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Orchestration of Markets and Bureaucratic Knowledge Production in the Moscow Transportation Reform

Egor Muleev

Leibniz Institute for Regional Geography, Germany

Correspondence: Egor Muleev (e_muleev@leibniz-ifl.de)

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Abstract

This article examines the role of bureaucracy in the process of reforming Moscow's transportation system. With reliance on the intellectual history of neoliberalism, the concept of "orchestration," an institutionalist economics, and an empirical case study, I argue that a market embodies itself in the form of bureaucracy. The agency in the provision of norms and regulations, calculations and forecasts, orders of economic exchange, and knowledge production concentrates in the hands of bureaucrats regardless of their formal attachment to state or private entities. Bureaucrats define fundamental issues of how markets should function; they design and control the system of money redistribution. The case of dismantling Moscow's trolleybus system provides fruitful data on the agency of bureaucracy in transportation reform under the label of implementing "best practice" scenarios favourable to a neoliberal toolkit.

Keywords

bureaucracy; Moscow; neoliberalism; transportation reform; trolleybus

1. Introduction

In the course of the last 10 years, Moscow has changed significantly. Huge financial resources reshaped the space in a similar manner to "best practices" seen worldwide. Such changes were particularly notable in the field of urban transportation. Restorations, adjustments, major infrastructure projects, and new and improved services were also accompanied by questionable tendencies. The reforms included dismantling the world's largest trolleybus system, contrary to the economistic arguments underlying this decision.

This article addresses the gap in the political economy of transportation by paying special attention to bureaucracy, its agency, influence on knowledge production, and ability to drive changes in a specific way.

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With attention to the "Veblen-Ayres" dichotomy, the framing of bureaucracy suggests a technological institute in its means, but a ceremonial one in its ends (De Gregori & Thompson, 1993). Essentially, bureaucracy shapes and controls the system of money redistribution by imposing ordinances and regulations for the market economy. The understanding of markets relies on the critical epistemology of neoliberalism (Beddeleem, 2020; Mirowski, 2009; Nick-Khah, 2017). It goes beyond a neoclassical stance towards the market as a universal mechanism of goods allocation via mediation of prices. Markets are information processors, and market relationships imply profit-seeking behaviour as a ruling principle for social life—not only economics as such. Monopolisation and depoliticisation of knowledge seem to be an empirical consequence of such a stance (Davies, 2018). These aspects are brought together by the concept of orchestration (Rindzevičiūtė, 2023). This suggests an analysis of knowledge production not only in terms of its epistemological specificity but as a multi-layered process with a number of participants. In systems with a variety of actors, communication between them must have a bureaucratic design sustained by clear definition on the redistribution of resources. Orchestration helps to analyse the system of neoliberal knowledge production together with decision-making processes. The analysis of Moscow's transportation reforms supports the thesis that the market embodies itself in the form of bureaucracy.

At first glance, such an argument might seem controversial, because bureaucracies are usually perceived as being diametric to markets (Graeber, 2016). However, there is an extensive literature highlighting the merging between state and private entities (Bruff & Tansel, 2020; Cahill et al., 2018), and a long-standing critique from an institutionalist economics perspective on "corporate" means of governmentality favourable for market relationships—usually at the expense of real production (Galbraith, 1967; Veblen, 1923). There are also similarities between Veblen's and Polanyi's views on the predatory nature of capitalism, which correspond to each other not only in the light of the statute of the natural world (Luz & Fernandez, 2023) but suggest a similar view on the contribution of the state in shaping how business should be conducted. In short, bureaucracy represents an applied level of functioning of a market economy, in which the normativity and security of exchange co-create each other via paperwork and legal violence.

Bureaucracy functions as a system for distributing money, and ultimately shapes the direction of development (or stagnation) by allocating (or not) funds in specific spheres. Hence, lobbying is the adjustment of such a system to favour a particular company or industry. In other words, bureaucracies create demand, and in many cases celebrate the opportunity to satisfy such demand themselves. The argument does not claim general validity, but addresses only the specific case of Moscow's transportation reforms since 2012. An empirical study shows how the import of "best practices" shaped the agenda for change, and how high-ranking bureaucrats first promoted a particular idea and then contributed to delivering the required goods and services. The presented research on the agency of change in transportation reform contributes to the existing literature on Moscow and the neoliberal production of space (Büdenbender & Zupan, 2017; Chertkovskaya & Paulsson, 2022; Golubchikov & Phelps, 2011; Trubina, 2020), and also aims to contribute to the discussion on mobility transformations (Nikolaeva et al., 2019; Schwanen, 2019). In the case of Moscow, the scope of transformations was shaped by the import of "best practices" namely substantial improvement of public transport services, pedestrianization of urban space, and highway construction. Such best practices were presumed to already be proven abroad, thereby circumventing a need to justify their effectiveness. Simultaneously, knowledge about the reforms was monopolised by directly subordinated scientific entities. A specific line of funding from the city budget financed scientific collection and analysis of transportation data but the knowledge was restricted in access.

The empirical study relies on annual reports published by the Moscow government, on budget execution, performance of transport strategy implementation, and transport company reports. Data on rolling stock purchases were also analysed. Media reports also provided valuable data sources. In addition, 20 online interviews were conducted with employees of transport companies, experts, municipal deputies, journalists, and bureaucrats.

The article is organised as follows: Section 2 aims to construct theoretical bridges linking neoliberal epistemology, orchestration, definitions of bureaucracy, and transportation. The argument is illustrated by a short introduction to the theory of traffic flow and cost–benefit analysis. Section 3 provides three empirical contradictions on the process of dismantling Moscow's trolleybus system, which invite speculation beyond exclusively economistic explanations. Scrutiny of the case shows how Moscow bureaucracy reorganises the distribution of transportation reform funds, helping to explain why the world's former largest trolleybus system received nothing from an enormous transportation budget.

2. Orchestration of Markets

2.1. Epistemology of Neoliberalism

Neoliberalism is not only a political project evident in "variegated" forms in different parts of the world (Peck et al., 2018); it is also a form of epistemological thought. The following argumentation relies on two contributions from critical analysis of the epistemology of neoliberal thought, based on the writings of the most prominent members of the Mont Pèlerin Society, a group of intellectuals who made significant contributions to the neoliberal project.

Firstly, a main feature of neoliberalism is the idea of a market as an "information processor" (Mirowski, 2009). The market is regarded as having a transcendent epistemological superiority unavailable to any individual mind, and therefore only the market is able to approximate "truth." Market relationships are deemed the most efficient and horizontal mechanism of generating valuable knowledge. Therefore, the economy is considered unmanageable by any governmental agency, and external efforts are subject to inefficiency, regardless of any scientific tools that might be available. The neoliberal epistemological stance postulates the uncertainty and immanent weakness of any human mind in comparison to the principles of the production of knowledge through market relationships (Mirowski, 2013).

Secondly, science becomes a "marketplace of ideas" (Nick-Khah, 2017) together with expertise and consultancy. It is therefore not only a way of organising research activities but a ruling principle for establishing objectivity. According to a neoliberal stance, "the rationality of science and the effectiveness of the market for goods and services were due to the same organisational principles" (Nick-Khah, 2017, p. 38). In a simplistic view, the marketplace of ideas implies that, for researchers, profit means a rational scientific outcome. As a consequence, market-favourable forms of science reject an egalitarian approach and provoke the emergence of "academic elites" in the process of knowledge production serving the interests of "patrons."

Neoliberal knowledge therefore has an internal distinction. Firstly, there is a basic assumption of market superiority that remains unquestioned. Later, this setting was termed "market fundamentalism," when even a Nobel Laureate in economics criticised the "religious" belief in markets (Stiglitz, 2009). Secondly, there is also

a “hegemonical” but “plural” knowledge (Plehwe & Schmelzer, 2015). “The neoliberal argument about the superiority of a market economy was predicated upon an epistemology which distinguished between spheres of lawful exact knowledge, and spheres where precise knowledge was impossible because it remained dispersed, tacit, and opaque” (Beddeleem, 2020, p. 33). This uncertainty is observable only at the level of competition between different scientific entities in their efforts to generate “truth” through entrepreneurial mechanisms of profit-seeking. This influenced the emergence of a variety of think tanks, expert, and consultant networks, as well as the reformation of universities. Many such entities successfully applied scientific methods to research and consulting services in ways compatible with neoliberalism.

Such an approach to science suggested the establishment of particular bureaucratic structures. Egle Rindzevičiūtė (2023, p. 7) introduces the concept of “orchestration” in epistemological research on forecasting in the USSR; the term “describes the process through which scientific knowledge, social order, and political government are co-produced through the creation of data-gathering apparatuses, design of new research objects and subjects, and enactment of new models order, both behavioural and institutional.” The embeddedness of an expertise in the decision-making process is impossible without a specific bureaucratic ordinance. This is true not only in the USSR case, but for all governmental models if they demand scientific support. In other words, the demand for scientific scrutiny, administration, and decision-making was routinised through legislation, educational programmes, and governance itself. David Graeber (2016) argues that the growth of bureaucracy occurs under the motto of managing markets. Schematisation as a main characteristic of bureaucratic knowledge aims to eliminate or at least reduce uncertainty. This stance unites neoliberal epistemology and the bureaucrats’ offers.

2.2. Transportation

Transportation provides a good example of how bureaucracy shapes the process of knowledge production. Infrastructural projects and service provision rely on forecasts of traffic and payback of investments. The justification for a highway system in the USA in the 1930s and 1950s suggested the introduction of empirical surveys, economic analysis, and eventually traffic forecasting to the governance of transportation projects (Seely, 1987). The field was organised around the application of methods from natural sciences that gave rise to mathematical theories of traffic flow (Kühne, 2011). Achievements in creating a so-called transportation science owed much to “generous financial support” from automobile manufacturers and airline companies (Miser, 1967, p. 51). This was a foundational step for the “predict and provide” principle, which dominated transportation policy in recent decades, under which projected demand is to be met by infrastructural provision (Owens, 1995).

Cost–benefit analysis is one of the most popular methods of assessing the relative strengths and weaknesses of investment options (Jiang & Marggraf, 2021) and is well established is transportation projects (Mackie et al., 2014). It helps to forecast potential surpluses generated relative to the investment cost of infrastructure or service improvements and allows estimation of various parameters during a specified timeframe. The variables selected for cost–benefit analysis depend on the statistics and methods available for collecting and analysing data, and can therefore differ between locations and projects.

Cost–benefit analysis has been widely criticised (Beukers et al., 2012; Mouter, 2018), as has transportation science generally, namely in the application of traffic flow theory to modelling transportation flows

(Flyvbjerg et al., 2005; Kerner, 2013). Regardless of shortcomings and uncertainties, both approaches are strongly embedded in the decision-making process, at least in Western countries. Consequently, traffic and finance forecasts become an inevitable part of "best practice" decision-making, with one particular method monopolising the field of expertise, and creating inequalities in the availability of arguments in negotiations around projects.

The dominance of the "predict and provide" principle shows how negotiations between different interest groups were displaced by justifications from engineers and neoclassical economists (Brown, 2006). Experts, together with bureaucrats, orchestrated a technocratic approach to governance in transportation (Jessop, 2014). In that sense, technocracy means the addition of scientific support to legislation. Together with a marketplace of ideas, it correlates well with the argument that "power shifts further into networks of governance, audit and management, which operate outside the space designated as 'political' and 'democratic'" (Davies, 2018, p. 280). Such networks suggest specific bureaucratic relationships for decision-making and execution, established by norms and regulations, informal rules, and juridical laws—and, most importantly, not only design but coordinate the system of money redistribution. While an abstract "state" is in charge of organising abstract "markets," bureaucracy represents an applied level of such efforts, with practical implications for how business should be conducted. Market relationships have therefore become inherently bureaucratic.

2.3. Bureaucracy

In the case of Russia, during the turbulent 1990s, an authoritarian model was inherited. Subsequently, the distribution of resources and the prospects of further development have again concentrated in the hands of *apparatchiki*, high-level bureaucrats. In other words, in contemporary Russia, money does not give authority, but rather authority gives money (Ostrovsky, 2015). In a similar vein, Golubchikov and Phelps (2011, p. 434) argue for a "specific" but neoliberal "political-bureaucratic processes" in the "post-socialist local growth regime," while Kinossian and Morgan (2022, p. 655) show its evolution to "development strategies to serve the interests of the kleptocrat." Büdenbender and Zupan (2017) incorporate the spatial dimension, and argue for the difference in neoliberal policies imposed by different mayors in Moscow. Trubina (2020) follows the same empirical stance and focuses on uneven development as a consequence of a huge pedestrianisation project. In the field of transportation, Chertkovskaya and Paulsson (2022, p. 452) claim that the dismantling of Moscow's trolleybus system was intended to "fulfil objectives of urban growth and beautification." Consequently, the notion of bureaucratic contribution is already implicitly contained in the literature on Moscow's recent urban and transportation transformations. The difference is that it was not at the centre of previous analyses.

Building on the institutionalist "Veblen-Ayres dichotomy" on the distinction between technology and ceremony (De Gregori & Thompson, 1993), I propose the metaphor of bureaucracy as the infrastructure for transporting money. This differs from discussions in Marxist analysis, where an owner dominates in the process of setting an agenda, while bureaucracy has to serve its customer (Djilas, 1975; Mandel, 1992). It also goes beyond Max Weber's definition of an ideal type of rational management, free of favouritism and strictly bounded by rules (Weber, 1978). Reliance on the institutional framework supports Graeber's (2016) anthropological view on lopsided structures of imagination in hierarchically organised societies. Institutionalism also helps to shift the attention towards political economy—the way in which economic exchange is organised in the given historical and cultural context.

Ordinances and regulations pave the road between the origins of funds (namely the official budget) and its destination—namely infrastructures, vehicles, or services. The fact of funding shapes the field of bureaucratically framed responsibilities and determines the power available to holders of bureaucratic positions. Political issues are therefore interiorised within the hierarchical and multi-layered structure of governance, and policy becomes a discussion around the bureaucratic implementation of ideas. This leads to enormous control, such that solving transport-related problems becomes possible only at the bureaucratic level and by bureaucratic means. Interactions between different tiers suggest a set of ceremonial practices that inherently imply historical and cultural settings. Thereby, bureaucracy does not necessarily eliminate uncertainty. Instead, it facilitates it through regulation. Following the rules means the absence of questions. In that respect, bureaucracy is the technology of tackling uncertainty.

3. Moscow's Transportation Reform

3.1. Introduction

During the 1990s, rapid expansion of private car ownership in Moscow influenced a classical car-oriented response by the city bureaucracy. Following the modest effectiveness of a new circular city highway opened in 2005, traffic congestion had become a major problem. A new mayor was appointed in 2010, who quickly took action. In 2011 a public debate took place, concerning a five-year strategy for developing Moscow's transportation system (*Gosudarstevennaya programma goroda Moskvy "Razvitie transportnoy systemy"*; hereafter, GP). It was an ambitious plan to allocate more than one trillion roubles to transport infrastructure and services. In 10 years the city built kilometres of metro tunnels, rails, city highways, bus lanes, and sidewalks; renovated almost all public transport vehicles; introduced carsharing, an "Uber-ised" taxi service, a bike rental system, and a multi-modal single ticket; established paid parking together with "smart" hard- and software for counting flows of people and cars, as well as traffic rule violations; pedestrianised hundreds of streets and parks; and developed a new route network, introducing a new way of contracting private bus enterprises and life-cycle cost contracts (hereafter, LCC) for maintenance. Moscow indeed allocated enormous levels of funding compared with other Russian cities. High concentrations of industries and population allowed the city to fund projects from income taxes rather than loans. Federal money also supported various expenditures.

According to an investigative journalism report dedicated to the issue of budget execution in Moscow, in the course of 10 years, city bureaucracies implemented sophisticated techniques to allocate money flows in a particular manner (Proekt Media, 2020). Regardless of property ownership, the heads of contractor companies involved in this most costly of public projects were acquaintances, friends, or even relatives of the heads of public departments (Galaktionova et al., 2015; Golunov, 2015; Golunov & Deryabina, 2015; Golunov & Sunkina, 2014). The city hall organised so-called non-commercial entities, enabling them to bypass laws on public procurement (Proekt Media, 2020). Also, almost immediately after officially commencing implementation of the transport strategy, the head of the Department of Transportation (hereafter, Deptrans) was changed. The new departmental head was previously a shareholder in Transmashholding, a huge industrial facility manufacturing rolling stock and providing rail transportation services.

The distribution of money shows a very specific way of governing the transportation sector. The Department of Construction was assigned the largest budget share because it was tasked with

extending Metro (underground heavy rail) lines and road construction that together accounted for 70% of expenditure. The Department of Major Repairs pushed forward the extensive pedestrianisation project, receiving generous funding for its implementation, and was also responsible for highway and street maintenance. Paradoxically, Deptrans does not oversee transport infrastructure, but rather manages the system being constructed by other bureaucratic entities. Between 2012 and 2020 the annual share of Deptrans in the official budget for transport improvements never exceeded 7%. In reality, it received more because the purchase of Metro vehicles had another funding line separate from the budget for strategy implementation.

The two biggest expense items for Deptrans were vehicle updates and subsidies for its Metro and Mosgortrans (surface public transportation) subsidiaries. In 2014, the introduction of the LCC was piloted in the Metro, then steadily introduced to all urban public transport. Under this system, the producer must deliver a vehicle and maintain it for a specified period. Previous approach suggested that the operator company maintains vehicles. LCC reduces the budget of the subsidiary companies and transfers the money to the producer, but significantly increases the cost of the contract. In the course of the transportation reforms, numerous manufacturers bid for contracts. Ultimately, however, LCC contracts were awarded to Metrovagonmash (a long-established partner of Moscow Metro, owned by Transmashholding) which became the second-largest contractor for the city government, flanked by highway and construction companies (Proekt Media, 2020). During the transportation reforms the demand from Moscow fuelled the development of a company to produce a new, high-tech train model.

At the start of the reform, Mosgortrans had almost the same structure as in 1990. It was a huge entity, operating thousands of trams, trolleybuses, and diesel buses, facilities for fleet overhaul and maintenance of electrical equipment, educational facilities, and even a planning department. Under the reform process, the company steadily lost its power, influence, skills, as well as real estate assets, until in 2023 it only operated diesel and battery-electric buses (hereafter, e-buses). According to the abovementioned beneficiaries report, Mosgortrans "helped" bus producer KAMAZ to join the club of the Moscow government's largest contractors (Proekt Media, 2020). Since 2018, KAMAZ delivered more than 2,000 diesel buses and more than 1,000 e-buses. In 2023 Moscow had almost 1,400 e-buses in operation; this comprises the largest such fleet in Europe, and is a matter of municipal pride and the subject of PR campaigns. Official statements focused on substitution of old trolleybuses by new battery-based technology for buses. In 2012 Moscow had the world's largest trolleybus network, comprising almost 1,700 vehicles, 500 km of overhead wires, 89 routes, and numerous depots around the city. However, the trolleybus system was subsequently reduced to 400 vehicles on six routes, and operations ceased entirely in August 2020.

3.2. Three Controversies Concerning Trolleybus Dismantlement

In 2012, the delivery of new trolleybuses proceeded according to the five-year GP, under which more than 300 vehicles were renovated annually. In 2013, the head of Mosgortrans was changed, and fleet purchases subsequently stalled. De-jure, the transport operator tried to update the fleet. The company published numerous tenders, but de-facto no manufacturers applied: "For some reason they decided to have a trolleybus built in the unified bodyshell with a diesel bus. It was a questionable contract with unreal goals" (Automotive journalist).

In 2014, Transmashholding became the largest shareholder in a newly founded industrial venture, "Transportation Systems" (Proizvostvennoe Ob'edinenie "Transportnye systemy"; hereafter, PKTS). PKTS owned a patent on a low-floor tram bogie, but lacked industrial facilities. They built a new model in 2016 and two months later won a contract from Mosgortrans for 300 new low-floor trams. Also, shortly after the deal, the company invested in the development of a new trolleybus despite it being an entirely new field for them. According to interviews, a new trolleybus was produced to satisfy the demand of large cities. PKTS built a test vehicle in 2015 and serial production started five years later. Since the interests of Transmashholding were supported by the head of Deptrans, they wanted to meet the demand rather than close the trolleybus system.

In 2016, the head of Mosgortrans explained the delay in updating the trolleybus fleet by referencing the low quality of new vehicles and the high cost of operating the existing fleet, triggering a fierce public debate. A few days later, employees of an operator company published an open letter criticising the arguments. During the year, numerous protests and civil campaigns occurred, opposing the prospect of discontinuing the trolleybuses. Subsequently, in 2017, the city purchased 42 new vehicles: "Officials did it as a distraction and succeeded. We indeed calmed down after that" (Activist and former employee of Mosgortrans).

Protests in support of the trolleybuses started in 2016 after an official statement that their overhead wires spoiled the outlook of a city centre and should therefore be removed during the pedestrianisation projects. The second controversy surrounding the dismantlement is the inconsistency of activities related to overhead wires. Initial cuts occurred in 2014, after the renovation of two central streets. By 2016, the pedestrianisation project covered 52 streets, of which only some received new overhead wires and only some trolleybus routes were relaunched. The most mysterious example was the reinstatement of wires on the central ring road Sadovoe Koltso, together with a new and complex junction, but without restoration of a trolleybus service. The Department of Major Repairs was in charge of all bureaucratic procedures for funding allocation, planning, purchasing spare parts, contracting, and accepting the result related to the installation of overhead wires. This task was not exclusive to the responsible department; however, inconsistencies in this activity highlight the lack of confidence and unclear setting of tasks. The same uncertainty was observable at the level of Mosgortrans: "One year before the closure of the network, 50% of the overhead wires had been updated" (Former employee of Mosgortrans' infrastructure maintenance service).

The third controversy concerning loss of the trolleybuses was the absence of lobbying efforts from e-bus producers. In 2016, numerous manufacturers delivered e-buses to Moscow for testing:

> We tested lots of e-buses in different weather conditions. We had a clear understanding of what kind of vehicle it is. We calculated numbers and defined the niche for this transport in accordance with the technical conditions in Moscow. Our suggestions were not considered at all. (Former employee of Mosgortrans' operation department)

After testing e-buses, Mosgortrans developed a technical specification, and after numerous iterations only Russian LiAZ and KAMAZ diesel bus producers participated in the tender. Both producers had almost no experience with electrical transportation, and both had only a couple of test vehicles equipped with batteries. In early 2018, both manufacturers won identical contracts for the first 100 e-buses and 31 charging stations. Both had to maintain the fleet on the LCC basis. This was not a situation in which pre-existing, tested, and

developed technology was promoted through lobbying efforts, but rather the inverse situation in which the city insisted on a new vehicle and adjusted its vision to the abilities of selected manufacturers. None of the domestic trolleybus manufacturers joined the emerging market for providing e-buses.

A comparison between the industries reveals major differences. LiAZ is owned by an oligarch, and the state-owned military-oriented Rostech holds the largest share of KAMAZ, whereas trolleybus manufacturers are small entities owned by local industrial groups (except PKTS, owned by Transmashholding). The capacity of diesel bus factories was much higher than in the domestic trolleybus industry. Quality might indeed be an issue, and LCC obligations may be seen as too expensive to meet with the resources available to small companies (interview with transport journalist). Eventually, the life cycle cost per e-bus was 20% higher than a trolleybus across 12 years of operation (Frolov, 2020).

The three controversies summarised above highlight the limitations of an exclusively economistic justification for dismantling Moscow's trolleybuses. From the first view, the discontinuation of fleet renovation under the motto of poor quality started almost simultaneously with Transmashholding's efforts to develop a new vehicle. Then, the head of Mosgortrans publicly criticised the supposedly high cost of trolleybus operations, while his colleagues allocated funds for e-buses that proved significantly more expensive than the existing trolleybus system. Other bureaucratic entities, namely Mosgortrans and the Department of Major Repairs, put effort into renovating and reinstating overhead wires, only for the system to be reduced and then closed shortly after. Consequently, the contributions of Deptrans as well as the Department of Major Repairs in the process of discontinuation are questionable. Given the city's strong insistence on expanding the use of e-buses, it appears that the major lobbyist was the city administration. Furthermore, the status of the GP is also uncertain.

Strategic documents contain nothing on either the discontinuation of trolleybus services nor the introduction of e-buses, pedestrianisation projects, new routes, "smart" software, or carsharing. Some performance indicators were even rewritten numerous times in the course of the reforms. This is not a unique case of such biases in planning. For instance, plans from 1999 suggested extending the trolleybus network to each corner of the city, and in 2005 a new city ring road was opened but had not featured in the 1999 plans. Consequently, it appears that any vision framed in planning documents is not set in stone, and that subsequent actions do not necessarily reflect such plans, often resulting in rather short implementation processes.

Above all, in 2011, the office of the new mayor published the *Moscow Mayor's Comprehensive Plan for Solving Problems in the Moscow Transportation Hub* (*Kompleksnyi plan mera Moskvy po resheniyu problem Moskovskogo transpornogo uzla*) that proposed, amongst other measures, dismantling the trolleybus network in the city centre. Contrary to this statement, the GP published six months later proposed renewing the fleet by more than 300 vehicles per year. Therefore, the contribution of expertise to the process of knowledge production is also worth considering, after purely economistic arguments face the empirical challenge.

3.3. Bureaucratic Knowledge Production

At the start of the Moscow transportation reforms, the McKinsey & Company management consultancy contributed much to the knowledge of strategic issues among Deptrans and its subsidiaries. There are also numerous examples in which consultants left McKinsey to join the management of Deptrans. Some research

entities within Deptrans subsidiaries were then restored. A planning entity, Mostransproekt, joined the consultancy and planning services sector, while Centr Organisatzii Dorojnogo Dvijenia (Centre for Traffic Management) received substantial funding for traffic flow analysis, modelling, traffic violation control, and even road assistance services in the city. Under the reform, both entities significantly changed their structure, scope, and competences. Both also gathered much data that was not made available to the general public. Knowledge production was monopolised by the government, and only in very rare cases did public opponents find opportunities to discuss the performance of the reform. Other departments involved in delivering the transport reforms did the same. The Department of Major Repairs financed Strelka bureau for the development of a building code for pedestrianisation projects, while the Department of Construction supported its own scientific planning entity, called Institut Genplana (Moscow General Planning Research and Project Institute).

Furthermore, all performance metrics for the transportation system were represented primarily as percentage changes compared with previous years. In other words, exact numbers on traffic accidents, fleet renovations, average speeds, parking turnover, or even modal split were simply unavailable in official reports. Deptrans allocated funds to Mostransproekt for developing and testing autonomous driving technology (!) but did not fund the scrutiny of local issues. The budget spent trillions of roubles to solve road congestions but did not include assessment metrics. Planning and implementation of a new bus route network in the city centre took six months. A local politician (interview) stated that they spent three years negotiating with Deptrans for a new bus stop in the district. The construction sector is not an exemption. A good illustration is the Kalininsko–Solntsevskaya Metro line, which was extended by more than 30 km in the course of the reforms, but a 6-km long connection between the eastern and western parts is still absent.

Aside from subsidiary scientific entities, academic research centres also received research grants. They conducted empirical measurements of performance and also delivered knowledge about best practices. Following reassignment of the Moscow Urban Forum from its initial organisers to the city administration, it was promoted as the largest international conference on urbanisation issues, and delivered many fresh ideas in transportation and urban planning. The media also contributed substantially to the image of a technocratic city administration, purportedly recognised at the international level and well informed about recent trends: “Everything in Moscow is about PR” (transport journalist).

A former Deptrans project manager (during the interview he insisted that he was a project manager and not a bureaucrat or official) stated that surveys were conducted to justify prior decisions rather than to set the agenda for their work. The contribution of expertise mainly consisted of adjusting best practices to Moscow’s legal, administrative, and engineering specificities. This was intended to highlight measures that had already proven effective elsewhere. The set of solutions for solving traffic congestion is indeed a matter of bureaucratic reproduction. In other words, the Moscow transportation reform is an emulation of a “good” transportation policies observable in the biggest cities worldwide. Regardless of formal attachments to privately or publicly owned companies, the requirements identified for these policies were satisfied by acquaintances, friends, or even relatives of departmental bureaucrats. In the case of Deptrans, for instance, Transmashholding contributed to renovating rolling stock for Metro, tram, and heavy urban–suburban trains, and provided private bus and urban–suburban rail services. Funding from Moscow’s transportation budget fuelled technical developments and helped to expand to previously unavailable markets of diesel bus operation, as well as tram and trolleybus production.

Since expertise made little real contribution to the reform agenda, the decision-making process seemed to be short-term and rather voluntaristic in essence. Heads of departments in the city administration had to compete with each other for resources according to their areas of responsibility, and had to devise many pre-prepared suggestions concerning the subsequent implementations before meeting with each other. The pace and direction of the reform were thereby set during meetings in the mayor's conference room.

Formal and informal responsibilities enabled the mayor to play a key role in shaping the reform agenda. Ultimately, the mayor had the last word on investment decisions, by approving funding allocations to specific sectors. Simultaneously, the opposite tendency also occurred: some sectors were under-funded due to sabotage, technological aversion, or a lack of lobbying. Local pro-Western experts claimed that a trolleybus system was outdated, unpromising, doomed, and represented a Soviet (Blinkin & Vorobyev, 2016) form of urban transport, but the current Western focus on cycling infrastructure and light rail also received only modest funding. Such funding gaps reflect administrative responses within the bureaucracy, their internal analysis of efforts, and outcomes for the implementation of a specific technology. The mayor, however, did not play a neutral role, having both his own agenda and responding to those of his deputies. Moreover, the mayor had the greatest political weight in the negotiation processes, and was therefore able to progress almost all proposals that he found promising. The mayor's imagination was not limited by attachment to businesses that served the government. In that respect, the dismantling of the world's largest trolleybus system was a voluntaristic take by an individual whose primacy in a bureaucratic hierarchy allowed the exercise of almost unrestricted power:

> No one in the mayor's entourage has heard a clear reason for the decision. Only memoirs will bring light to the issue. Perhaps, at some point, they truly believed that e-buses could solve all problems, and—inspired by the idea—they stopped providing any explanations. (Head of an industrial enterprise)

4. Conclusion

Neoliberal orchestration of transportation in Moscow mainly comprises the set of governmental adjustments. All improvements and shortcomings in the course of the reform suggest the flow of funds towards a particular destination point. Expertise also received an additional "stop" in the system of redistributing transport funding, and had automatically become valuable. Experts were paid for their loyalty and for positive PR outcomes, but not for establishing an agenda during the discussion on local issues. In the case of Moscow, expert contributions did not shape a well-informed policy reflecting needs, but adjusted best practices to city's specificities. The need for analytical skills emerged, however, after fundamental decisions were already made. At the stage of setting the agenda, the scientific support—paradoxically—did not require scientific scrutiny. Consequently, the neoliberal orchestration of the transport system suggested mutual persuasion. One might deliver knowledge that is scientific in form but astrological in content (Rindzevičiūtė, 2023), while others pretend that it has value. This spectacle highlights that knowledge about transport is fundamentally bureaucratic.

Policy proposals (being taken from a "best practice" list) did not require justification, since their effectiveness was supposedly already demonstrated abroad. Subordinated "scientific elites" helped their "patrons" to form the list of available solutions. The agenda for reforming Moscow's transportation system was generated in bureaucratic circles, proposed by high-ranking officials in their competition for resources with each other. Thus,

a market relationship was shaped in the process of negotiations for change; and simultaneously, such meetings set the preliminary bureaucratic framework for implementation. Knowledge and information were thereby locked within the circles of bureaucrats who first defined the areas for investment, established the mechanisms of bureaucratic ordinance to finance them, and then delivered a supply to satisfy the demand. A "marketplace of ideas" could therefore even be very accurately located to the conference room of the mayor's office. In this process, the mayor represents the higher level of the "information processor" in having the last word in the negotiations around ideas, and had sufficient power to insist on his own agenda. His position in the hierarchy, and ceremonies accompanying it, allowed him almost unrestricted power.

In light of this observation, the discontinuation of the trolleybus system means the cessation of the constant money supply by the power of ceremonies: There was simply no option to say "NO." In the authoritarian context of the reform process, orchestration by voluntaristic decision-making is highly feasible. It allows rapid change, while blocking any unintended activity claimed by parties outside the bureaucracy.

The three controversies show the limitations of exclusively economistic explanations for the discontinuation of the trolleybus system, and bring attention to the politics of decision-making. Politics in that sense is a discussion concerning bureaucratic means of reaching a goal. Ceremonies around a particular position reflect the incumbent's personal power. The orchestration of Moscow's transportation reforms suggests redistribution of bureaucratically appropriated information and establishment of a hierarchy of responsibilities and power that streamline (or block) flows of funding in particular directions. Since the market is the information processor, the only agent that managed the information in the Moscow transportation system was the bureaucracy. The case shows how experts helped to depoliticise knowledge, strengthen the power of bureaucracies to shape agendas, and set the pace of reforms; how high-ranking bureaucrats established and controlled the system of money redistribution by first generating demand and then satisfying it with the help of business associates, friends, and relatives; and how accompanying ceremonies allow almost unrestricted power in pushing forward any favoured ideas.

Transportation improvements in Moscow under neoliberal conditions suggested specific choices without a diversity of options. Orchestration of the market has led to planning that—paradoxically—takes over the emancipatory claim of the brightest thinkers of the Mont Pèlerin Society, and erases the distinction between political, economic, and bureaucratic.

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References

Beddeleem, M. (2020). Recoding liberalism: Philosophy and sociology of science against planning. In D. Plehwe, Q. Slobodian, & P. Mirowski (Eds.), *Nine lives of neoliberalism* (pp. 21–46). Verso.

Beukers, E., Bertolini, L., & te Brömmelstroet, M. (2012). Why cost benefit analysis is perceived as a problematic tool for assessment of transport plans: A process perspective. *Transportation Research Part A—Policy and Practice*, *46*(1), 68–78.

Blinkin, M., & Vorobyev, A. (2016). *Trolleybus: ykhodyaschaya natura*. Polit.ru. https://polit.ru/article/2016/04/16/trolleybus

Brown, J. (2006). From traffic regulation to limited ways: The effort to build a science of transportation planning. *Journal of Planning History*, *5*(1), 3–34.

Bruff, I., & Tansel, C. (Eds.). (2020). *Authoritarian neoliberalism. Philosophies, practices, contestations*. Routledge.

Büdenbender, M., & Zupan, D. (2017). The evolution of neoliberal urbanism in moscow, 1992–2015. *Antipode*, *49*(2), 294–313.

Cahill, D., Cooper, M., Konings, M., & Primrose, D. (Eds.). (2018). *The Sage handbook of neoliberalism*. Sage.

Chertkovskaya, K., & Paulsson, A. (2022). The end of the line: Envisioning degrowth and ecosocial justice in the resistance to the trolleybus dismantlement in Moscow. *Local Environment*, *22*(4), 440–458.

Davies, W. (2018). The neoliberal state: Power against "politics." In D. Cahill, M. Cooper, M. Konings, & D. Primrose (Eds.), *The Sage handbook of neoliberalism* (pp. 279–283). Sage.

De Gregori, T., & Thompson, R. (1993). An institutionalist theory of bureaucracy: Organizations and technology. In N. Garston (Ed.), *Bureaucracy: Three paradigms* (pp. 83–99). Springer.

Djilas, M. (1975). *The new class. An analysis of the communist system.* Thames and Hudson.

Flyvbjerg, B., Skamris Holm, M., & Buhl, S. (2005). How (in)accurate are demand forecasts in public works projects? The case of transportation. *Journal of the American Planning Association*, *71*(2), 131–146.

Frolov, D. (2020). *Elektrobus: Vybor optimalnoy kontzeptzii*. Gorodskiye proekty. https://city4people.ru/uploads/files/2020/01/13/ciframi-dokazyvaet-effektivnost-dinamicheskoi-zaryadki_1578921767.pdf

Galaktionova, A., Rejter, S., & Golunov, I. (2015, October 26). Rassledovanie RBK: kto zarabatyvaet na stroitel'stve moskovskogo metro.*RosBiznesKonsalting*. https://www.rbc.ru/investigation/business/26/10/2015/5620e0329a79478e430f048c

Galbraith, J. K. (1967). *The new industrial state*. Houghton Mifflin.

Golubchikov, O., & Phelps, N. (2011). The political economy of place at the post-socialist urban periphery: Governing growth on the edge of Moscow. *Transactions of the Institute of British Geographers*, *36*, 425–440.

Golunov, I. (2015, October 19). Rassledovanie RBK: kto zarabatyvaet na rekonstrukcii Moskvy. *RosBiznesKonsalting*. https://www.rbc.ru/investigation/society/19/10/2015/561b6c739a79474587968837

Golunov, I., & Deryabina, A. (2015, August 12). Rassledovanie RBK: kto zarabatyvaet na remonte moskovskih dorog. *RosBiznesKonsalting*. https://www.rbc.ru/investigation/society/12/08/2015/55cb1d7c9a79474b293a4bff

Golunov, I., & Sunkina, V. (2014, December 26). Rassledovanie RBK: kto zarabatyvaet na platnoj parkovke v Moskve. *RosBiznesKonsalting*. https://www.rbc.ru/investigation/business/26/12/2014/549c63889a79475910e9700e

Graeber, D. (2016). *Utopia of rules*. Melville House.

Jessop, B. (2014). Repoliticising depoliticisation: Theoretical preliminaries on some responses to the American fiscal and Eurozone debt crises. *Policy & Politics*, *42*(2), 293–311.

Jiang, W., & Marggraf, R. (2021). The origin of cost–benefit analysis: A comparative view of France and the United States. *Cost Effectiveness and Resource Allocation*, *19*, Article 74.

Kerner, B. S. (2013). Criticism of generally accepted fundamentals and methodologies of traffic and transportation theory: A brief review. *Physica A: Statistical Mechanics and its Applications*, *392*(21), 5261–5282.

Kinossian, N., & Morgan, K. (2022). Authoritarian state capitalism: Spatial planning and the megaproject in Russia. *Environment and Planning A: Economy and Space*, *55*(3), 636–654.

Kühne, R. (2011). Greenshields' legacy: Highway traffic. In G. Beal (Ed.), *75 years of the fundamental diagram for traffic flow theory* (pp. 3–11). Transportation Research Board.

Luz, M., & Fernandez, R. (2023). Expropriation and the natural world: Some reflections on Karl Polanyi and Thorstein Veblen. *Journal of Economic Issues*, *57*(2), 432–437.

Mackie, P., Worsley, T., & Elliason, J. (2014). Transport appraisal revisited. *Research in Transportation Economics*, *47*, 3–18.

Mandel, E. (1992). *Power and money: A Marxist theory of bureaucracy*. Verso.

Mirowski, P. (2009). Postface: Defining neoliberalism. In P. Mirowski & D. Plehwe (Eds.), *The road from Mont Pèlerin: The making of the neoliberal thought collective* (pp. 417–455). Harvard University Press.

Mirowski, P. (2013). *Never let a serious crisis go to waste: How neoliberalism survived the financial meltdown*. Verso.

Miser, H. (1967). Letters to the editor. *Transportation Science*, *1*(1), 51.

Mouter, N. (2018). A critical assessment of discounting policies for transport cost-benefit analysis in five European practices. *European Journal of Transport and Infrastructure Research*, *18*(4), 389–412.

Nick-Khah, E. (2017). The "marketplace of ideas" and the centrality of science to neoliberalism. In D. Tyfield, R. Lave, S. Randalls, & C. Thorpe (Eds.), *The Routledge handbook of the political economy of science* (pp. 32–42). Routledge.

Nikolaeva, A., Adey, P., Cresswell, T., Lee, J., Nóvoa, A., & Temenos, C. (2019). Commoning mobility: Towards a new politics of mobility transitions. *Transactions of the Institute of British Geographers*, *44*, 346–360.

Ostrovsky, A. (2015). *The invention of Russia: From Gorbachev's freedom to Putin's war*. Atlantic Books.

Owens, S. (1995). From "predict and provide" to "predict and prevent"?: Pricing and planning in transport policy. *Transport Policy*, *2*(1), 43–49.

Peck, J., Brenner, N., & Theodore, N. (2018). Actually existing neoliberalism. In D. Cahill, M. Cooper, M. Konings, & D. Primrose (Eds.), *The Sage handbook of neoliberalism* (pp. 3–15). Sage.

Plehwe, D., & Schmelzer, M. (2015). Marketing marketization: The power of neoliberal expert, consulting, and lobby network. *Zeithistorische Forschungen / Studies in Contemporary History*, *12*, 488–499.

Proekt Media. (2020). *Zolotaja moja. Rejting glavnyh benefeciarov pohoroshevshej Moskvy*. https://www.proekt.media/guide/moskva-sobyanina

Rindzevičiūtė, E. (2023). *The will to predict*. Cornell University Press.

Schwanen, T. (2019). Transport geography, climate change and space: Opportunity for new thinking. *Journal of Transport Geography*, *81*, Article 102530.

Seely, B. (1987). *Building the American highway system: Engineers as policy makers*. Temple University Press.

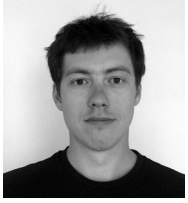
Stiglitz, D. J. (2009). Moving beyond market fundamentalism to a more balanced economy. *Annals of Public and Cooperative Economics*, *80*(3), 345–360.

Trubina, E. (2020). Sidewalk fix, elite maneuvering and improvement sensibilities: The urban improvement campaign in Moscow. *Journal of Transport Geography*, *83*, Article 102655.

Veblen, T. (1923). *Absentee ownership and business enterprise in recent times: The case of America*. George Allen & Unwin.

Weber, M. (1978). *Economy and society: An outline of interpretive sociology*. University of California Press.

About the Author



Egor Muleev is a PhD candidate and research associate at the Leibniz Institute for Regional Geography. Before moving to Germany in 2020, he worked as a researcher at the Institute of Transport Economics and Transport Policy Studies. He started his career in the field of transport and mobilities studies in 2011 and has been involved in various research projects since then. He holds an MA in Sociology.