

The challenges of urban mobility regulation and the New Urban Agenda

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1. Urban mobility challenges and the United Nations New Urban Agenda

- Mobility policies and sustainable development as a prominent challenge for cities in the twenty-first century

Urban mobility and metropolitan transportation systems are at the core of the most significant challenges faced by our cities in this first part of the twenty-first century. The general framework derived from the United Nations Sustainable Development Goals and the concrete actions to be taken following the Paris Climate Agreement (adopted within the United Nations Framework Convention on Climate Change, UNFCCC) both outline the importance of reshaping systems of urban mobility as a part of the global policy change required to mitigate greenhouse gas emissions.

Although the dangers of climate change and global warming are of paramount importance, they are not easy to detect in the short term. However, global environmental issues are also closely related to highly visible and enduring problems that have proved difficult to solve through current mobility policies, such as pollution and congestion related to private transportation systems that are dependent on fossil fuels. For instance, the associated costs of urban pollution caused by cars may be difficult to assess with precision (Gössling, Choi, Dekker & Metzler, 2019), even if it is impossible to deny their effects. Furthermore, congestion problems in big cities, aggravated by every continent's trend towards urbanisation, constitute a clear issue that must be negotiated by our transportation systems. Even without detailed information regarding the dangers that may arise due to global warming, it is difficult to ignore the enormous social costs that we face today as a consequence of congestion and pollution.

Considering the growing mobility needs of the world's population both for economic purposes and for a normal social life, action against these outcomes is required. This is the idea at the centre of the United Nations New Urban Agenda. To this end, an array of different elements must be taken into account, including the negative externalities generated by certain transportation modal alternatives. In addition, and notwithstanding environmental concerns, urban mobility policies and urban mobility regulation must allow for accessible, plausible and workable transportation means for citizens regardless of their social and economic status. Consequently, social issues as well as economic considerations should constitute key elements of any modern and aspiring urban mobility policy.

Environmental issues, congestion problems, responses to the necessity of efficient transportation means and ways of solving social inequalities in accessing such services, and essential safety questions represent the basic elements to be

considered by urban transportation regulation. Striking a convenient balance between all of these elements in accordance with the present-day shared understanding that public powers are obligated to fulfil such goals constitutes one of the most prominent challenges that we face today. The New Urban Agenda is the main regulatory framework derived from the United Nations for its promotion.

- The New Urban Agenda and modern urban mobility policies

The New Urban Agenda (NUA), adopted in 2016 by the United Nations General Assembly following the United Nations Conference on Housing and Sustainable Urban Development (Habitat III), is the latest and most advanced regulatory framework response to the pressing challenges posed by urban expansion and its compatibility with sustainable development, including urban transportation. It comes as no surprise that all of the issues and questions that we have already listed are pivotal elements of the proclaimed principal strategy of the document.

It is interesting how the NUA draws attention to the essential value of urban mobility and transportation as a fundamental feature and condition of every city, to be provided by any public powers willing to fulfil its social function, including the social and ecological dimensions (NUA 13.a). The underlying notion, to be developed later at the specific proclamations of the Agenda (NUA 113-117), is quite clear: mobility and transportation are basic to any human settlement, allowing inhabitants to enjoy universal access to drinking water, sanitation, food security, education and air quality, among other needs. As such, they must be guaranteed by public authorities with the same demanding standards. It should also be acknowledged that immediately after this declaration, the importance of transportation and mobility is explicitly linked to social inclusion. NUA 13.f states that public powers have to produce age- and gender-responsible mobility planning, thereby guaranteeing the availability of transportation systems capable of effectively linking people, places, goods, services and economic opportunities and offering every citizen the possibility of conducting a normal social and economic life. The idea that the promotion of equitable and affordable access to sustainable transportation services has to ensure specific needs associated with disadvantaged groups (women, children and youth, older persons and persons with disabilities, migrants, indigenous peoples, local communities and any others in vulnerable situations, see NUA 34; such vulnerable groups are also taken into account in relation to safety in NUA 113) is explicitly reinforced (for instance, for persons with disabilities, see NUA 36; for informal settlements and the poor, see NUA 54). This is also true of concepts of social cohesion and the role that modern and accessible mobility and modern transportation means might play in enhanced productivity and social, economic and territorial cohesion, aligned with safety and environmental sustainability (NUA 50).

Beyond the emphasis on the necessity of adopting and taking advantage of new technologies (a common theme across the New Urban Agenda), the specific strategy in relation to urban mobility fixed by the New Urban Agenda to prescribe the regulation of transportation markets (NUA 66) has three main axes. These set out detailed and concrete obligations to public powers, enshrined in declarations 113 to 118 of the document:

- Obligations related to the necessity of public actions in order to guarantee accessibility to mobility alternatives for everyone (NUA 114), a basic public duty to be assured by local governments. The promotion of a sufficient offer of viable and effective mobility alternatives for everyone, again with special emphasis placed on disadvantaged social groups, is the core concern of the New Urban Agenda declaration. The main idea of the Urban Compact is to reinforce the importance of effective mobility alternatives in facilitating meaningful participation in social and economic activities. In order to do so, public powers, urban planning and policy making should ensure that all citizens enjoy sufficient mobility alternatives and transportation means to conduct their daily activities. These goals require substantial investment in accessible, safe, efficient, affordable and sustainable infrastructure, which should not only consider traditional forms of private mobility (cars, motorbikes), but also other traditional (walking, cycling) and new forms of mobility (sharing mobility alternatives through traditional as well as e-mobility vehicles or gadgets powered by electric engines) that seem to be becoming increasingly common.
- Achieving these goals requires the active and direct involvement of local governments, the target recipients of the New Urban Agenda. They may require investments in the building and operating of massive public transportation systems, which are essential to satisfying not only the sustainability, congestion and environmental goals, but also the social and equality concerns. Large-scale public transport would facilitate a significant reduction in energy consumption and pollution relative to private alternatives such as cars. Moreover, this is an essential element of a consistent urban mobility policy that transcends strict mobility goals to affect urban planning: a transportation network that prevents or at least discourages urban sprawl and reinforces key mobility nodes represents a key planning instrument that can organise land uses in a more sustainable way. Furthermore, these mobility alternatives are essential for citizens with no access to private transportation alternatives, rendering them fundamental for equitable transit-oriented development.

Following this principle, NUA 115 highlights the importance of developing mechanisms at every level (national, subnational and local) to evaluate the wider benefits of such urban and metropolitan public transportation schemes. A comprehensive assessment should include impacts on the environment, economy, social cohesion, quality of life, accessibility, road safety, public health and action on climate change, among other goals. Moreover, the NUA clearly states that urban powers must work with national and subnational levels of government in order to comply with these ideas (NUA 117). Consequently, it illustrates the necessity of state investment to improve transport and mobility infrastructure and systems, such as mass rapid transit, integrated transport, air and rail, and safe and adequate pedestrian and cycling infrastructure and technology-based innovations in transport and transit (NUA 118).

- Safety obligations and guidelines (NUA 113). As will be explained later, road safety is a key element of any sustainable mobility policy planning or design. In fact, the effective protection of users is a cornerstone of every viable public policy promoting pedestrian and cycling mobility. The concern underpinning this policy guideline is completely plausible: the number of victims has soared in recent years, particularly in developing countries. A severe lack of safety and the non-existence of adequate infrastructure leaves pedestrians and cyclists with no option but to share the roads with private cars, significantly reducing the use of these sustainable mobility alternatives and resulting in more pollution, less mobility for groups that have no other option, and general health issues. Some groups, including children, youths, women and girls, older citizens and persons with disabilities are particularly affected by the shortage of safe infrastructure. Therefore, safety questions are not only related to sustainability, environmental issues and the availability of mobility choices, but also have a prospective social dimension.

- Encouragement to work with private agents in order to benefit from technological improvements and to ensure efficient means of private transportation procurement (NUA 116). For the New Urban Agenda, the functions of public powers are not confined to the organisation of public transportation means, but also to the coordinated regulation of any private offer in transportation markets. In some cases this is manifested in mobility alternatives offered directly by private agents, whereas in others it may be on behalf of public administrations as part of the general public transportation system. In still other cases, local authorities will simply exercise the regulatory responsibility of public powers over areas that are clearly within their jurisdiction. Indeed, local governments play a key role in deciding how to regulate the use of public space, for instance when occupation is required to offer transportation services, as it is the case with sharing platforms that offer new forms of urban transportation in numerous cities. This regulation has to be carried out within the general framework derived from the planning of all mobility alternatives and the public transportation system as a whole. As a result, it is necessary to ascertain how new mobility alternatives may affect mass public transportation, the possible congestion of scarce public space in city centres or urban agglomerations with important population density, and their respective environmental impacts.

The objectives set by the New Urban Agenda thus pose important challenges to the traditional regulation of urban mobility in our cities. Regardless of the region of the world in question and its level of development, the goals established by the Agenda expose the importance of improving urban mobility regulation. Therefore, some traditional regulatory approaches need to be modified or intensified, which is potentially difficult in certain cases. In addition, and complicating the matter further – as well as being more interesting from an academic perspective – the disruptive emergence of new agents and market niches related to urban transportation (such as digital sharing platforms) and new forms of mobility (such

as electric mobility) will force certain new solutions to be adopted sooner rather than later.

2. The reinforcement of some traditional regulatory instruments

Most of the provisions contained within the United Nations New Urban Agenda that pertain to urban mobility affect environmental regulations and policy decisions regarding public transportation systems that are not new. The general design of these legal instruments is therefore not about to change in a substantive way, but rather will develop and become reinforced.

On the one hand, we must revise and reinvigorate all current measures against pollution and congestion. These constitute legal tools whose effects and limitations are well known. It is not particularly difficult to name a complete list of approaches and examples that are commonplace in many countries and that have varying degrees of intensity: the prohibition on entering city centres with private vehicles, congestion charges such as in London, Pigouvian taxes aimed at limiting or disincentivising the use of private cars; the promotion of non-fossil fuel-driven vehicles; and transit regulations that seek to reduce the number of cars entering cities, including the complete ban on diesel cars in certain urban areas in Germany. These measures have often been introduced following lengthy legal battles, some of them still in progress.

On the other hand, modern and sustainable urban mobility policy making must address and finance infrastructure improvements while attending to at least three distinct but interconnected objectives: the enhancement of safety measures with the goals that we have already established; the implementation of viable infrastructure possibilities that encourage walking and cycling, thus enabling mobility alternatives; and the renewal of city planning, such as to reshape or even avoid models that encourage urban sprawl, thereby reducing the role of large-scale transportation in most citizens' day-to-day lives. Finally, and closely related to planning and infrastructure policy choices and investment priorities, policy makers must reinforce and ameliorate mass transportation systems, as this can reduce pollution and stimulate social goals. As should be clear, urban and infrastructure planning and the design of mass public transportation systems are always closely related in policy.

The challenges involved may differ across cases, but they are not particularly complicated from a legal perspective as long as the basis of the regulation and legal framework that is required to implement them is already in place, and the enforcement and possible effects have been considered. A completely different issue is whether raising the required money would be an easy task or not, as citizens may prefer that their taxes are spent on other social demands and hence it may be ineluctable in some cases to overcome some degree of reluctance. From this point of view, the political reinforcement that the United Nations New Agenda implies must not be downplayed.

Therefore, the different regulatory and policy tools that should be used to implement the New Urban Agenda must be comprehensively assessed regarding their actual effects and costs. Furthermore, in order to produce a comprehensive and effective urban mobility policy, a local government must use as many of them as possible within a coherent strategy. We cannot detail here how this may be achieved and the problems that might emerge, but in order to provide a *de minima* list that can be used as a very broad and general guide of possible solutions, it may be useful to summarise the main traditional instruments that are already in use and explain the new developments and how they are aligned with the New Urban Agenda:

- *Environmental and pollution threshold values and restrictions on the use of private vehicles*

One traditional and already tested approach is to establish environmental and pollution threshold values for fossil fuel-driven vehicles, as well as different kinds of fiscal and regulatory incentives to foster the transition to other forms of mobility, such as electric cars. Notwithstanding the fact that the areas most concerned with pollution are urban areas, such a regulation is commonly settled at a broader scale owing to market and competition issues. For instance, even if the Paris Climate Agreement adopted within the United Nations Framework Convention on Climate Change and the New Urban Agenda (NUA, 34, 116) both clearly seek to establish threshold values for fossil fuel-driven vehicles, as well as the fact that the EU Transportation Market Regulation 1370/2007 permits the imposition of such limits, the logic behind the system is that these restrictions need to be established in a way that enables the normal trade of goods and products (i.e. cars and other vehicles) within the internal and common market, for instance in Europe. Therefore, these restrictions are typically settled by higher bodies, such as at the European or member state level. In fact, art. 17 of the Charter of Fundamental Rights of the European Union (EU), which recognises the right to property, also states that “the use of property may be regulated by law in so far as it is necessary for the protection of the general interest”. In this way, a regulation that is clearly and proportionally linked to the protection of an indisputable general interest (such as environment protection and the safeguarding of air quality in urban areas) would be possible even if it restricts the possibilities of using private vehicles in certain cases.

As an additional legal tool, recent evolutions in the field have allowed partial bans in the use of some kinds of vehicles in certain highly specific cases, if we can consider that such restrictions do not affect the normal use of goods or products – in this case, private fossil fuel-driven vehicles – and their “tradability”. Here, urban areas can establish further restrictions and even complete bans on some kinds of vehicles. The rationale is that as urban areas become more exposed to the dangers of congestion and pollution, especially in city centres, it is admissible to restrict the use of the most impactful vehicles. Almost every major city in the Western world now has protocols enabling certain vehicles to be banned when pollution spikes and air quality drops.

Recent enhanced regulatory frameworks to protect the environment and reduce pollution render the task of urban regulators easier and afford them greater opportunities to introduce new limitations and even temporary or specific bans. For instance, the EU Air Quality Directive limits the possibility of European member states legislating against these bans when determined by the legitimate local authorities with respect to proportionality principles. In the same direction, EUCJ Case T-339/16 12 2018, *Ville de Paris & Ville de Bruxelles & Madrid vs. EU Commission* also accepts the possibility of Low Emission Zones, but only for older vehicles, as these restrictions may not be applicable to newer vehicles that comply with state-of-the-art standards settled by the European Commission in order to ensure the “tradability” of the products (i.e. vehicles) concerned. As a general rule, the greater the degree of harmonisation at higher levels, for instance the more requirements we have from European institutions, the less room exists for cities to manoeuvre. Nevertheless, this flexibility still exists to some extent. It is possible, for instance, to establish further restrictions in uses –or at least in some uses-, even though only if and when it is proportionate and does not imply or is similar in its effects to a full ban on the use on the product, because that would be equivalent to an exclusion from the market, which is not possible nor compatible with market freedom when the product is within the standards that allow it to be tradable. As a recent example, the Low Emission Zone in Brussels was backed by the Belgian Constitutional Court in a decision of 28 February 2019, considering the fact that there was no problem with the right to property, which should not in any way impair the right of a state to enforce such laws where there is a general interest.

More controversial has been the complete ban (i.e. not on temporary basis during a pollution peak) on some forms of mobility in large urban areas, especially on old diesel vehicles. Indeed, such bans have already been approved by some German cities, affecting vehicles that are theoretically within current international trade agreements and EU and national regulatory thresholds. It is important to recognise that some have been adopted due to judicial decisions after some citizens asked for remedies to high levels of pollution. Although the controversy remains ongoing, judicial authorities are accepting such remedies when proportional and restricted to urban areas, even if in some cases the final implementation of the bans have been delayed. Other cases, like the prohibition recently announced in Amsterdam, are similar, and there exist numerous other examples across Europe, albeit generally delayed until 2030 to 2040. Nevertheless, in most big cities the final ban on diesel cars and other forms of highly pollutant mobility alternatives will follow legislative decisions taken at the national level. The room cities have to manoeuvre is thus limited to exceptional occurrences, such as the drawing up of specific areas that may allow for more restrictions within the proportionate use of their capacities.

- Congestion charges and other forms of “disincentives” such as Pigouvian taxes

The recent evolutions in the legal frameworks of most countries has led to the introduction of a range of approaches on how to incentive sustainable forms of transportation, or alternatively disincentivising less desirable counterparts. Fiscal incentives, subsidies, tax deductions and other kinds of incentives are now common in almost all modern legal systems. Pigouvian taxes are typical, rendering

the use of fossil fuel-driven private vehicles more expensive and less efficient (Javid, Nejat & Hayhoe, 2014). These measures may be introduced and enforced in different ways, albeit generally by national rather than urban authorities. There is also room for additional measures to be taken by local governments. Thus, not only taxes but also the pricing of some city services may take each means of transportation's sustainability into account. Across various countries, experiences in this regard are quite common: the establishment of Pigouvian taxes is a customarily used promotion tool, typically alongside direct incentives to electric vehicles in the form of tax deductions and other incentives such as free parking in restricted areas or the possibility of entering parts of the city from which traditional vehicles are banned.

From the same perspective, one of the most interesting developments in recent years has been the implementation of congestion charges in a growing number of major cities, following the example of London in 2003 (rendered possible by the Greater London Authority Act 1999 and the Greater London Congestion Charging Order of 2001). After almost two decades of experience, we are aware of the measure's main effects on the environment and congestion. For instance, we know that the London congestion charge has been an indisputable success, as demonstrated by the fact that it has been extended to cover a greater area, the charge has increased, and the policy seems highly unlikely to be reversed. Further evidence is the fact that a growing number of cities are copying the scheme: most notably Stockholm introduced a similar system in 2007 and extended it in 2016, while Milan established an 18-month pilot programme in 2012 and made it permanent in 2013. Other schemes have been tested in American and Asian cities, including Singapore and Hong Kong. Proposals were also made in cities such as Edinburgh (2002) and New York City (2007), but were rejected amidst political turmoil and media opposition. These cases arguably came too early, but the idea has since gained traction, with Beijing officials announcing a project to establish congestion charges from 2020, while a new congestion pricing proposal is currently under discussion in San Francisco, and New York has just this year approved its own plan to be implemented in 2021. It is hence difficult to deny that congestion charges are becoming increasingly prevalent across the world. They are one of the most important tools in the hands of local powers to control congestion, reduce pollution, raise money to be used to improve public mass transportation systems and ultimately work towards the goals established in the United Nations New Urban Agenda (NUA, 34, 54, 115, 117) in the field of sustainable mobility.

Two decades of London's congestion charge also afford us a better understanding of the functioning and basic effects of such measures. For instance, based on the London experience we know that such charges are far more effective at lowering levels of congestion or stimulating the transition to public transportation (alongside other vehicles that are allowed to enter the city centre without paying the established toll, such as electric vehicles, motorcycles and taxis) than collecting revenue to be invested in improving public mass transportation systems (Fehling, 2014). Similar results have been attained in other cities across the world.

We also know that few legal controversies have emerged when implementing congestion charge systems. In some cases, including London, a series of legal

challenges were made to the entire scheme or simply particular aspects. For instance, some residents in the Westminster neighbourhood challenged the limits of the restricted area, but the final judicial decision allowed city planners to establish restricted areas within the scope of their discretionary powers as long as they were reasonable, proportional and justified within the procedure (Fehling, 2014). No affection to property – in this case to land property – under the protection of European and international treaties regarding the right to property is considered as long as the regulation strikes a fair balance and allows for effective enjoyment of the property. A different issue is whether a city can establish such a scheme by itself, as long as the various legal systems demand a legislative provision to limit fundamental rights in such a way. This was the case in London, but has also proved the typical conclusion in European law traditions (Fehling, 2014). In such cases, jurisdiction issues may complicate the establishment of a congestion charge through requiring cooperation between local authorities and regional or state legislative powers. Nevertheless, this requirement is not an insurmountable hurdle, as previous experiences show. It is simply another example of the importance of metropolitan and regional coordination in urban mobility policies.

- Urban planning and decisions regarding the use of public space within cities. Infrastructure policies to guarantee safety and the effective choice of clean mobility alternatives

Another relevant issue, which is fundamental to developing most of the strategic approaches of the New Urban Agenda (NUA, 98, 117, 118) and in this case the clear and complete jurisdiction of local authorities, pertains to decisions regarding the use of a resource, limited by definition, as urban public space. A number of users claim the right to have it at their disposal, especially in city centres and nearby. A number of social and economic activities beyond mobility necessities also compete for urban public space. However, the most pervasive conflict pertains to space for urban public transportation systems, pedestrian mobility and private mobility in their very diverse forms. From an empirical approach it is impossible to establish a general theory discerning the appropriate distribution of public space, due to the very diversity of cities in terms of size, population density, urban structure, levels of economic development, quantity of cars and so forth (Nello-Deakin, 2019). Even when focusing the analysis on a specific city, it is difficult to determine a fair balance from a theoretical perspective: social values and political preferences may differ contingent on the characteristics of each city and society. This is the main reason why these decisions tend to be anchored at the local level, regardless of the country in question (Boix Palop, 2014). As long as different strategies are viable and these political choices are inherently local, decisions are to be made by local governments.

Nevertheless, it is also possible to assess the impact of different strategies, as well as to collect the results of previous experiences. This is why we know that some strategies are, in general terms, more in accordance with the general prescriptions of the New Urban Agenda than others. For instance, as a rule, the distribution of public space has traditionally been excessively deferential to private mobility by fossil fuel-driven cars, allocating far more space to them than to public

transportation, pedestrian areas or secured infrastructure to be used by other more fragile (and more sustainable) vehicles such as bicycles and electric mobility devices. We already know that this allocation of public space tends to promote private mobility through the car at pedestrians' expense to an unsustainable extent. Most public policies derived from the new paradigm are established in the New Urban Agenda (NUA, 34, 36, 50, 113, 114) and hence require a significant reduction of space for private cars: city centres should be steadily recovered for pedestrian use and mass transportation systems must claim all the space they require in order to be efficient. Little by little, as steps in this direction are undertaken in a number of cities, we can verify their effects on citizens' behaviour and pollution reduction as well as their benefits for the environment and public transport alike. These decisions can of course be reinforced (particularly in big cities) by other measures like Pigouvian environmental taxes and congestion charges as already discussed.

It is important not to lose sight of the empirical evidence on the importance of safe infrastructure for pedestrians and other forms of mobility, such as cycling. Investing money in creating a broad and efficient segregated network of bicycle lanes or ameliorating pedestrians' safety and comfort dramatically increases their use. The New Urban Agenda (NUA, 114, 121) highlights the necessity of offering mobility alternatives to groups such as women, older people and disabled persons. Evidence shows that in order to accomplish this goal, bold decisions regarding the re-allocation of public space need to be made, alongside generous funding for the infrastructure required.

A final consideration is that the allocation of urban space play a significant role in important decisions pertaining to new forms of private shared mobility. As we will see, congestion issues may arise following the success of shared mobility schemes and the digital platforms that render them easier and more efficient. If such renewed efficiency increases the use of certain forms of private mobility, congestion may increase, thus making convenient a reallocation of public space that impeaches this outcome. A number of alternatives is possible, from establishing restrictions in the urban areas most affected by the problem, to pricing their use where such services require a specific and intensive use of public streets, as it is generally the case. Again, such decisions are typically locally rooted (Doménech Pascual, 2017).

These strategies generally need to be combined to form a holistic and coherent package in terms of the use of urban space, with decisions at the urban level made by local authorities. It is essential that local and regional governments view public transportation and public services as pivotal elements of this general strategy, blending demanding regulatory tools for private transportation with ambitious public infrastructure and mass transportation system funding and planning mechanisms.

-Mass public transportation system improvements and the role of public services

Decisions regarding mass public transportation improvements and the evolution of public services' traditional role in the provision of mobility alternatives for

urban areas are impossible to neglect. As the New Urban Agenda (NUA 13, 34, 36, 118) shows, this may prove the most important and challenging duty owing to the substantial financial effort required. Traditionally, public transport has been provided by local and regional governments, depending on the scale of urban areas. In many cities and countries, mass transportation systems are complemented by some public organisation of traditional mobility services provided by private actors such as taxi services. It is also possible for public transportation systems to be operated by private agents rather than public institutions. Eventually it will be also possible to offer public funding to private operators in order to achieve public service goals, as the EU legislation (for instance) clearly allows.

The New Urban Agenda does not alter the current paradigm regarding mass public transportation systems or taxi regulations. It merely states the necessity of investing and improving the system, offering better mobility alternatives to citizens and vulnerable groups and setting out a path towards the progressive decarbonisation of mass transportation systems. How this might be achieved is not a pressing legal issue: legal regulations and local government responsibilities do not differ from traditional counterparts. Pollution reduction, energy efficiency and decarbonisation as well as basic strategic decisions regarding the kind of public transportation systems to be implemented or improved in each case are dependant on financial and technical considerations rather than legal challenges.

However, local government decisions pertaining to public transport may be affected by legal considerations in some cases. For instance, owing to the fact that legal instruments such as the New Urban Agenda (NUA 36, 118) state the necessity of improving public mobility alternatives available to all, we can detect a legal mandate that enables some restrictions on private mobility alternatives if public mass transportation systems cannibalisation happens to the point of putting them at risk. Some recent studies have noted this issue in urban areas, and especially in sprawling cities, although results remain inconclusive for the moment. In any case, legal instruments inspired by the New Urban Agenda clearly render it possible to take these elements into consideration when regulating the provision of alternative private mobility services. Even if such a regulation leads to some restrictions, that would be compatible, also, with the Transportation Regulation or the Services Directive within the European Union: both of them allow restrictions to be established in pursuing or protection goals of general interest, as it may be considered without any doubt the protection of mass public transportation systems.

One final point to consider in relation to public transportation regulation comprises the changes that are to result from market and technological evolution. Public service regulations and responsibilities, typically organised to ensure a certain level of quality and the continuity of the service, as well as to protect users and ensure their equality, may exist in the public transportation systems directly offered by local or regional authorities. No substantial changes are to be expected in the legal framework, according to the traditions and legal system of each country. Over and above, things are to be different with the traditional regulation of the second classic pillar of public transportation offered to the general public (or heavily regulated transportation systems): taxis and their equivalents. Such

transportation systems have traditionally been seen by local governments as part of the public transportation on offer. Public regulations have been established to guarantee more or less identical public service essential goals: service continuity and quality, consumer protection and equality of users. Indeed, it was traditionally thought that transportation markets, and especially urban transportation markets, had such significant information asymmetries that they would create major market failures. Such regulations are those most significantly challenged by technological change and economic innovation in transportation markets. Shared mobility and digital platforms blur the boundaries between what may be considered a public service and the simple offer of mobility private services. In sum, this may render redundant a regulation aimed at preventing theoretical market failures that may not pose problems anymore because of the impact of new technologies and the reduction in transaction. Therefore, the most interesting dynamic in urban transportation regulations will pertain to the necessity of creating a coherent, fair and efficient legal framework for such services and its implications for traditional taxi services, which are fundamental to mobility in many urban areas of the world.

3. Where the traditional public provision approach blends with the increasing and pervasive importance of local governments' regulatory powers: the challenges of regulating new private "shared transportation" systems and how this may affect public services

Every improvement analysed here has a clear relationship with the main guidelines of the New Urban Agenda (NUA 66). Of the list of new policy guidelines and trends explored so far, none poses a significant constraint or challenges the traditional approach to urban mobility made by local governments in previous decades, regardless of actual and diverse political preferences. We can either embrace public service schemes or favour a more liberalised alternative, but ultimately all of these policies may prove compatible with both approaches, differing only in their respective intensity and the final balance achieved. In the end, when we put all of the elements considered with new trends and the New Urban Agenda, we can see the reinforcement of traditional regulatory tools, promoting better services and mass public transportation systems (which may be suboptimal and in urgent need of improvement, but that do at least exist), and increasingly stringent requirements for private vehicles that merely sharpen the fundamental basis of the traditional regulatory approach. From this perspective, the list that we have already analysed is the easiest part of the challenges we face.

Certainly, major disruptions in how we organise private transportation – and not only within urban areas – may pose a very different kind of challenge. The so-called "sharing economy" has already created a major disruption in many markets, as is also true in the provision of private transportation services. Two efficiency gains are of particular importance in our case, as they affect the decisions made by local governments regarding whether to promote public transportation systems or enable private alternatives instead: increased economic efficiency, and better environmental efficiency. The latter may be a mere output of today's better technologies or a consequence of reducing the waste and idle capacity produced by the more intensive use of each vehicle, due to the fact that a shared car will be used more than a (traditional) private one. Sharing is especially effective because the

more complete a network, the better it will optimise idle capacity (Parker, Marshall, Van Alstyne & Choudary: 2016). Another effect of the emergence and success of such services is the pivotal importance of a new actor: digital platforms that are in charge of the enhanced brokerage behind the success of “shared transportation” systems, whether ride-sharing services such as Uber and Lyft or car-sharing platforms such as Blablacar. This new actor threatens or at least blurs the traditional hegemonic position of public powers when providing efficient and affordable transportation services to a fair amount of citizens. Public powers must accept and understand this fact, rather than seeking to hinder a process that has more benefits than disadvantages. It may be difficult to do this properly, not only because we do not yet have all of the data and knowledge we require to assess every possible effect of these new possibilities, but also because the threat to the dominant position of public powers entailed in the emergence of digital platforms as significant actors may tease local governments, causing them to overreact in some cases.

In order to understand the new challenges posed by this disruption, we must try to explain how these digital brokers work and identify the unavoidable effects and by-products of this business model. This will allow us to establish proportionate limits to their activities, extracting all of the gains in efficiency that may be achieved while avoiding any further damage to the environment, protecting urban areas (and especially city centres) and circumventing the risk of cannibalisation of public transport, which may jeopardise the critical mass required.

- Sharing economy and platform brokerage: how they work and why they may alter trade-offs and balances

Much has already been said about the so-called *sharing economy*. Beyond enthusiasm and rhetoric, which are both fairly common around the subject (and not always free from subjective interests or biases), we may be in a better position to understand the fundamental changes produced by such economic exchange by looking at their implications from a legal and competitive perspective. Thus, we can define the sharing economy in very broad and general terms: as transactions that take profit from pre-existing resources that were not being used to the maximum degree owing to inherent difficulties in matching capacity (supply) and necessities (demand). Some of these difficulties have been sorted out by new technological developments that have enhanced the access of both sides to any transaction to all the information available about possible counterparties through digital intermediation platforms (Parker, Marshall, Van Alstyne & Choudary, 2016). The implications for urban mobility markets are clear. On the one hand, technology is now able to prevent some of the traditional market failures that justified public services or intense public interventions in the realm of urban mobility. On the other hand, increased efficiency in matching supply and demand can render the provision of private urban mobility services more profitable. Where network externalities are well known and extensively documented (Economides, 1996), as is true of transportation markets, efficient platform brokerage is merely a powerful catalyst.

The sharing economy is also linked to the emergence of new social trends that are less anchored to an ownership mentality (Botsman & Rogers, 2010). Much has

been written for instance about the “collaborative” nature of exchanges fuelled by sharing economy platforms, their positive cultural aspects (Aigrain, 2012) and their capacity to trigger substantial transformations in the global economy from radically optimistic visions (Rifkin, 2014). Praise has often been given to the supposed non-commercial approach involved. This may result in an increase in the popularity of car-sharing schemes or equivalent platforms focused on sharing mobility devices, as well as a reduction in the global number of vehicles used in our cities. However, in the end, the critical factor that explains what we are seeing is that digital brokerage using Internet platforms (i.e. new market intermediation technology) is reshaping in a far more effective way how we exchange goods and services. Accurate digital brokers are not only permitting sharing activities in which non-professionals are involved, but also enabling the emergence of new commercial activities that are explicitly focused on making profit and that cannot easily be placed in the category of “collaborative” activities (Dyal-Chand, 2015). Therefore, car-sharing and the challenges it poses to traditional urban mobility regulation are little different from ride-sharing platforms. Nevertheless, it is true that car-sharing platforms may be used, promoted or even directly established by local authorities as an additional tool to offer mobility solutions in urban areas, whereas a ride-sharing systems owned by public powers, even if theoretically possible, are less common.

A similar pattern can be seen in the emergence of new market niches and the inevitable consolidation of business-oriented brokerage platforms. The challenges posed by digital platforms in mobility markets have thus followed a well-established pattern. First, tax issues have arisen in these market niches, but they may be circumvented when exchanges are made at a smaller scale. Once they have grown, governments must tax sharing-related activities and business (Leaphart, 2016), although they could also try to make fiscal burdens not so heavy as in other fields (Woskow, 2015). The market of ride-sharing platforms can already be deemed mature. This is why we are now in a second phase, in which worker protection (Todolí Signes, 2016) and regulations to extract added value from the mobility sharing economy, while preventing associated social risks that appear only when the sharing activity reaches a certain scale, are required.

Many supporters of these phenomena have explained the environmental advantages of replacing the individual property ownership of certain goods with common shared use (Rifkin, 2014), thereby reducing idle capacity, a key feature of the sharing economy (Belk, 2007) in accordance with the New Urban Agenda and the Paris Agreement. However, if we focus our interest only in relation to urban mobility, a net decrease in the total number of vehicles used to make the same number of services will not substantially affect pollution issues or congestion problems in populated cities (Bates & Leibling, 2012). This is despite the fact that the reduction in the final number of manufactured cars required to provide the service will be a clear global environmental gain. In fact, if the greater efficiency and correlative reduction of costs leads to a significant increase in the total number of mobility services provided by private vehicles, two effects should be feared: congestion (and hence pollution) may be exacerbated, with cities such as New York City already experimenting with forcing local authorities to establish a cap on the total number of authorised ride-sharing vehicles; and increased efficiency may entice some old public transport users to alter their mobility

routines, challenging the public transportation system if the critical mass of users becomes jeopardised.

When we analyse the initial responses of regulatory bodies across the world, we can see that these concerns are always present. However, we can also recognise some patterns and deviations. For instance, countries with a more traditionally liberal approach to urban transportation by taxis beyond the perimeter of the “public service culture” have easily adopted rideshare-friendly regulations, such as over time in many major cities in the United States (Wyman, 2017) and Europe, especially London (Soriano Aranz, 2017). A similar trend can be detected in countries where, despite having a tradition of public service regulation for taxis, the consistently poor quality of the service coupled with security issues or problems with the previous and fair determination of services’ prize have paved the way for the rapid popularity of ride-sharing services. On the other hand, a major issue is reconciling the benefits of these offers with the major disruptions they create in previously regulated public service urban transportation markets. This has been the case at the Organisation for Economic Co-operation and Development (OECD) levelⁱⁱ as well as in countries like Germany,ⁱⁱⁱ Spain^{iv} and France^v and the European Union as a whole.^{vi} Not without resistance, competition has overridden a very restrictive regulation in countries like France (Eskenazi) and the trend seems also to be set in Germany. Even though the entire process has the features of a typical virtuous cycle, we can also outline some drawbacks that would require new and better regulations using legal experimentalism and data to define approaches to extracting all potential added value (Ranchordás, 2015; Doménech Pascual, 2017).

Thus, the provision of private urban mobility services offered by digital brokers or sharing platforms will increase considerably and the role of public regulation will have to change, from regulating how to design and provide ambitious public transportation services to coherently coupling this with the establishment of a legal framework that is capable of protecting consumers and preventing unfair competition in urban private transportation markets.

- Shared transportation, its effects in traditional public service transportation markets and the possible cannibalisation of public transportation services

From an economic perspective, most of the traditional purposes of public regulation of private mobility services made by local authorities are now out of date, as they represented regulatory responses to clear market failures. For instance, they were a response to informational asymmetries that were risky for consumers that do not exist anymore. They were also a regulatory fix to skimming temptations that might produce scarcity in some places or times, and that in most cases have been significantly reduced (if not completely removed) by digital brokerage, sharing platforms and new forms of ride-sharing and car-sharing. The stricter the regulation created in the past to solve those problems, the more challenging the situation it is today. This is why it may be interesting to explain this issue from the perspective of which has been the effect in legal traditions where regulation of taxi services was -or it still is- so intense that it was considered and treated as a “public service”. U

Ultimately, if we appeal to the traditional “laws of public service” defined by

Roland (Chevalier, 2015) and the underpinning logic (which is also the ultimate foundation of allowing public powers to reserve certain services to themselves, including the reasons ECJ Altmark-Trans accepted in some cases within the European Union Law), we may draw some interesting conclusions. For example, it is probably no longer the case that in order to guarantee the profitability and continuity of urban mobility services, a regulation that prevents competition is required. An alternative and more liberal model, fuelled by the sharing platforms, has been set out with the more limited goal of guaranteeing minimum efficiency and sufficient profitability without major risks to continuity. This approach has proved its merits without creating managerial problems or major problems to mobility in numerous cities around the world. Furthermore, the quality and adaptability of the service to new social and economic needs appear to be easy to satisfy through the simple market regulation of transportation services that impose legal requirements on their conduct. In fact, such regulations can apply highly demanding requirements related to vehicle features and their sustainability. It would be possible, for instance, to ask for a free-emissions vehicle to anyone willing to offer urban mobility services, but in order to do so, other restrictions would play no role at all. There are still, however, some doubts regarding whether the neutrality principle (equality of users), which is traditionally linked to the public service logic, can be respected by services offered throughout digital platforms and their market logic in terms of prices. Nevertheless, it is necessary to remember that traditional public service schemes have also ultimately accepted price discrimination according to moments of greater or lesser demand, in order to achieve greater economic efficiency. It does not seem, then, that we are facing an insurmountable theoretical obstacle. For example, a simple maximum -and possibly minimum?- cap normatively established for these services to avoid major discriminations can attain the traditional regulatory goals with no further restrictions needed.

From this observation, it is obvious that it would make sense to adopt a liberal approach, not only from an economic perspective but also from the very logic of public service. Market forces are nowadays perfectly able to provide the required services respecting regulatory and technical prescriptions set up by public authorities to ensure the quality of the service and environmental sustainability, as well as, if it is considered to be necessary, price caps. Moreover, it should not be forgotten that there is an element of “social justice” involved in favour of this latter option: the best distribution of income derived from productive activities that occurs when a sector is open to competition. This is because rents go to those who work more effectively, thereby generating clear social benefits. This can be compared with what happens with closed sectors, where rents go to those who were already there or managed to enter it, and later remain armoured from real competition. As a whole, these elements are also in accordance with the goals established in the New Urban Agenda (34, 66), because they use technology to promote urban mobility, economic efficiency, social fairness and potentially major gains in environmental sustainability. Unsurprisingly, even the countries, most of them in continental Europe, that even today keep up public service traditions, with separated markets and different regulations for taxis and ride-share platforms (countries where regulatory burdens for the latest are still common), are changing little by little their position (Boix Palop: 2017, 138-147). A very interesting example is the regulatory policy document recently issued by the German

government, which states a clear intention to eliminate or at least reduce some such regulatory burdens such as quotas that only allow a really scarce number of shared vehicles at the disposal of the consumers to prohibitions on contracting those services throughout digital apps or regulations that ban the service if not contracted with a considerable anticipation.

On the other hand, we nearly have enough data to know that as a direct consequence of this greater apparent efficiency, the new model attracts more actors to the market, which also means more private vehicles (especially cars) in our cities. Both the complete liberalisation of the markets and regulations with similar results (a dual regime with no effective quotas for ride-sharing and no significant regulatory burdens to prevent competition) yield greater efficiency, but they do so by provoking other types of problems and negative externalities that are very relevant to any urban environment and must therefore be negotiated by local authorities. For example, the urban space, which is in itself limited, suffers from significant congestion problems when these platforms are developed. Some studies suggest that this is precisely what has happened in cities such as San Francisco (Erhardt, Roy, Cooper, Sana, Chen & Castiglione, 2019) and New York, where the model is most developed and where its effects can therefore be analysed in the medium term, rather than merely by their immediate consequences. These problems of congestion also lead to other negative externalities: more pollution, greater pressure from a larger number of users against more desirable modes of urban transport modes (pedestrians, cyclists, public transport), which can be negatively affected by the transfer of users to tourism vehicles that compete with them for the urban space. The New York City decision to establish a cap on new ride-hail drivers is a very significant move, designed not only to assess the problem but also to prevent the negative effects that have already been detected. It is also interesting to note that some ride-sharing companies, like Uber, have challenged this decision. The final judicial decision on whether such moratoria or caps can be implemented by local authorities will inform us of any trends.

In addition, an increase in the efficiency of these modes of urban transport, when translated to final users, may imply greater competition among public transportation systems and therefore compromise their critical mass. It is also worth remembering that public transport is essential in a modern city, especially to offer mobility alternatives to the least favoured social groups, as considered by the New Urban Agenda (NUA 114). It should be noted that for public transportation, most of the economic effects of sharing networks also apply. As is the case of a sharing platform, in which the effective density of the network is key to allowing the platform to be competitive, the same is true with public transportation systems. The denser the network, the more the connections will become actual transactions (Moazed & Johnsonm 2016). Therefore, for the risk of losing some “transactions”, users and connections must not be understated: once a threshold is reached, the mere existence of the whole network as a viable alternative may become endangered.

In short, there exist broad considerations of efficiency that include prize considerations as well as externalities, environmental issues, congestion problems and the effects on public transportation (plus their social implications), which may help downplay any enthusiasm for a complete regulatory free pass to private mobility sharing platforms. In this sense, local governments' powers over the use

of public space and the general organisation of urban mobility, as well as the importance of integral planning to give priority to modal alternatives that are more sustainable and respectful of the environment and rights of citizens, can end up triggering policies that enable the implementation of restrictions or strict emission requirements (even quotas for vehicles not 100% emissions-free) that should be evaluated by local authorities.

- A possible regulatory approach to reconcile the benefits of the sharing economy in transportation markets with the New Urban Agenda's regulatory goals to promote sustainable urban mobility

An interesting conclusion that can be made here is the fact that the role of local authorities in aligning the possibilities of new shared mobility alternatives to the objectives of the New Urban Agenda is very significant. Even though the national legal framework will always play a role (accounting for why steps in the liberalisation of services in areas where legal traditions are typically more rigid, such as in Germany and the EU as a whole, are more cautious), there will always be enough room for local authorities to manoeuvre and make a difference. In order to do so, and to align new technological and economic possibilities with the challenges posed by environmental sustainability and the main objectives of the New Urban Agenda (which aims to provide affordable and high-quality mobility alternatives to every citizen, notwithstanding his or her social status), the following issues should be considered:

- The regulation of traditional taxi services, independently of public service and contingent on the country's legal tradition, should evolve and eventually converge with the regulation of ride-hail services offered by private agents, usually via digital brokerage platforms. Local authorities have the power to establish limits when needed to avoid congestion. Furthermore, requirements for the quality of vehicles can be established. The most important ones are related to fuel efficiency and emissions. These should be compatible and hence decided with other provisions to regulate private mobility, as well as prove coherent with a global urban mobility plan, such as city bans or congestion charges. Moreover, public transportation systems and their necessities must be taken into account. Decisions about how to share urban space, which is limited by definition, constitute a powerful tool to promote certain kinds of mobility that may be considered superior to others.
- In some cases, transitory or temporary regulations may be necessary to encounter the challenges posed by social or economic issues. Local authorities can decide, for instance, to extract some taxes from new mobility forms or services in order to promote or assist other forms. This is true of most congestion charges and, in a broader sense, Pigouvian taxes, as well as when sunset clauses or temporary remedies that have already been tested in some cities subsidise old taxi services while allowing competitors to operate. This is a possibility to be considered, albeit as a transitory measure, when public administration has created a regulatory framework that leads some agents to heavily invest (for instance, in the buying of taxi licences). In most cases, however, it makes no legal or economic sense (Kaplinski, 2018).
- There are still some doubts regarding the extent of the transformation

caused by shared mobility. For instance, it is unclear whether it would make sense from an economic perspective to expect an hegemony of the shared alternatives in front of the traditional system of individual property. Some recent studies present figures that question this assumption (Nunes & Hernandez, 2019). Allowing for the fact that the economic viability of sharing schemes is easier to achieve with other kinds of vehicles – such as bicycles, which have a rich tradition of such schemes (Demaio: 2009), push scooters and equivalent mobility gadgets – car-sharing represents a very interesting alternative to reduce environmental costs and the number of vehicles within a city. Cities can then create their own public car-sharing platforms or subsidise private ones when they abide by public interests in mobility matters.

- Shared mobility benefits will be enhanced when combined with the use of non-fossil fuel-driven vehicles, ranging from electric cars to traditional bicycles to other electric gadgets. It must be noted that electric vehicles may not be completely decarbonised alternatives in some cases, depending on the source of the electric power they use. On the other hand, whether such vehicles are autonomous or not engenders other demanding problems, such as safety and accountability issues, which are not of particular significance to the organisation of urban mobility in accordance with the provisions of the New Urban Agenda. Also, the threat to employment opportunities for human beings posed by autonomous vehicles, as important as it can be from a social perspective, is contingent to mobility regulatory concerns.
- Last but not least, any coherent global strategy adopted by a local government willing to comply with the New Urban Agenda has to adopt regulations to promote other kinds of shared mobility beyond ride-sharing and car-sharing platforms. Numerous market opportunities will emerge related to bike-sharing – electric or not – and other mobility devices. In order to promote but also control them, not only is suitable infrastructure necessary to render their widespread use feasible, but also decisions need to be taken regarding the use of public space and how transit can be ordered. Most of these decisions, beyond the very basic legal framework that may already exist at the national level, will be taken by local authorities. As is the case with most of the different elements that constitute a coherent urban mobility strategy, key decisions and political choices are also at the disposal of local governments. As a result, local policies may differ considerably, as the circumstances, environment and particularities of each city are diverse by nature. To conclude, it is worth remembering that the leeway they enjoy offers substantial information regarding the effects of different strategies but is also an expression of diverse political preferences and values, linked to an ongoing crucial social debate about how to use public space and how to better organise public mobility in one of the most demanding, disputed but thrilling sites of cohabitation: our cities.

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