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The Beginning of a 'Smart Development Era' in Azerbaijan: Smart Technologies and/vs Smart Decision-Making

Bairam Akhundov

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Abstract

The past few years in Azerbaijan have been marked by growing government interest in using 'smart' solutions in urban and rural planning. The results of the Karabakh conflict pushed these aspirations even further, with 'smart' technologies being seen as the key instruments in the redevelopment of the de-occupied territories. Since cities are vital mechanisms for economic growth, it is generally believed that applying modern technologies in urban and regional planning can increase the economic performance of a nation while ensuring sustainability. This article will discuss Azerbaijan's existing experience in 'smart' development and examine the extent to which the wider public participates (or will have an opportunity to participate) in the ongoing and future reforms.

Why Aim at Growing 'Smartly'?

Apart from being the greatest contributors to economic growth, Azerbaijan's cities account for 70% of its greenhouse gas emissions and 60% of resource use.¹ In view of the looming problem of climate change, it is vital to rethink our cities according to the key principles of sustainable development. Recent years have demonstrated an increased interest in applying sustainable solutions in urban planning. Today, the concept of 'smart cities'

is widely cited in the media and research as a potential solution to the 'economic growth vs climate change mitigation' dilemma and is seen as a panacea for the sustainable development of cities. The recent months demonstrate that the government of Azerbaijan appreciates the potential of smart technologies as promising and efficient tools for the redevelopment of the de-occupied districts of the Karabakh region, a result of the recent war between Azerbaijan and Armenia. As a developing

¹ See the United Nations' Sustainable Development Goals for Cities. Available at: <https://www.un.org/sustainabledevelopment/cities/> (accessed 24 July 2021).

economy aiming at steady economic growth, Azerbaijan needs to modernise its industrial and technological capacity by utilising ‘green’ or ‘smart’ solutions in order to meet its ambitious climate goals within the framework of Paris Agreement (e.g., decreasing greenhouse gas emissions by 35% by the year 2035) (World Bank, 2018). As it is seen from the Azerbaijani media today, there is a belief that the redevelopment of the districts will increase Azerbaijan’s access to smart technologies, making the whole region an innovation hub that can transfer its expertise to the rest of the country (Hacıyev, 2021).

Azerbaijan’s Quest for Smart Development

Recent years have witnessed growing rates of urbanisation in Azerbaijan. The urban share of Azerbaijan’s population has increased from 53.7% in 1990 to 56.4% in 2020,² which shows an increased interest among Azerbaijanis in cities as destinations for employment, education, social service provision and cultural participation. The growth of the urban population is strongly related to rising demand for natural resources (fossil fuels, water, land), consumer goods, and services, making the concerns over resource management more critical compared to the previous century. Based on this, on 19 April 2021, the President of Azerbaijan, Ilham Aliyev, adopted a decree on the development of the ‘smart city’ and ‘smart village’ concepts aiming at the effective use and management of available resources for sustainable development in urban and rural areas. The fact that this measure was taken by the head of the state months after the war’s conclusion is not just a coincidence. Today, the post-war period in Azerbaijan is seen as a starting point of a new era, in which the redevelopment of the de-occupied territories stands as a national strategy for the coming decades. It is not surprising that the first ‘smart village’ project was announced in the village of Aghaly in the Zangilan district of Azerbaijan (one of the de-occupied districts in Nagorno-Karabakh) on 26 April 2021—just one week after the adoption of the decree. The project is being developed based on the five ‘smart’ pillars (housing, production, social services, agriculture, and sustainable energy), and envisions the use of modern technologies and practices brought in by specialists from China, Turkey, Italy, and Israel.³

It is worth mentioning that the government has yet to make firm steps towards involving the wider parts of civil society in the redevelopment process of the de-occupied lands. From an outsider’s perspective, it is quite

noticeable that the decision-making processes are centralised and delegated to the governmental bodies that are accountable to the head of the state. The interests of internally displaced persons (IDPs) are seen to be generalised and distilled into the idea of repatriation only, while the government itself is portrayed as guarantor of a successful implementation of this process. Despite this, groups of IDPs are quite frequently taken to the de-occupied districts to see their homeland and witness the recent changes. Also, it is seen that the governmental bodies are making the initial steps to involve wider civilian groups into the redevelopment process. For instance, on 1 July 2021 the State Committee on Urban Planning and Architecture (or Arxkom) announced a competition entitled ‘The Renewed Image of Ancient Karabakh’ that aimed at giving independent professionals and architectural firms an opportunity to make their impact on the ongoing development process by designing conceptual visions for the development of five villages and the town of Khudafarin. According to the resource, the competition involved 21 projects, while the top three projects for each settlement got cash rewards. According to the press release by the Committee, the contestants demonstrated ways of utilising smart solutions in the planning and development processes, and the best suggestions are promised to be considered in the final decision-making process.⁴ Unfortunately, it is still unknown whether IDPs will have the opportunity to express their visions in the development process or not.

Previous Experience

It is worth mentioning that several smart projects in Azerbaijan were adopted before the adoption of the new governmental strategy. For instance, in 2011, to address the growing problems in Baku’s transportation system, the government established an Intelligent Management System for Transportation. Unfortunately, the project failed to design an adequate scheduling system for Baku’s public bus transportation system—a problem that is still not solved. Designing a ‘smart bus terminal’ for the Baku International Bus Terminal Complex (BBAK) and an intelligent elevator management system (centralised dispatcher service—CDS) for the city of Sumgait count among the recent examples of applying smart technologies in Azerbaijan. More precisely, BBAK, in cooperation with Cisco, plans to establish a smart management system built upon the use of several innovative technologies including smart lightning, smart parking, envi-

2 See World Bank Data, ‘Urban population (% of total population)’, <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS> (accessed 20 July 2021).

3 “‘Smart Village’ – Dünyanın ən ‘ağıllı’ layihəsi Qarabağda”, *AzVision.az*, 28 April 2021, <https://azvision.az/news/258574/--smart-village--dunyanin-en-agilli-layihesi-qarabagda-.html> (accessed 18 July 2021).

4 “‘Qədim Qarabağın yenilənən siması’ memarlıq müsabiqəsinə yekun vuruldu”, *Bizimqarabagh.az*, 19 August 2021, <https://bizimqarabagh.az/post/c2sz5bhcl1-qdim-qaraban-yenilnn-simas-memarliq-msabi> (accessed 21 September 2021).

ronmental monitoring, face recognition, licence plate recognition, accessible public Wi-Fi (Bakı Beynəlxalq Avtovağzal Kompleksi, 2019). The project in Sumgait in 2018 included replacement of the outdated Soviet-period elevators to modern analogues, which allowed the creation of a CDS under supervision of a new managerial body called 'Lift Servis'. The brand-new system helps with monitoring elevators remotely and providing maintenance and security services if necessary.⁵ Another smart project was announced on 22 May 2020 through a video conference between İlham Aliyev and Eric Rondolat, the CEO of Signify (former Phillips Lighting), a world-class lighting technologies company. According to the bilateral agreement, some 33,000 energy-efficient LED lamps will be installed in the city of Baku. It is believed that this lightning technology will allow up to a 50% reduction in the amount of electricity consumed for city lighting.⁶ Since the city of Baku and its vicinity is the largest metropolitan area in Azerbaijan, with a share of over 90% of the national economy (Jafarli, 2018), using energy-efficient technologies in Baku can be seen as a significant budget-saving measure.

Time to Be 'Smarter'

As seen from the Azerbaijani media today (İsmayilzadə, 2021),⁷ the concept of smart cities is being related to the use of advanced technologies, and it is generally believed they have the power to make qualitative changes in governance while improving the access of citizens to services provided by the state. Despite this, studies show that the smart approach to city planning should not be seen only through the lens of technologies, but also consider the importance of community and stakeholder participation in decision-making. For instance, according to Monzon (2015), smart strategies should be based on the inclusive participation of various stakeholders collaborating with government institutions. He adds that smart technologies should be used for achieving sustainable and resilient development and aim at improving quality of life (QoL). Also, Neirotti et al. (2014) state that the focal point of smart city projects should be the improvement of QoL that can be reached through optimisation of tangible resources (e.g., environment, infrastructure, natural resources) as well as intangible ones (e.g., knowledge capital, human capital).

In the context of Azerbaijan, ensuring public participation in decision-making remains an issue. It is impor-

tant to state that the city of Baku remains the only capital city of a Council of Europe member state in which 'mayor' is a non-elected position. Consequently, the last 30 years Baku urban planning has been characterised by a top-down decision-making model, in which stakeholder involvement as a process has more resembled a meeting of government officials with the representatives of large rent-seeking parties. The same pattern was seen throughout the recent development of a master plan for the city of Baku, as the meetings and workshops that were purportedly organised for all stakeholders did not involve the wider community and grassroots organisations. According to Albrechts (2006) and Albrechts & Balducci (2013), in the modern world, the main merit that makes an urban development plan stand out is its strategic nature—a principle that has its roots in the corporate world. It is believed that ensuring inclusiveness in the development process of an urban or a regional development plan is one of the five key factors (alongside selectivity, integration, visioning, and action orientation) that distinguish a strategic plan (the contemporary approach) from a comprehensive master plan (an outdated approach). The only attempt to more or less meet the standard for 'inclusiveness' was taken by publishing a brief version of the city plan on the website of Arxkom for public discussions.⁸ Only three months (from September to December 2020) were given to the public for reflecting upon the introduced plans; half of that period (44 days) coincided with the war in Karabakh.⁹ Eventually, the master plan discussions did not get the desired attention from the broader public, and Arxkom did not extend the given time frame.

Still a Ways to Go

The final master plan document is still not published, and so, Baku continues being a city without a new master plan since the independence of Azerbaijan. All the aforementioned factors demonstrate that there is still room for positive changes in terms of public participation in city planning, which is among the key pillars of smart development. Despite the lack of inclusiveness provided in the previous projects, some good news has arrived recently. On 9 July 2021, Arxkom announced a selection of potential members of a Public Council that will involve 11 members representing civil society institutions (one member per chosen institution). According to the introduced guidelines, the potential candidates

5 'Sumqayıt "Ağıllı şəhər"ə çevrilir', *SumqayıtXeber.com*, 3 June 2020, <https://sumqayitxeber.com/sumqayit-agilli-sehere-cevrilir/> (accessed 18 July 2021).

6 'Bakıda yeni layihə – 33 MİN LED İŞIQ QURASDIRILACAQ', *FED.az*, 23 May 2020, <https://fed.az/az/energetika/bakida-33-min-led-isiq-qurasdirilacaq-81168> (accessed 20 July 2021).

7 'Qarabağ "smart region"ə çevriləcək', *Vergilər Qəzeti*, 1 February 2021, <https://vergiler.az/news/economy/11706.html> (accessed 11 July 2021).

8 'Bakı şəhərinin Baş planı 2040', <https://arxkom.gov.az/bakinin-bas-planı> (accessed 22 July 2021).

9 'Bakı şəhərinin Baş planının ilkin layihəsi virtual sərgi formatında ictimaiyyətə təqdim olunur', <https://arxkom.gov.az/bakinin-bas-planı/xeberler/baki-seherinin-bas-planinin-ilkin-layihesi-virtual-sergi-formatinda-ictimaiyyete-teqdim-olunur> (accessed 23 July 2021).

were given 20 working days to send in their applications and should possess knowledge in architecture and urban planning.¹⁰ On 11 September 2021, the 11 representatives¹¹ of the Public Council were elected from a pool of 18 candidates by the members of 112 civil society organisations¹² via secret ballot elections. The role of the Public Council is specified by Arxkom as a body that, while representing civil society institutions, would ‘participate in the adoption of legal acts governing the activities of the Committee’ and would ‘organise public control in relevant areas’. Regarding the amount of authority and power given to the members of the Public Council, Arxkom refers to the Law of the Republic of Azerbaijan on Public Participation from 1 June 2014,¹³ which they published among other legal documents on their website.¹⁴

Unfortunately, it is too early to make adequate conclusions at this point, but this can be considered as the first serious step towards assuring stakeholder participation in urban planning in Azerbaijan. It is worth mentioning that despite Arxkom’s critical reform, ensuring broader participation remains another vital step to take. In practice, there are various methods for enhancing inclusiveness in city planning decision-making. For instance, while designing a development plan for the city of Istanbul, the responsible institution, Istanbul Development Agency, organised a six-month social media campaign with a particular user-friendly hashtag that allowed everyday citizens to share their visions on the future of their city (Istanbul Development Agency, 2016).

Despite the recent attempts to make changes in its decision-making model, Arxkom still has a ways to go in terms of improving inclusiveness. Giving voice to wider social groups at least on the level demonstrated in Turkey, which is close to Azerbaijan both culturally and politically, would be a more promising model for improving

public participation in urban planning. To reach these goals, Azerbaijan still requires adequate reforms in its territorial organisation. In the existing system, the municipalities have limited political and economic power, while the executive chiefs are not elected but rather appointed directly by the head of the state.¹⁵ Despite this, it seems that the war itself and the existing economic situation in Azerbaijan are pushing the state authorities to make some changes in the current decision-making models. Not to put the following on the level of the suggested earlier reforms, but the fact of the involvement of young professionals in the redevelopment of settlements in Nagorno-Karabakh as well as the creation of the Public Council itself demonstrate that there is a new decision-making culture emerging in Azerbaijan. State authorities are putting noticeably more trust in the country’s human capital, and are ready to gradually share their responsibilities with a broader constellation of actors than before.

Conclusion

It is evident that the government of Azerbaijan sees smart technologies as a tool for enhancing the quality of state services and ensuring efficient use of resources. The first steps to applying smart solutions in urban development were taken prior to the recent war in Nagorno-Karabakh, but it is noticeable that the results of the conflict accelerated the process of adopting smart strategies in the development of urban and rural areas. The fact that the President of Azerbaijan decided to institutionalise the state’s desire to be ‘smart’ gives the feeling that the next decades could witness noticeable changes in urban and rural development policies. Without the state leadership’s firm steps towards improving accountability and ensuring inclusiveness in urban planning decision-making, Azerbaijan’s quest for smart development runs the risk of becoming a paper tiger.

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11 [Arxkom.gov.az](https://arxkom.gov.az). 2021. Azərbaycan Respublikasının Dövlət Şəhərsalma və Arxitektura Komitəsi yanında İctimai Şuranın üzvlüyünə seçilmiş namizədlərin siyahısı. Available at: <https://arxkom.gov.az/storage/files/files/1/613f453383866.pdf> (accessed 24 September 2021).

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Smart Transportation in Azerbaijan: What Can Be Done?

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Abstract

The following article looks at existing models of smart transportation and which of their components could be applied in Azerbaijan. The paper discusses the current possibilities, some applied policies, and challenges of implementation of smart transportation in the country. The main notion of the article is that smart technologies, such as the Internet of Things and big data, can fix certain socio-economic problems, while the process and human capital are the main determiners of success of a given initiative. Furthermore, the article suggests some recommendations on the effectiveness and efficiency of the implementation of smart transportation and analyse what can be done in the urban context of Baku.

Introduction

The growing urbanisation of the past years has led to increased vehicle traffic in Azerbaijan's cities, resulting in extra focus on traffic management and its improvement as a part of city planning. In this case, the improvement and efficiency of smart transportation or mobility has become one of the priorities of the Baku's 'smart city' plan. The question is what exactly 'smart transportation' is, and how it can make movement through cities more

efficient. The 'Internet of Things (IoT) manages, evaluates, and monitors transportation systems to be effective, efficient and safe' (Mazur, 2020). The idea: smart sensors and controllers handle all the traffic management, only interfering when necessary. Thus, the importance of new technologies and their management is paramount in the implementation of a smart transportation system. Moreover, it is safer than traditional transportation system, as it involves machine learning and IoT;