time and urban planning time in various fields (renovation of the Halles de Chambéry, Urban Renovation Plan of La Noue in Bagnolet) and completed his doctoral thesis at the Centre de Recherches Historiques (CRH) under the supervision of Marie-Vic Ozouf-Marignier. Also focused on political and urban time, his thesis aims to explain Parisian metropolisation through a multidisciplinary approach, mixing discourse, studies of urban planning documents and the geopolitics of the actors.



Sébastien Lechevalier (EHESS, Professor and President of the Fondation France-Japon de l'EHESS)

Sébastien Lechevalier is an economist and a professor at the School of Advanced Studies in the Social Sciences, Paris (EHESS). He is specialised in Japanese economy and Asian capitalisms. He is also the founder and president of the Fondation France Japon de l'EHESS (FFJ). He has been a visiting professor at various universities in Japan, including Tokyo University, Kyoto University, Hitotsubashi University, Waseda University and Doshisha University.



Jean-Luc di Paola-Galloni (Valeo Group Corporate, Vice-President)

Jean-Luc di Paola-Galloni became group corporate VP in charge of sustainable development and external affairs at Valeo in 2010. He was previously advisor to the CEO of Gaz de France and has research experience in the field of defense, international relations and strategic affairs since he has been a scholar of Harvard University, École Normale Supérieure and Institut des Hautes Études de Défense Nationale. In 2018, he was elected president of Artemis-IA, the European association representing the embedded systems industry and research actors in the Ecsel Joint Undertaking. Jean Luc's commitment to establish fair relationships between the automotive industry and international bodies, with a multi-stakeholder approach, is also reflected by his engagement as a member of the Corporate Partnership Board (CPB) of the International Transport Forum (ITF), the formal mechanism of the OECD and associated countries' transport ministers to engage with the private sector.

Speakers

(alphabetic order)



Marc Alochét (Ecole Polytechnique, Associated researcher)

Marc Alochét is Associated Researcher at the Management Research Center at Ecole Polytechnique. He holds a PHD in management sciences and has a long career in the industry including more than 30 years with an European global automaker where he held different positions in engineering divisions with production engineering as a strong guideline. In the context of the emergence of CASE and Mobility service, his research interests focus mainly on their systemic effects on the architecture of the automotive industry as well as the transition towards new mobility systems.

Title: Autonomous, Connected mobility ideal types, what is the role of human beings?

The study of three typical use cases of autonomous and connected mobility highlights differentiated relationships between technologies and humans. When technologies improve existing uses or propose new uses to users who already have full control of their end-to-end mobility, they are easily accepted. When the end-to-end mobility of people or goods requires the intervention of an intermediary actor (such as carrying heavy luggage), concierge services at either end of the journey seem necessary.



Koichiro Eto (FFJ-EHESS, Research Fellow, AIST, Senior researcher)

Koichiro Eto is currently a senior researcher at the National Institute of Advanced Industrial Science and Technology (AIST). He got his Ph.D in the Information Science and Technology field at the University of Tokyo in 2010. As a media artist, he created several art works since the 1990s, including the permanent exhibit "A Hands-On Model of the Internet" at the National Museum of Emerging Science and Innovation. He launched NicoNicoGakkai Beta, a large-scale online research platform that connects public citizens and professional researchers (total 650,000 viewers). His research at AIST focuses on constructing services with user participation.

Title: Art Thinking Incubates Innovation

Software is changing the world. Automated driving is a typical example of innovation defined by software, but there are areas where it is difficult to implement. I believe that by thinking about the future through Art Thinking, we should be able to promote its adoption. I have been developing a place to think about new ideas for the future through co-creation with users. I would like to examine how Art Thinking can lead to innovation in the future.



Hiroki Matsu-ura (ELYZA, Business developer)

Hiroki Matsu-ura got a Master of Engineering at Department of Technology Management for Innovation, School of engineering, University of Tokyo. He is a former consultant at Mitsubishi Research Institute (MRI). He also served as an international secretary at ISO TC268. He is currently in charge of business development at ELYZA, developing new implementations of AI technologies to private companies.

Title: Social implementation of AI in the retail domain and natural language processing domain: Business case of ELYZA

This session will present how AI technologies intervene business (human) operations through examples of demand forecasting AI in the retail sector (manufacturers and retailers) and the application of natural language processing (e.g., summarization AI) in different value creation processes. Challenges in business application

of AI and future prospects will also be discussed.



Soichiro Minami (PRILIT, Research officer)

Minami Soichiro is a research officer at the Policy Research Institute for Land, Infrastructure, Transport and Tourism in MLIT. He is also a visiting researcher at Chuo University. He has been an Assistant professor at Chuo University and at the Graduate School of Economics, Kyoto University (until March 2018). His specialty is Public Finance, Environmental Economics and Transportation policy. He has published extensively research articles in interdisciplinary journals on issues related to sustainable transportation.

Title: The role of local government in solving mobility problems in the periphery by autonomous vehicle

Autonomous vehicles are expected to be a means of solving mobility problems in peripheries such as rural areas and small cities. In sparsely populated periphery, there is little demand for passengers and a small working population to act as drivers. Therefore, traditional public transport such as buses and taxis are not profitable and not sustainable. Autonomous vehicles, which do not require drivers, have the potential to provide cheap transport in periphery areas where there are few passengers and drivers, but even mobility services by autonomous vehicle must be unprofitable. The intervention of the public sector, especially the local government, will be necessary for the provision of services and the sharing of costs for new mobility service by autonomous vehicle in the periphery. In this presentation, the role of local governments will be analyzed using the example of self-driving minibus demonstrations in Japan and Europe (Switzerland, France, and Germany).



Daniel Perez (Imperial College London, PhD student)

Daniel is a PhD student at Imperial College London where he is conducting research about blockchain security. Prior to his research about security, he was focusing on machine learning applications to programming language and published papers at the intersection of programming languages, software engineering and machine learning. Daniel has also been working for several years as an NLP engineer where he tackled various challenges of AI and machine learning at scale.

Title: The promises and pitfalls of machine learning for programming languages

In recent years, there has been an increasing amount of research and applications at the intersection of machine learning, programming languages and software engineering. In this talk, we will give an overview of machine learning applications to programming languages, such as bug detection and code generation, and will then explore the limitations and upcoming challenges to come.



Haruki Sawamura (FFJ-EHESS, Research Fellow, Ecole Polytechnique, Doctor)

Haruki Sawamura obtained his PhD at the Management Research Centre of Ecole polytechnique (i-3 CRG, Ecole polytechnique CNRS, Institut Polytechnique de Paris). He was a Valeo research fellow (2019-2020) at Fondation France-Japon (FFJ) de l'Ecole des Hautes Etudes en Sciences Sociales. His doctoral research focuses on how technology-oriented products diffuse in the society through business activities. Taking a start-up company providing new mobility services in Indian cities as a case study, his doctoral research aims at revealing how the level of development of relevant innovation ecosystems influences the evolution of the business model of the focal company. Within the focus of business model innovation and organizational

change management, his recent research as a Valeo fellow addresses the question of the partition of roles between human and automation technologies (such as autonomous vehicles using artificial intelligence for operation). While advanced-automated products are expected to diffuse in the society and more wider range of people in the society (regardless their job, age or aspiration) are to be exposed to automated products, his latest research interest lies on the social implementation of new technology-oriented products through business model innovation taking human factor into consideration. He has the background of engineering: bachelor of Applied Physics at Waseda University and master of engineering at the department of Technology Management for Innovation of the University of Tokyo.

Title: Diffusion of Connectivity Technology and changes in human role in business organization: Empirical learnings from Japanese mobility service provider

Introduction of new technology in business organization modifies its value creation process. Especially, automation technology have potential to optimize the value network while either replacing, modifying or adding human role and responsibility in organizations. The presentations evokes that these changes are not strictly led by technological feasibility but also “human factors” play an important role along with regulation, economic factors and accessibility to required infrastructures. Through five case studies in Japan, some important findings will be demonstrated.



Véronique Steyer (Ecole Polytechnique, Assistant Professor)

Véronique Steyer is an Assistant Professor (Maître de Conférences) at Ecole Polytechnique in the Innovation Management and Entrepreneurship department since September 2016, and researcher at i3-CRG. She holds a Doctorate in Organization Theory from the University of Paris Ouest and a PhD from ESCP Business School. She has been a visiting researcher at the University of Warwick (UK). Her research focuses on sensemaking processes within organizations. She is notably interested in organizational dynamics around AI and responsibility attribution issues.



Louis Vuarin (Ecole Polytechnique, Post-doctoral fellow)

Louis Vuarin has been a post-doctoral fellow in the Innovation Management and Entrepreneurship department of Ecole Polytechnique since December 2020. Former risk manager from 2011 to 2015, he subsequently completed a PhD in Organization studies from ESCP, obtained in 2020. He was also a visiting researcher at SCORE (interdisciplinary research center attached to the University of Stockholm) in 2018. He conducts research on the epistemic fabric of organizations, and for this, analyzes the practices that promote (or inhibit) the production of knowledge, and the generation and the transmission of learning processes, particularly within the strategic innovation processes related to AI.

Title: The risky quest for standard XAI tools

Presentation of Véronique Steyer and Louis Vuarin

Explaining AI is technically complex, but increasingly required by industry and regulators, and is seen by academia as an important dimension of trust in AI and its acceptability within organisations and beyond. To improve this ability to explain AI-powered systems, XAI tools are being developed and standards are emerging. Despite its promising nature, the field has yet to deliver on all its promises: organisations and regulators need to integrate the limits of their explainability potential. Determining the acceptable limits of such incompleteness is an ethical and industrial priority, which requires questioning their current ability to explain, by proactively examining who and what they would answer, the diversity of expectations and expertise of the various audiences they face. From this point of view, the standardisation of XAI tools risks crystallising the modus operandi of this inquiry, by recurrently obscuring the blind spots in the industry that they implicitly embody. Our presentation will therefore focus on the implications of XAI standardisation and how it may impact on the value chain and the roles of the different actors (developers, solution providers, users, regulators).



Tatsuki Yamanami (Scheme Verge's CEO)

Tatsuki Yamanami is a chief executive officer at Scheme Verge, a company working on urban innovations in Tokyo. He is graduated from the Department of Urban Engineering of the Faculty of Engineering of the University of Tokyo. His main research themes are autonomous driving and urban design. He also participated in the ITS World Congress 2019 at Singapore, an event focused on smart mobility and the digitalisation of transportation, as a speaker for the "Transdisciplinary Research on Future Transport System: Town Meeting in a Rural Island of Japan" conference.

Title: Democratisation and agility improvement in urban management with ICT: challenges towards Urban as a Service

The diffusion of mobile applications, cloud services and various smart home appliances enables the collection of data related to people's lifestyles and local business activities. Thanks to the diffusion, these data can now be collected even in areas such as existing urban areas, 2nd/3rd-tier cities, and tourist spots that could not benefit from large-scale smart city investment in the past. However, it is a challenge for most Japanese business players to efficiently capture the needs of new lifestyle and improve their service with these newly available data as they already suffer from the shortage of talented people. They are not able to catch-up with the recent dynamic changes in market needs and as a result, we observe stagnations in urban management that is, in nature, region specific. In order to defuse the situation, a Japanese start-up Scheme Verge develops a platform where more people, including local business providers, can improve customer experience much more efficiently than before with the help of local newly available data. Based on the past and current experiences through Scheme Verge's business activities, the presentation demonstrates the possible "ideal situation" of practical use of local data and discusses how this can lead to develop a new service-oriented urban management: "Urban as a Service".