



Parcels Full of Tough Nuts to Crack – Key Factors for Cities to Manage New Challenges

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When on New Year's Eve in 2020 the last parcels are going to be delivered to Chinese households, some estimated 50 billion parcels will have been shipped in that year - in China only. Five years before, in 2015, "only" about 20 billion packages were sent around China (China Daily, April 15-21, 2016). The substantial increase in parcel delivery volume would not be surprising at all. In the age of the internet, online transactions are booming that makes it easier for customers to find and buy products that they otherwise would not easily obtain in their neighbourhood. The expanding parcel delivery, however, poses challenges such as energy use, greenhouse gas emission, pollution through emission and treatment of inadequate packaging materials, and not least recycling for a long-term sustainable development model. These challenges are expected to be particularly relevant for cities, where the internet access is generally more easily available to a relatively large size of population with above-average incomes.

The expanding parcel delivery is, however, only one of the potential sources of emerging (environmental) challenges which many cities in

the world are now faced with. More generally, the (re-)industrialisation and urbanisation processes are the main drivers in this regard.

Building a more advanced city development model that helps **transform current city structures towards sustainable cities** to better deal with challenges such as waste and emission, congestion, climate change and pollutions, and increasing resource scarcity would be crucial. In sustainable cities up-to-date and adequate infrastructure, support systems and services are provided to encourage economic development and enhance social well-being in an economically, environmentally, socially and financially more sustainable way. Dealing with these challenges requires systematic thinking and interdisciplinary cooperation from various areas. New available (smart) technologies can play a substantial role in this regard as well.

Against this background of increasing demand for long-term sustainable city development, experts like Ben Chung (Cisco), Catherine Mulligan (Imperial College London), Daiju Narita (Hokkaido University) and Tony Nash (Complete Intelligence) discussed at the third GES Taipei Workshop on April 16, 2016 about how to efficiently deal with emerging challenges that many cities are now facing to become more smart and sustainable. Some key factors to support the development of sustainable and smart cities are as follows:

- Reaching a common understanding from different groups of stakeholders is a key base for developing well-functioning, sustainable and smart cities.
- There is no one-size-fits-all solution. What works well in one city, does not necessarily work well in other cities. Instead of copying policies from other cities directly, related authorities and other stakeholders need to develop strategies that suit city-specific needs.
- It is crucial to have an adequate development plan, in which the vision, the development strategy and the strengths and weaknesses of cities can be well identified and clarified. Such a plan also helps apply advanced and/or smart technologies to build sustainable cities efficiently.

- The time horizon is a key issue as well. Building sustainable and smart cities is a long-term challenge. It requires a long-term and reliable plan that, however, still allows necessary adjustments over time.
- To better evaluate measures implemented and technologies applied, it is important to pay attention to how their economic and societal impact can be appropriately measured.
- Smart technologies can be useful instruments for developing sustainable cities. However, they are only tools but not the final goals of the city development.
- To better unfold the potential effects of smart technologies which help link different activities, supportive systems and different economic agents and stakeholders together, the provision of reliable and useful datasets for analysis is essential. How to use, share and protect (public and/or private) data in a suitable and legal way is a key question that remains to be answered.
- Related regulatory institutions need to be adjusted to the new/emerging needs to ensure that the outdated rules would not impede the development of sustainable cities by using newly available advanced technologies on the one hand and that there are effective up-to-date rules to regulate the new development possibilities on the other hand.

The key factors summarised above can be applied in different areas while dealing with emerging challenges which cities are increasingly faced with. Back to the example of the expanding parcel delivery in the age of the internet: in order to support cities to become more sustainable and smart, city authorities may need to carry out comprehensive analyses of the development of online transactions and delivery industry first, before developing any measures to deal with the challenges.

Related stakeholders such as delivery companies, online platform providers, customer protection organisations, waste and recycling management agencies and researchers from related disciplines etc.

need to be involved adequately while preparing a suitable and reliable long-term plan to deal with this issue. The regulatory framework may need to be adjusted to regulate the use of packaging materials and the disposal of the materials used afterwards.

Advanced technologies may be used to help delivery companies to better manage their delivery routes to avoid inefficient energy use and unnecessary emission. How to improve the communication, joint work and data sharing between online goods providers, delivery companies, customers and waste and recycling management agencies etc. would be a key issue as well. This may help all stakeholders involved obtain key information they need and thus enable more efficient transaction processes, efficient use of resources and efficient waste disposal along the value chain. Last but not least, continuous and adequate evaluation processes are required to better measure and evaluate the economic and societal impact of measures and policies taken in this regard. They help further improve related development plans towards more sustainable and smart cities.

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