

Substitution or Integration between Traditional Public Transport and Platform-Based Forms of Mobility. Implications for Economic Regulation¹

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Following the Covid-19 pandemic, stricter integration between public transport and platform-based forms of mobility may occur in urban contexts. This will imply a spur to digitalisation in the mobility industry with an incisive role of independent regulation, also concerning new ways to finance public service obligations, passengers' rights and pricing.

This paper analyses the implications for regulatory policies at the European level of patterns of competition and/or integration between traditional public transport (PT) and platform-based forms of mobility that are occurring in urban contexts, also considering social and economic effects following the Covid-19 pandemic.

New forms of mobility and PT. Substitutes or complements?

First, a general distinction is made in this paper between conventional PT or mass transit on the one hand and non-fixed routes and unscheduled transport services on the other. In this latter group, traditional services, such as taxis and private hire vehicles, can be distinguished from new Flexible Transport Services (FTSs) based on digital online platforms.

Where services offered by platforms are shared, a distinction is made between vehicle-sharing services and ride-sharing services. The latter can be distinguished (referring to a US taxonomy) into:

- Transportation Network Companies or TNCs (e.g. Uber, Lyft, Kapten) and
- Micro-transit (minibuses with app-based booking operating on fixed routes) and demand responsive transport (DRT) (e.g. Via).

According to recent (pre-pandemic) studies, ridesharing, which accounts for a limited but dynamic share of movement, generally exerts a subtractive impact on PT, although it depends on the 'quality' or effectiveness of the specific urban context considered (Schaller, 2018; Chewlow *et al.*, 2017). TNCs mainly compete with PT, taxis, walking and biking, drawing customers from these non-auto modes based on speed of travel, convenience and comfort. Evidence from Europe is scantier and anecdotal with mixed results (Orb/Uber, 2018).

Specifically regarding DRTs, they prove to be effective complements of public transits to serve very dispersed small to medium-size settlements where PT hubs are too far or when demand is very small either during periods of the day/week/year or in certain areas (Schaller, 2018). Experiences of integrating on-demand services in urban transport are in their early days in European countries, with very (context-specific) positive results (BMVI, 2020; Civitas, 2017).

New forms of mobility and PT after the pandemic

Evidence available for many countries shows a dramatic drop in travel demand, concerning either PT or ridesharing, during the pandemic and lockdown periods. The extent of post-crisis recovery will depend on the many different factors which will be summarised below, which also affect the features of the relationship between PT and FTSs, as related to ongoing structural global trends concerning digitalisation, demographics (population ageing) and societal trends affecting consumer behaviour, global climate change and urban transformations (DFT, 2019; Pankratz *et al.*, 2018).

First, the component of 'systematic' demand for mobility related to commuting may scale down in relation to the re-organisation of work and studying activities, with a reduction and reconversion of productive activities, continuity in the adoption of teleworking by public administrations and private companies generalised to a large number of workers, bachelor and doctoral courses online and, in general terms, a diffusion of remote learning and formation, and increases in part-time work and self-employment. This tendency was already ongoing in many European countries due to structural changes in the economy and in connection with population ageing, considering that commuting presently represents a small proportion (15-30%) of total travel/trips according to recent statistics (DFT, 2020; ISFORT, 2019). As a countervailing trend, recreational and leisure travel has generally increased in the last decade

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in many countries, but its growth may slow down in the post-pandemic phase if population income worsens.

Similarly, people movements for big leisure or business events will be less frequent, while the observed decrease in 'shopping trips' over the past decade is more uncertain, as it is related to online shopping, which may be mitigated by a shortening of global production chains and a return to proximity trade.

If ridership commuting decreases because of the socio-economic changes mentioned above, the average operating cost of PT in urban networks will rise (because of diminishing economies of density) while unit revenue from fares will drop. Moreover, people may be willing to live further from the site of their employers, dispersed across city suburbs in the urban fringes and rural areas (or in Italian *borghi*) once they are adequately connected to the digital broad-band network. In this scenario, mobility needs in non-urban settlements may move to private (small and probably sustainable) cars or micro-mobility, while the need to connect with urban hubs may be satisfied with non-fixed lines or flexible services.

A resurgence of private mobility (including micro-mobility and active on-foot mobility, at least to cover short or last mile distances) and, generally, a more intense use of single-occupancy vehicles are also a very likely result in the post-pandemic picture because of a lasting/enduring mistrust of collective forms of mobility. While pollution effects may be contained, provided non-fossil fuels are used in motorised vehicles, the occupancy of streets and curb sides may require stricter (also economic) regulation to avoid congestion (and lower commercial speed, especially for PT), also considering the infrastructure needed for electric vehicle recharging.

These tendencies undermine the economic rationale and effectiveness of PT as the most cost-efficient option in dense urban areas (at least for its high capacity) with an added pressure on PT budgets, while a potential higher demand for alternative forms of mobility, when they prove to be more competitive than individual cars, may be constrained by their higher price, which may not be affordable by a larger audience of non-affluent users. Given the mixed effects on the demand volumes for FTS, they may not overcome scale issues even in metropolitan contexts, while ridesharing headquarters, especially those operating in the automotive industry, may move towards more focused investments.

Although anecdotal, evidence shows more shared mobility mergers and acquisitions, a general downsizing of

fleets and mass layoffs among their workforces, while some have pivoted to delivering goods, enterprise mobility or even to selling their ride-hailing software to transit agencies. At the same time, ride-hailing companies have offered on-demand services to public transport agencies in Europe and the US, with rising claims that they represent complements to rather than substitutes for PT.

In this perspective, there will be coordination of different urban mobility and infrastructure operators following a necessary reshaping of PT planning, financing and funding. Whether the coordinator will be a PT agency at the municipal or regional/federal level or a private company, either a PT operator or an independent (from the mobility industry) commercial one, will depend on the industry structure of each country and on its institutional framework. Digital competencies to manage data on demand changes and flexible operational and organisational models of organisation (concerning scheduling, shifts, industrial relations, etc.) will be critical resources for assuming such a role, which may lead to Mobility as a Service (MaaS) packages for different trips supported by contactless ticketing systems and forms of payment.

Once established, (MaaS) coordinator identity will have a great influence on the prospects for development and competition in the mobility industry, in terms of the risks of operators, mode of transport discrimination, market closure, underinvestment and equity issues that need to be addressed by regulatory tools.

Policy and regulatory implications

Investing in digitalisation will maintain continuity with the main trends in the industry before the pandemic outbreak.

From a policy perspective, the correct targeting of public financing and funding needs to be considered in terms of resilient technologies and infrastructure, and also considering the identity of MaaS coordinators. A more intense use of digital technologies by transport operators in the management of demand, planning, service production and customer relationships is conceived here as a resilient investment policy able to spur economic recovery and to reduce national public debts once the emergency is overcome.

Investments may rely on the European Recovery Fund (RFF) to the extent that single interventions adopted are included in strategic plans for selected industries with a growth potential, and may turn out to be able to repay their initial cost or to maintain their economic value also

after the emergency phase, promoting a long-lasting process of industry modernisation. Revised guidelines for ‘Sustainable Urban Mobility Plans’ (SUMPs) might be an appropriate policy intervention tool, among others.

A centralised policy also makes easier coordination with other departments, such as that for the environment, because of the negative impact on congestion and pollution by private cars, or economic development, in order to coherently support the value chain of transport, including manufacturers of vehicles at the top of the vertical chain of PT, through targeted charging/incentives for negative/positive externalities. This issue shows the inadequacy of any sector-specific approach (Finger *et al.*, 2020), also considering the need for new sources of financing for PT budgets. Similarly unsuitable is an approach neglecting interdependencies between digital infrastructure and the providers of different modes and types of transport based on common operational standards, which requires a convergence of sectoral regulations.

The new perspective may need a rejuvenation of concepts already common in European regulation of the (land) transport industry (EC Regulation no. 1370/2007; EC Regulation no. 1371/2007; EU Regulation no. 181/2011), in particular concerning public service obligations (PSOs) and passengers’ rights, or just a different use of existing tools, such as concerning the pricing of PT and FTSs, quality of service, consumer protection and the inclusiveness of new platform-based forms of mobility.

Regarding tariffs or charges, consideration of the willingness-to-pay (WTP) of travellers may make them more cost-reflective. Indeed, a single regulated charge for PT in a geographical franchised area might indeed include services which, despite being characterised by PSO, are also used by groups with higher WTP as they have higher income levels and, in some cases, are able to travel at different times to commuters. Therefore, higher rates should be applied to these users or they should be offered different types of travel passes, including differentiated ones, to those provided to commuters.

The amount of data that may be collected through digital devices may also permit WTP parameters to be derived (and data may also be ‘monetised’ in order to finance PSOs). In this respect, even traditional PT will (must) learn to apply more flexible tariff schemes, reflecting either WTP or the degree of congestion of networks and vehicles.

The broader prospect of integration between traditional PT and FTSs also includes the question of whether the latter services should be subject to PSOs coherent with EC regulations. This is a conceptual issue that may be solved

following a sequential process of PSO determination based on the analysis of appropriate (not historical) data on travel demand and the WTP of (potential) customers, which may result in the exclusion of any PSO and/or any financial compensation in a public service contract (PSC) either because market forces provide for an affordable service (for targeted customers who may have a WTP higher than that implied in regulated tariffs in a PSC) or a regime of simple authorisation (including ‘horizontal PSOs’ as in maritime cabotage regulation compliant with EC Regulation no 3577/1992), assisted by consumer rights regulation, may be sufficient. A methodology sequentially describing the process to identify PSOs according to proportionality and efficiency criteria for the use of public resources compliant with EC regulations can be found in ART (2017).

When consumer rights regulation applied to FTSs is not able to ensure the required level of service standards or when FTS operators are not in a condition to comply with the market’s required/expected level of quality or tariffs (demand side), when “considering their own commercial interests” a PSC scheme and related rules on awarding, defined according to non-discriminatory and level-playing-field criteria, may apply.

Another solution, which is probably compatible with EU regulations is direct compensation of transport users. Citizen’s essential mobility needs can be met even outside PSCs through services that do not imply any compensation or assignment of exclusive rights, while a direct user’s compensation may fully replace the direct compensation of the operator or be complementary to it.

The financing arrangement at issue may consist of dedicated vouchers, rebates on payment of the ticket price or a reimbursement of part of the ticket price after purchase, given by the difference between the full cost of service and the preferential charge or season ticket in relation to pre-determined income conditions, non-working conditions or disability. Vouchers work as a discount or reduction of the ticket price which is granted to persons with the necessary requirements as established by the competent authority with respect to the social policy and transport objectives it intends to pursue.

There may be a risk that all or some of the above digital solutions for transport will be not accessible to persons with disabilities, the elderly or low-income individuals.

One way to ensure equity and inclusivity in transport services is to specify minimum requirements (or recommendations) to market (non-PSO) operators. These may be included in general laws or in the act authorising operation of the service (or dispatching it in a MaaS model) and

may range from obligations to offer booking and payment options that do not require smartphones (digital devices) or specific pricing plans for users with low incomes and distributing vehicles more equitably across the area to be served (i.e. a peripheral borough).

Another tool to guarantee the inclusiveness of new platform-based forms of mobility is a specification of minimum requirements to market operators in terms of a package of minimum digital services to be ensured to all consumers in their territories (universal broadband service). Pursuant to art. 84 of (EU) Directive 2018/1972 of 11 December 2018 (Recast) establishing the European Electronic Communications Code, everyone is entitled to have access to an adequate broadband internet service capable of supporting a minimum set of services.

The short review of structural changes in the mobility industry in this paper, also considering effects of the pandemic, has highlighted a scenario of 'convergence' between different types (and modes) of transport. Operational and business models of PT are becoming more flexible and interdependent with digital infrastructure and assets, including travel and traffic data, while related to these digital transformations a sharpening of policy and regulatory tools becomes necessary, which is also being inspired by other network regulated industries.

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