Smart city in the global system of developmental governance

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Abstract. The study aims to analyze the rise of the smart city as a global project for the improvement of the territorial governance of social and economic development in late capitalist society. By using the methodology of the French regulation school, the author shows that political and economic significance of the smart city projects is defined by their role in the global network of information exchange characteristic of the post-Fordist regime of accumulation. Through the analysis of the smart city's role in stimulating innovations and maintaining the consumption patterns needed for the continuing market growth the present research demonstrates the objective necessity of installation of the city-centered system of global developmental governance.

1 Introduction

The goal of the study is to analyze current objectives and opportunities for the use of advanced information and communication technologies (ICTs) in smart city projects. It shows that over the last 10-15 years the prevailing emphasis in the utilization of ICTs in smart city projects has shifted dramatically. Starting with improvements in the efficiency of city services, smart cities have moved on to prioritize investments in democratization of the city management, inclusion of various groups of population in the process of strategic planning, and facilitation of innovations and collective decision making for the sake of the comprehensive betterment of the city environment. The key shift in the evolving global infrastructure of smart city projects is the formation of networked organizations that connect the global and the second-echelon smart cities into a unified system of management and regulation, which represents a new model of territorial governance of social and economic development in late capitalist society.

2 Context: the evolution of the smart city projects

Smart city (SC) projects have been acquiring increasing popularity over the last one and a half decade. When, in December 2016, the United Nations General Assembly endorsed the

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New Urban Agenda, its paragraph 66 committed the states and governments to adopting a smart-city approach that stimulates sustainable economic growth, improves the quality of city services and makes use of opportunities from digitalization, clean energy and technologies.

The first generation of the SC projects (Smart City 1.0) were called for to achieve improvements in the city management with the focus on service delivery and the efficient use of heat, water, energy and other resources, as well as prevention of traffic accidents and crime control through the ubiquitous installation of sensors and surveillance cameras. City planners used ICTs in a rather straightforward fashion while trying to figure out “how to put sensors in the community, network them together and feed the data they collected back into data centers where the information could be analyzed and intelligence extracted” [1].

The smart city was understood predominantly as a product and epiphenomenon of technology. ICTs were called for to automate work with large data sets, take over the monitoring, accounting and control of processes and facilities, contribute to timely decision-making by city authorities, and increase the collection of payments and fines and the convenience of urban services through automation and transition online.

As new digital infrastructures took over and evolved, it became obvious that technological breakthroughs in themselves do not solve social problems. Based on the results of opinion polls conducted in different countries, the governments and city planners moved on to revise priorities for the digitalization of municipal government.

The European Union defines the smart city as a city that seeks to address public problems through ICT solutions based on the establishment of multiple partnerships among various levels of government, municipalities, businesses and civil society stakeholders. Given a number of civil criteria, the second generation of the SC projects (Smart City 2.0) prioritizes not so much technological and techno-economic objectives but rather socio-political goals, which include bridging the digital divide and ensuring equal access to free internet services for all population groups.

Among the key indicators of a smart city, European Commission experts note: improving the quality of life, increasing resource efficiency and reducing environmental pressures, building a green and innovative economy, and promoting local self-government [2, p.7]. Since none of these aspects can be realized without active participation of citizens, researchers and administrators are paying increasing attention to the human aspect of the smart urban environment [3].

The State Program “Digital Economy of the Russian Federation” envisages, among other things, a set of measures to launch several SC projects. Notwithstanding the differences, all off these projects focus on the creation of an urbanized habitat, where, based on the wide introduction of ICTs in the daily activities of citizens and management processes, new opportunities are opened to increase the efficiency of the use of limited urban resources. Smart city projects combine the digitalization of municipal services with the computer-network mediation of relations between citizens, business and government bodies. According to the State Program, dozens of smart cities should appear in Russia by 2024. All Russian provinces and cities with a population of over 100 thousand people, as well as all administrative centers, take part in the implementation of the smart city projects.

It must be noted that, in Russia, smart cities are planned and organized from the center, in a “top-to-bottom” direction and without meaningful participation of local residents themselves. The discussion of development plans takes place between representatives of the government and the IT business. The smart city narrative imposed on the society by the Russian government and business coalitions is supposed to be objectively progressive, and therefore not in need of critical assessment.

The largest Russian cities – Moscow and St. Petersburg – are included in the top 100 smartest cities in the world. Meanwhile, most Russian cities, even innovation leaders such as Moscow, St. Petersburg, Kazan or Novosibirsk and the million-plus urban centers, experience chronic deficits of municipal budgets (Table 1), low and declining levels of financial security of the population and the worsening social differentiation.

The government insists on speedy introduction of digital technologies into the lives of Russian citizens. Digitization of all areas of life is envisaged by the national goals that strive to revolutionize the scientific, technical and socio-economic development of the country. At the same time, surveys show that urban residents are more concerned about the problems of corruption, environmental pollution, and housing insecurity, which are not solvable by the ICTs alone (Figure 1). Initiating SC projects in a piecemeal fashion of individual technological improvements against the background of declining and near-failing basic infrastructure seems like a waste of government resources. Focusing on the Smart City 1.0 projects (technology) when the rest of the world has moved on to Smart City 2.0 (social indicators) projects betrays a pattern of lagging development.

The latest generation of SC projects, united under the umbrella name of Smart City 3.0, are smart, sustainable cities that aim to involve people in management, as well as financial stewardship and environmental protection. Smart cities are called upon to overcome social exclusion, poverty and crime – to achieve everything that the state could not achieve. The modern concept of a smart city looks at ICTs as convenient tools for democratization of public institutions and a mainstream avenue to achieve sustained growth of human and social capital.

Table 1. Municipal budget deficits in Russia’s largest cities, 2019. Source [4].

City	Municipal budget deficit (mln RUB)
Moscow	276009.1
St. Petersburg	38636.4
Kazan	1172.9
Novosibirsk	2050.0
Omsk	930.5
Voronezh	1319.4
Samara	882.6
Rostov-on-Don	2114.5
Chelyabinsk	1225.4

Fig. 1. St. Petersburg’s residents on the main problems of their city [5].

Even so, all talks of social empowering notwithstanding, most spending on smart cities initiatives across the globe is being currently allocated to five key areas of investment:

- smart power system,
- video surveillance and visual monitoring systems;
- advanced transport systems;
- smart external lighting;
- smart management of urban traffic [6].

A characteristic feature of the self-consciousness of a late capitalist society is the idea of the limits of development. That is why the concept of an economical, minimally subsidized "smart" city is paired with the ideals of an environmentally viable, self-sustaining and self-replicating habitat. According to the International Telecommunication Union (ITU), a sustainable city is an urban settlement that balances economic growth with social justice and environmental protection. The UN initiative "Together for Smart Sustainable Cities," one of the coordinators of which is the International Telecommunication Union, is designed to contribute to the implementation of UN Sustainable Development Goal 11: "Ensure openness, security, resilience and sustainability of cities and human settlements."

In 2018, Moscow initiated cooperation with the UN ITU seeking to formulate and introduce key performance indicators for smart sustainable cities. Russia lags behind the developed countries of the world in such areas as the elimination of poverty, public health services and life expectancy, average per capita income, investments in human capital and the promotion of social equality. To achieve sustainable development goals adopted by the UN, Russia needs to speed up its transition to a modern digital economy. Will Russian cities, such as Moscow, which plans to relocate 1,000,000 Muscovites to new apartments with the latest ICT infrastructure for 5G in the next 15 years, be also able to provide affordable housing in accordance with Goal 11 of sustainable urban development? Or will it be the case that SC projects, planned for most urban centers of the Russian Federation, will result in diversion of significant resources from budget lines that could be used to deal with the existing dire problems of basic urban infrastructure? Fetishization of the assumed "smart city" solutions to everyday problems of urban life may well backfire and cause the outflow of population from economically disadvantaged cities and regions to Moscow and other privileged recipients of the federal moneys.

3 Methodology

To analyze the smart city as a preferred tool of territorial management today and a key part of the global drive for the improvement of developmental governance worldwide, a methodologically eclectic approach was adopted. The methodology of the French Regulation School (FRS) has been applied against the background of international political economy and the theory of international relations.

When transnational corporations, international organizations, national, regional and municipal governments interact in one strategic area to develop and implement ICTs they engage into what international relations scholars call "governance without government" [7]. This form of governance becomes necessary when historically established national governments fail to do what they were set to do. Soft management of territories on the basis of a city-region replaces hard management of territories on the basis of a nation-state. But why does this happen?

When representatives of the French Regulation School analyzed key features of the accumulation regime and the mode of regulation characteristic of the late capitalist period, they demonstrated the systemic crisis of classic industrialism ("Fordism") and the necessity

of its replacement by the post-Fordist system of regulation. However, the concrete features of the post-Fordist system of management of the society-wide processes of social and economic development were described in a rather preliminary way. Their deep study remains an unfinished business.

The present work argues that the emergence of the world network of smart cities and the transition to a postnational, network-based management of development is needed for the sake of stimulation of innovations and resurrection of consumption patterns that are required for the continuing growth of the capitalist market economy. Smart cities not only open new markets for the financial capital and the transnational corporations of the ICT sector but bring new life to the class-based, socially stratified scheme of mass consumption within the boundaries of a single city-region. Smart cities permit new grounding of the idea of “stakeholder capitalism” or “customer capitalism.” Thanks to the prevalence of the ICTs, even those social strata that fall through the cracks of this new model get a chance of some participation in all-city initiatives and some tools for self-organization through small deeds. The ongoing degradation of the national institutes of governance is being compensated by means of formation of a new world system of city-regions that evolve in parallel to the preplanned withdrawal of business and the state from the declining national and global peripheries.

The empirical data for the study was collected from official websites of several ICT firms and smart cities, as well as government documents and smart city development projects.

4 Functions of the smart city project in the global system of developmental governance

Managing social and economic development of late capitalism on the basis of territory meets with unique challenges. The COVID-19 pandemics intensified these challenges. The emerging approach to territorial governance that seems to be most flexible and adaptable to new risks of global nature can be seen in the ongoing process of formation of a new world system of city regions. For transnational corporations, smart cities open up new markets and provide the most convenient environment to function and grow (figure 2). The world center of concentric city networks is being formed: a circle of global cities based on several thousand smart cities that support and service them.

The political and economic impetus to this development has been given by the global crisis of the capitalist model of development framed within the boundaries of the nation-state. Today’s states were formed in preglobalization epoch. They have largely outlived their usefulness as agents of development or administrative entities capable of ensuring successful management of the inherited productive assets. Neoliberal globalization failed to deliver on its promises of global governance, sustainable development and steady incremental growth in investor capital and employment. The failure of the idea of total transnationalization of business and finance, workforce and management has been demonstrated with clarity by the Covid-19 pandemics, which exposed the inadequacy of both national and global (e.g., the World Health Organization or the UN) structures.

Successful administrative control in the era of the coronavirus global threat is demonstrated by a few highly centralized states, such as the People’s Republic of China, few hierarchically organized and traditionally disciplined societies, such as Korea or Japan, and individual municipalities and administrative regions, where the largely lost efficiency of national management and administration is having been restored locally.

Fig. 2. Smart city in the market-driven model of governance.

The global centre emerging today is not based on global organizations of the nation-states. It is based on a hundred or so of global cities, supported by dense information and communication networks that connect them with the rest of the world. All of the global cities are smart cities by definition. However, in addition to such global cities as Tokyo, Seoul, Shanghai, New York or London, hundreds of smart cities that are smaller in population or importance play a vital role in the newly formed system of global governance. Typically, they are regional supporters of global cities, transmitters of information and local hubs in the global system of information, capital and labour flows that traverse the boundaries of the existing nation-states.

The smart city project that is evolving in parallel to the crisis of neoliberal globalization project is also transnational in nature. However, we should be talking of transnationalization of a new kind: transnationalization that is selective, niche-based, existing in a network form and network-mediated. Internal segmentation of the leading western nations prevents their consolidation in the shape of a collective world centre. A new network of smart cities big and small, information and communication hubs located in the developed and developing nations across the globe replaces old institutions of the global centre. Few global cities appear to be not enough to stave off destructive processes that affect the world economy and international society today. Because of that, a new global governance project emerges. It is a project of a stratified global centre of several layers: the global cities of the Alpha, Beta and Gamma ranks (GaWC, n.d.) propped up by several thousand smart cities and settlements that service the needs of the upper layers. When this political and administrative restructuring of global governance is complete, the state as such will be transformed beyond recognition. It will merge with the city.

The dynamics behind this development is given by the very nature of the knowledge-based global economy. Modern economy is fully dependent on soliciting, promoting and exploiting innovation. But innovations are no longer the purview of individual researchers and inventors. Innovations today are based on social exchange and interactive learning. They are enabled by the specialized producers of knowledge dispersed among leading universities and research institutions, business firms and public sector networks. Pooling together intellectual and human resources of all of these parties is best facilitated through the establishment of “networked relations” within the territorial limits of the same city region. Thus, well above and beyond their traditional roles, cities need to create a civic infrastructure of innovation and support research commercialization, knowledge flows, and skills formation [8].

5 The smart city in the system of post-Fordist regulation

A distinctive characteristic of the smart city today is a somewhat paradoxical for the capitalist economy phenomenon: high technologies that used to be reserved for the elite and the military-industrial complex exclusively are now being transformed into a public good (free Wi-Fi, free or near-free access to the online resources). In the late capitalist epoch, advanced ICTs, biotechnologies and other cutting-edge advances in science are subjected to immediate commercialization for the sake of mass consumption. If early capitalism appropriated technological advances to serve the lifestyles of the privileged and the mature capitalism used technological innovations to prop up consumption of the middle classes, high technologies of the XXI century descend into the daily routines of the masses.

At the same time, smart cities do not appear because of public pressure or “pre-ordering” by the urban population. Most often, they grow out of state-private partnerships that extend beyond the city limits, or get launched upon the initiative of the higher organs of power. Implementation of the SC projects appears both necessary and inevitable, because this form of territorial governance seems predetermined by the concrete configuration of political and economic forces and resources of the late capitalist epoch. It is important to understand its main features.

The so-called “post-Fordist” epoch of the capitalist development undermines the vertically integrated firm and replaces it with decentralization of production, outsourcing, subcontracting and relocation of productive assets off shore. Mass production of stereotypical goods yields to flexible specialization that better responds to the minute variations in demand. Financial globalization destabilizes national welfare systems. National economic systems lose integrity and cohesion. In their place, international production networks arise. Internationally competitive industries that remain in this or that country concentrate in few regional clusters [9].

These developments facilitate freeing the industrial and financial capital from the shackles of national regulation and legal systems. They increase capital’s transnational mobility and profit margins [10]. The concentration of transnational corporations, intellectual and business elites within the boundaries of the same city region – the one that boasts the best competitive environment for the accumulation and mobility of capital – corresponds to this global trend. In addition to the provision of usual city services, smart cities provide civic infrastructure that is conducive to economic innovation and social inclusion and stimulate manifold interactions among governments, businesses, non-governmental organizations and communities that together account for a new quality of associational life in the city [8].

Representatives of the French Regulation School (FRS) characterize the post-Fordist model of development as “an extensive accumulation regime with fragmented mass

consumption” [11]. The consumerism of the late capitalist society is no longer mass consumerism. Consumption acquires a mass-individualized character, and the economy as a whole reorients itself from the mass production of goods toward the mass production of a nominally individualized yet preselected along the social class lines consumer. The emergence of an urban environment of a new type – a globalized, “smart”, socially stratified and preformatted according to the current fashion trends, ostensibly inclusive yet extraordinarily attentive to the market status environment – permits reproducing the dynamics of fragmented mass consumption in new spatial configurations of a city-region. This new, mass-individualized urban society rejects equality, sameness and standardization and replaces them with difference, uniqueness and variation [12]. Mass consumption of the elites that smart cities stimulate and enable resurrects the failing markets, creating a new type of the world economy and global politics and a new system of developmental governance. Strategic objectives of this new type of developmental governance are unashamedly elitist. Smart cities’ elites learn how to solve their problems directly and without any mediation of the upper layers of power. New urban diplomacy emerges and acquires global significance [13].

6 Conclusions

Late capitalism runs into the limits of its growth. National states prove themselves increasingly incapable of ensuring sustained growth of the market. In search of a new paradigm of social and economic development, humanity has found new possibilities in the rise of smart city-regions, connected by a global network of information exchange and resource flows. We are witnessing both fragmentation and reformatting of the world capitalist center.

This process, which has been launched by the neoliberal globalization of 1990s, draws center stage a globally echeloned network of city-regions. These city-regions should be “smart” in more than one sense, since they combine utilization of advanced technologies with several new functions of political and economic significance. Smart city-regions position themselves as a cornerstone of the world system of transnational interactions that aim to relaunch stagnating market development against the background of progressive debilitation of the capitalist nation-state. Key features of a smart city as an agent of a new developmental governance are its superb connectivity and its hub location in the global network of interacting political, economic and cultural centers.

Their superior saturation with last generation ICTs makes these cities “smart” by definition. However, not all of these cities play equally important role in the global network of regionally oriented developmental governance. There are smart global cities of the Alpha, Beta and Gamma ranks, as well as smart cities of regional and local importance that represent the projection of the idea of a smart global city in the periphery.

The present study hypothesized that the rise of the SC projects as a priority instrument for solution of manifold social problems has something to do with the ongoing crisis of the late capitalist mode of accumulation. Based on the theory and methodology of the French School of Regulation, it has been possible to postulate that the ongoing shift to a new system of global developmental governance that utilizes the potential of the world network of technologically advanced city centers is a necessity given the actual state of the market at the post-Fordist stage of capitalist development. Smart cities industries, population and consumption resurrect the investment potential of the finance capital and bring new life to the ICT sector, thus helping to overcome the deindustrialization tendencies of the advanced

capitalist states. Of key significance is the fact that smart cities open a new ground for mass-individualized consumption within the limits of an individual city-region.

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