Abstracts

activities and the parties involved. At a time of "hybrid menaces", the questions related to safety and security are being decompartmentalized, since they entail what amounts to a global security. What tools does resilience offer us? Resilience is systemic: given the many interdependent relations, it must be designed on a global scale. The priority is to identify all risks and time frames, and take account of territorial logistics. This means reinforcing our ability to anticipate and manage. It implies an integrated approach for optimizing transportation that simultaneously takes into account the economic, social, financial and digital aspects of safety and security as well as a form of territorial governance based on a multiparty dialog for anticipating and monitoring current changes and those to come.

27 The digital issues of urban logistics

Laeticia DABLANC

New concepts, new urban logistics companies have emerged over the past decade in Asia, Europe and the United States, and more recently in all urban regions of the world, driven by digital revolutions. This logistics aims to meet the demand of urban companies and consumers for new services, while providing solutions to cities' concerns about the environmental and social impacts of current urban deliveries. However, the rate of effective introduction of innovative logistics in urban areas is slow and varies considerably from one city to another. For cities with efficient urban logistics (such as Tokyo) that integrate logistics facilities in very dense urban areas, or "intelligent" neighborhood logistics such as in the historic centers of European cities – where cleaner and quieter deliveries, mass deliveries, high-level home delivery services and high-tech experiments are emerging, there are still many less central districts and many large cities in the world whose congestion and emissions from freight transport remain at levels that are still much too high. Municipalities, on the other hand, support innovation in urban logistics, but most of it is done through projects that focus mainly on innovative but high-cost demonstrators whose diffusion remains very limited. Above all, cities are seeing the fast train of e-commerce innovations and deliveries pass by without a coordinated response. In France, the draft law on the orientation of mobility will offer cities a more stable legislative framework (on the use of control cameras, for example) which will in fact also concern the mobility of goods.

34 Managing a sustainable supply chain

Anicia JAEGLER

In response to environmental and social problems, it is necessary to design a sustainable supply chain, which will have to be managed so as to minimize its environmental footprint, more widely share development and reduce several risks. This management will have to take account of the whole chain. Upstream, this concerns suppliers and raw materials, and calls for ecodesign and the many tools that exist for assessing sustainability. Consumption and wastes must be limited at the level of production; and buildings, ecodesigned with regard to both energy and ergonomics. The management of people must also be redesigned. Downstream, thought must be given to transportation and products at the end of their life-cycles, but the logistics of all this must be taken into account when products are designed. Solutions exist (or are to be explored) that involve new forms of technology or take account of new societal values.

To finance smart mobility, relations between local authorities and the private sector have to be activated. Three major levers can be used: contracts for public investments, incentives for private investments, and regulations in view of a public-private synergy.

79 Financing sustainable, digital mobility: What model where?

Jean COLDEFY

In France, the anger of the "yellow vests" is but a new symptom of a deep feeling of injustice at a time when fixed costs amount to 61% of the household budget, and nearly 70% for households with a net income of €1300 per month. Most people have no other choice but to use their car to go to work. Not only did the cost of housing in big cities rise threefold over the past twenty years, but also job creations are concentrated in urban agglomerations, while jobs are being destroyed in medium-sized cities. All of this has, over the past forty years, stretched out the distance from home to work. The lack of alternatives to a trip in a single-passenger car for persons on the periphery of urban agglomerations is what causes the saturation of rush-hour traffic on highways. The feeling of not being fairly treated is intense: gasoline price hikes have hit hard low-income residents on the periphery or in rural areas — who, understandably, do not put up with lectures on the environment from people who live where they can use a car less often. A tax is not well accepted if its receipts are not allocated to a purpose, or if no explanation is given about how they will be used. To access zones of employment in urban agglomerations, simple, proven solutions exist that can be rolled out fast. However the question of how to pay for them has not yet been answered. Will the new tools for mobility promised by digital technology provide an answer? How to better connect urban agglomerations with their peripheral areas? As we see, the issues reach far beyond mobility. They have to do with social cohesion and geographical solidarity in a context of a shortage of public funds while the problems related to climate change are becoming more pressing day after day…

MISCELLANY

88 The impact of the EU's copyright directive on the digital economy

Pierre BEYSSAC

The European parliament has adopted the copyright directive, which is now being transposed into French law. Article 17, which requires a filtering of uploaded contents, is controversial. It is supposed to restore a balance in the sharing of income between the giants of the Internet and copyright-holders. However implementing it will be costly and erect an entry barrier for small firms, thus penalizing the whole European ecosystem of digital technology.

93 Artificial intelligence: A review of the 2018 seminar of the Amicale du Corps des Mines

Andréane BOURGES & Colin DUCROTOY

Artificial intelligence offers our economy powerful scientific tools for analyzing and processing a growing volume of data. There are many promising applications, whether for productivity gains or assisted decision-making. They provide us a glimpse at the start of a structural transformation in our society. However this fascinating trend raises questions and arouses apprehensions having to do with society (Should we worry about massive job destruction?), ethics (Who is responsible for an algorithm's decisions?) and sovereignty

(What role for the public administration service and Europe?). A review of these issues and prospects, which were discussed during the 2018 seminar of the Amicale du Corps des Mines…

98 Navigating the fudge and breakthroughs of artificial intelligence in China

Pierre-Étienne GIRARDOT & "Corps des mines" 2018 students

China managed to become a digital superpower able to compete with US companies, contrary to Europe. Protected and pushed by Chinese government, technology giants developed cutting-edge technologies thanks to China leading position in hardware (in the 90s, China became the manufacturing hub for electronics on the planet) and thanks to the impressive ability of Chinese people to adopt new digital products (as for digital payment). A pragmatic mindset about technology, for both population and government, enables faster adoption, by focusing on developing applications first, and dealing with issues only when they arise. Thus, Chinese big players have managed to reach a level of technology close or sometimes better than their American counterparts, especially regarding artificial intelligence (AI). AI actually became a political priority whose applications, from healthcare to smart cities, security or autonomous driving will progressively reshape Chinese citizens' way of life. From the way those companies can manage and have access to data, to the way they deal with trust issues for their algorithms (ethics, transparency, bias and interpretability), what can we learn from this impressive AI development in China?

NB: This paper was written by "Corps des mines" 2018-2019 students, after a learning expedition in Shenzhen, Shanghai and Hangzhou. From visiting tech giants (Alibaba, Tencent, Huawei, PingAn) to getting insights from French companies working on those topics in China (Valeo, Airbus), from going to universities (Shanghai Jiaotong, Zhejiang University) to talking with "smaller" firms (Deep Blue, Sense Time, incubators) or venture capital companies (Cathay innovation), they studied the dynamism and vitality of the prosperous Chinese technology environment.

110 Imagining factories, factories that imagine, the imagined factory

Pierre MUSSO

Production activities in industry are accompanied by stories, images and stage effects, since industry involves a projection, often in the long run, and thus puts imagination as much as science and technology to work. This imagination is so bountiful that it has even produced imagined industries, and has tirelessly spun revolutionary narratives about the past and future. Industry was born in the West out of a crystallization of a technical, scientific fantasy that became for real and has started imagining industries. This fantasy is now producing stories about the future of industry, ranging from "Industry 4.0" to the "industrial Internet", for the purpose of a hyperindustrial development.