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**“WOMEN IN INNOVATION AND SCIENCE”
XALQARO ILMIY-AMALIY KONFERENSIYA VA FORUMI
ILMIY ISHLARI TO‘PLAMI**

Toshkent davlat transport universitetida 2026-yil 27-mart kuni “Women in Innovation and Science” xalqaro forumi ilmiy ishlari to‘plami chop etildi.

Mazkur nufuzli tadbirlar O‘zbekiston Respublikasi Oliy ta’lim, fan va innovatsiyalar vazirligi hamda Transport vazirligi hamkorligida tashkil etilib, mamlakatimizda ilm-fan, innovatsiyalar va zamonaviy texnologiyalarni rivojlantirish, shuningdek xalqaro ilmiy hamkorlikni yanada kengaytirishga qaratilgan muhim platforma hisoblanadi.

Konferensiya ochilish marosimida davlat organlari, xalqaro tashkilotlar va yetakchi oliy ta’lim muassasalari vakillari ishtirok etdi. Jumladan, Toshkent davlat transport universiteti rektori G‘ulomov Abdulaziz Abdullayevich, O‘zbekiston Respublikasi Transport vazirligi vakili Ulmasova Lobarkhon Adilovna, Osiyo taraqqiyot banki eksperti Claire Charnac, Istanbul Aydin universiteti vasiylik kengashi raisi Mustafa Aydin, Belarus davlat transport universiteti rektori Kazakov Nikolay Nikolayevich hamda Qirg‘iziston Respublikasi Transport vazirligi vakili Dinara Moldokalieva ishtirok etdilar.

Konferensiya ilmiy dasturi doirasida plenar va panel sessiyalar, shuningdek ilmiy ma’ruzalar taqdimoti o‘tkazilib, ularda sun’iy intellekt va raqamli texnologiyalarni iqtisodiyot va ta’limga joriy etish, transport va aviatsiya sohasida innovatsion yechimlar, sanoat va IT sohasida texnologiya transferi, shuningdek ta’limda raqamli platformalar va intellektual tizimlar kabi dolzarb masalalar yoritildi.

2026-yil 27-mart kuni o‘tkazilgan “Women in Innovation and Science” xalqaro forumi ayollar yetakchiligi, innovatsiyalar va STEM sohalariga bag‘ishlangan bo‘lib, mamlakatimizda ayollarning ilm-fan va texnologiya sohalaridagi ishtirokini kengaytirish, ularning yetakchilik salohiyatini rivojlantirish hamda xalqaro hamkorlikni mustahkamlashga qaratilgan strategik maydon sifatida tashkil etildi.

Forum doirasida ayollar yetakchiligini rivojlantirish va rag‘batlantirish, xalqaro tajriba almashinuvi va ilmiy tarmoqlarni kengaytirish, yosh tadqiqotchi ayollar va PhD talabalarni qo‘llab-quvvatlash hamda innovatsion ekotizimlarda gender tenglikni ta’minlash kabi ustuvor vazifalar amalga oshirildi. Shuningdek, forumda ayollar yetakchiligi va STEM, gender tenglik va ilm-fan institutsional rivoji, ayollar tadbirkorligi va innovatsion startaplar, innovatsiya ekotizimlari va xalqaro hamkorlik, yosh ayol tadqiqotchilarni rivojlantirish, mentorlik va akademik tarmoqlar yo‘nalishlarida tematik sessiyalar tashkil etildi.

Forumda davlat organlari, xalqaro tashkilotlar, yetakchi oliy ta’lim muassasalari va ilmiy markazlar vakillari, jumladan “OLIMA” uyushmasi raisi Murtazayeva Raxbar Hamidovna, “Sharq ayoli” xalqaro ayollar jamoat fondi raisi Tursunbayeva Saodat Gafurovna, Osiyo taraqqiyot banki eksperti Claire Charnac, O‘zbekiston Respublikasi Transport vazirligi vakili Ulmasova Lobarkhon Adilovna, Toshkent davlat transport universiteti rektori G‘ulomov Abdulaziz Abdullayevich, Qirg‘iziston Respublikasi Transport vazirligi vakili Dinara Moldokalieva hamda Indoneziyadan universitet dekani Yoga Prihatin ishtirok etdilar.



Shuningdek, forumda Yevropa va Osiyo davlatlaridan yetakchi olimlar, ekspertlar va yosh tadqiqotchilar keng qatnashdi.

Forum dasturiga ochilish marosimi, panel muhokamalar, ilmiy chiqishlar hamda professional rivojlanish bo'yicha workshoplar kiritilgan bo'lib, ular doirasida gender tenglik, ayollar karyerasini rivojlantirish, ilmiy tadqiqotlar va innovatsion boshqaruv bo'yicha amaliy seminarlar tashkil etildi.

Mazkur tadbirlar Osiyo taraqqiyot banki (ADB), "OLIMA" — O'zbekiston xotin-qizlar olimlari uyushmasi, "Sharq ayoli" xalqaro ayollar jamoat fondi, Germaniya xalqaro hamkorlik jamiyati (GIZ), shuningdek Rossiya, Turkiya, Indoneziya va Qirg'iziston oliy ta'lim muassasalari hamda Belarus Milliy fanlar akademiyasi ilmiy institutlari hamkorligida o'tkazildi.

Mazkur xalqaro ilmiy-amaliy konferensiya va forumning ahamiyati shundaki, ular xalqaro ilmiy hamkorlikni mustahkamlash, innovatsion ishlanmalarni amaliyotga joriy etish, raqamli va barqaror rivojlanishni ta'minlash, shuningdek ayollarning ilm-fan va innovatsiya sohalaridagi rolini kuchaytirishga xizmat qiladi. Shu bilan birga, mazkur tadbirlar yosh olimlar va tadqiqotchilarni qo'llab-quvvatlash, ilmiy tajriba almashish hamda global ilmiy makonga integratsiyalashuvni jadallashtirishda muhim ahamiyat kasb etadi.

Mazkur xalqaro ilmiy-amaliy konferensiya va forumning maqsadi zamonaviy ilmiy tadqiqot yo'nalishlarini muhokama qilish, innovatsion yondashuvlar va ilg'or texnologiyalar bo'yicha ilmiy natijalar almashuvini ta'minlash, shuningdek xalqaro ilmiy hamkorlikni rivojlantirishdan iboratdir.

Tadbirda O'zbekiston Respublikasi hamda xorijiy mamlakatlarning oliy ta'lim muassasalari va ilmiy-tadqiqot institutlari olimlari, shuningdek amaliyotda muhim natijalarga ega bo'lgan mutaxassislar o'z ilmiy ishlari bilan ishtirok etdilar.

Ushbu ilmiy to'plamda muhandislik, transport, raqamlashtirish, sun'iy intellekt, innovatsion boshqaruv, gender tenglik va barqaror rivojlanish sohalarida faoliyat yuritayotgan yetakchi olimlar, professor-o'qituvchilar va tadqiqotchilarning ilmiy ishlari jamlangan. To'plamda dolzarb ilmiy muammolar, zamonaviy yechimlar, nazariy va amaliy tadqiqot natijalari yoritilib, ushbu yo'nalishlarning bugungi holati va istiqboldagi rivojlanish tendensiyalari aks ettirilgan.

Mazkur nashr mamlakatimizda ilm-fan va innovatsion rivojlanishni ta'minlash, xalqaro ilmiy aloqalarni mustahkamlash hamda yosh olimlar va tadqiqotchilarni qo'llab-quvvatlash yo'lidagi muhim qadamlardan biri sifatida e'tirof etiladi.

Shuningdek, mazkur ilmiy to'plamda keltirilgan natijalar kelgusida ilmiy tadqiqotlar samaradorligini oshirish, amaliyotga yo'naltirilgan innovatsion yechimlarni keng joriy etish hamda sohalararo integratsiyani chuqurlashtirish uchun muhim ilmiy asos bo'lib xizmat qiladi. To'plam materiallari nafaqat ilmiy jamoatchilik, balki ishlab chiqarish sohasi mutaxassislari, doktorantlar va talabalar uchun ham foydali manba hisoblanadi.

Mazkur nashrda yoritilgan ilmiy g'oyalar va ilg'or yondashuvlar asosida yangi ilmiy izlanishlar olib borilishi, xalqaro ilmiy aloqalarning yanada rivojlanishi hamda innovatsion rivojlanish strategiyalarining takomillashishiga xizmat qilishi kutilmoqda.



The 15-minute city as a framework for sustainable urban development: A comparative analysis of proximity-based planning in Paris, Vienna, and Tashkent

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Abstract:

The 15-minute city has emerged as a contemporary urban planning paradigm aimed at improving sustainability, social equity, and quality of life by ensuring that essential daily services are accessible within a short walking or cycling distance from residential areas. By prioritizing proximity, mixed land use, and active mobility, the model challenges car-dependent urban development patterns and promotes human-centered urban environments. This paper examines the theoretical foundations of the 15-minute city concept, its implications for urban mobility and governance, and its applicability across diverse urban contexts, including transitional cities. Using a qualitative and comparative analytical approach, the study reviews international implementation practices and policy frameworks in order to identify both the opportunities and limitations of proximity-based planning. The findings indicate that the 15-minute city represents a flexible and adaptive framework for sustainable urban development; however, its successful implementation depends on integrated transport systems, inclusive planning policies, and context-sensitive adaptation to local socio-spatial conditions.

Keywords:

15-minute city, sustainable urbanism, proximity planning, walkability, urban mobility, inclusive development

1. Introduction

Rapid urbanization and motorization have significantly reshaped contemporary cities, often resulting in traffic congestion, environmental degradation, and socio-spatial inequality. Throughout the twentieth century, car-oriented planning paradigms prioritized speed and vehicular mobility, frequently at the expense of accessibility, public health, and urban livability. As a consequence, cities worldwide are increasingly seeking alternative planning approaches that emphasize sustainability, resilience, and human well-being [1].

In this context, the 15-minute city has gained global attention as a new urban paradigm. The concept proposes that residents should be able to access essential daily services—such as employment, education, healthcare, retail, and recreational spaces—within a 15-minute walk or bicycle ride from their homes. Rather than limiting mobility, the model aims to expand individual choice by reducing compulsory car dependence and strengthening local accessibility [2].

This paper critically analyzes the 15-minute city as a framework for sustainable urban living, focusing on its theoretical foundations, mobility implications, governance requirements, and practical limitations.

Literature review

The principles underlying the 15-minute city are rooted in earlier urban theories advocating compact, mixed-use, and walkable environments. Jacobs emphasized the importance of functional diversity and vibrant street life, while the New Urbanism movement promoted pedestrian-oriented neighborhood design. Building on these foundations, the 15-minute city introduces a temporal dimension to accessibility

by evaluating urban performance in terms of travel time rather than physical distance [3, 4, 15].

Recent studies associate proximity-based urbanism with a wide range of environmental, social, and economic benefits. Walkable neighborhoods are linked to lower greenhouse gas emissions, reduced energy consumption, and improved air quality [5, 16]. Active mobility—particularly walking and cycling—also contributes to improved public health outcomes and lower rates of non-communicable diseases [6, 17]. Moreover, local accessibility strengthens neighborhood economies and social cohesion by encouraging local consumption and everyday social interaction [7, 18].

To operationalize proximity-based planning, several analytical frameworks have been developed, including the Flower of Proximity model. This framework evaluates accessibility across multiple daily-life dimensions such as education, healthcare, commerce, recreation, and mobility within defined time thresholds [15, 19]. Such multidimensional approaches allow planners to assess not only spatial proximity but also functional balance and equity in service distribution.

Despite its growing popularity, the 15-minute city concept has faced criticism. Some scholars argue that it oversimplifies complex urban systems and underestimates the need for city-wide and regional mobility, particularly for specialized services and employment sectors [8, 20]. Others warn that improvements in neighborhood accessibility may increase property values and accelerate gentrification if equity-oriented housing and land-use policies are not implemented simultaneously [9, 21, 25].

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2. Research methodology

This study adopts a qualitative and conceptual research methodology. Secondary data sources—including academic literature, international policy documents, and urban planning reports—are systematically reviewed to evaluate the principles and implementation strategies of the 15-minute city model.

A comparative case study approach is employed to examine cities where the concept has been actively implemented, particularly Paris and Vienna, and to assess its potential applicability in transitional urban contexts such as Tashkent.

The analytical framework focuses on four key dimensions:

- land use and spatial proximity;
- mobility systems;
- governance and policy instruments;
- social equity considerations.

This multidimensional approach enables a comprehensive assessment of both the opportunities and constraints associated with proximity-based urban planning [2]. The conceptual framework used in this study is illustrated in Figure 1.



Fig. 1. Conceptual framework of the 15-minute city for sustainable urban development

3.1 Mobility and Accessibility in the 15-Minute City

Mobility plays a central role in the 15-minute city paradigm. The model prioritizes walking and cycling as primary modes of everyday travel, supported by high-quality public transport for longer-distance journeys.

Achieving this transition requires the reallocation of urban street space through wider sidewalks, protected bicycle lanes, traffic calming measures, and improved pedestrian safety [4, 10].

Public transport integration is essential to ensure that proximity-based neighborhoods remain connected to the broader urban system. Efficient, frequent, and accessible transit services allow residents to reach specialized services and employment opportunities beyond the 15-minute radius.

In addition, micromobility solutions—such as shared bicycles and e-scooters—can address first- and last-mile connectivity challenges and extend the functional reach of active mobility [11].

By reducing reliance on private automobiles, the 15-minute city contributes to lower carbon emissions, decreased traffic congestion, and improved urban air quality, supporting global climate and public health goals [5, 23].

3.2 Policy and Governance Implications

The successful implementation of the 15-minute city depends on supportive policy frameworks and effective governance structures.

While neighborhood-scale interventions are important, broader systemic challenges—including housing affordability, land-use regulation, and infrastructure investment—must be addressed at the city-wide level [12].

Key policy instruments include:

- mixed-use zoning policies;
- affordable housing regulations;
- investments in public transport and pedestrian infrastructure;
- protection of local services.

Participatory planning processes are equally critical, as they ensure that local communities are actively involved in decision-making and that urban transformation does not exacerbate existing social inequalities [7].

International examples demonstrate that proximity-based planning can be institutionalized through planning guidelines and evaluation tools. For instance, Melbourne's 20-minute neighbourhood policy provides a structured framework for assessing accessibility and guiding urban development [13, 24].

3.3 Case Studies: Paris, Vienna, and Transitional Cities

Paris is widely regarded as one of the most prominent examples of the 15-minute city in practice. Since 2020, the city has pursued a comprehensive urban transformation strategy aimed at decentralizing daily services and prioritizing proximity-based living. Major initiatives include the expansion of cycling infrastructure, pedestrianization of school streets, conversion of schoolyards into community spaces, and the creation of green infrastructure such as urban forests and pocket parks.

Vienna offers a complementary model of proximity-based urban development based on long-term strategic planning, a strong social housing system, and a highly efficient public transport network. The city's polycentric structure ensures that essential services—including education, healthcare, retail, and green spaces—are distributed across multiple neighborhood centers, reinforcing both accessibility and social equity [14].

To better illustrate the differences in planning approaches and urban structures among the selected cities, a comparative overview is presented in Table 1.

Table 1
Comparative Analysis of the 15-Minute City Implementation: Paris, Vienna, and Tashkent

Indicator	Paris (France)	Vienna (Austria)	Tashkent (Uzbekistan)
Urban planning paradigm	Explicit implementation of the 15-minute city concept	Polycentric compact city model	Transition from Soviet functional zoning toward mixed-use planning



Spatial structure	Dense urban fabric with decentralized neighborhood hubs	Polycentric structure with multiple local centers	Predominantly mono-functional residential districts
Land-use pattern	Strong mixed-use redevelopment	Stable mixed-use zoning	Predominantly separated land uses
Mobility priority	Walking, cycling, and public transport prioritized	Public transport and active mobility dominant	Private car use dominant
Cycling infrastructure	Rapidly expanding protected bicycle network	Well-developed cycling infrastructure	Fragmented and limited cycling facilities
Pedestrian environment	Pedestrianized streets and traffic-calmed zones	Wide sidewalks and pedestrian-friendly public spaces	Uneven pedestrian infrastructure
Public transport integration	Strong integration with proximity-based neighborhoods	Efficient city-wide public transport network	Existing network with limited integration with walkability
Green and public spaces	Urban forests, pocket parks, and schoolyard conversions	High-quality green spaces integrated into neighborhoods	Large green areas with uneven accessibility
Governance approach	Strong political leadership and policy support	Stable long-term planning institutions	Fragmented governance framework
Community participation	Participatory budgeting mechanisms	High level of public involvement	Informal participation through mahalla institutions
Housing and equity policy	Risk of gentrification; regulatory mitigation	Strong social housing system	Limited affordable housing policies

Overall implementation level	Fully implemented strategic model	Long-term proximity-based urban planning	Early-stage conceptual development
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The comparison presented in Table 1 highlights significant differences in how proximity-based urban planning is implemented across the three cities. Paris demonstrates a rapid policy-driven transition toward the 15-minute city through active mobility policies and decentralized service provision. Vienna represents a stable and long-term proximity-oriented urban model supported by strong institutional frameworks and social housing policies. In contrast, Tashkent reflects the characteristics of a transitional urban context where mono-functional zoning patterns and increasing car dependency still dominate the urban structure.

In contrast, transitional cities—particularly those in Central Asia—face structural challenges that complicate the direct adoption of the 15-minute city model. Soviet-era planning traditions often resulted in mono-functional zoning, wide arterial roads, and spatial separation of residential and service areas. Nevertheless, neighborhood structures such as the mahalla system provide a valuable foundation for adapting proximity-based planning principles to local conditions.

To further evaluate accessibility to everyday services within the 15-minute city framework, the Flower of Proximity analytical model is applied. The comparative assessment of the selected cities is presented in Table 2.

Table 2
Flower of Proximity–Based Comparative Assessment of Paris, Vienna, and Tashkent

Indicator	Paris	Vienna	Tashkent
Education accessibility	Schools and childcare accessible within walking distance	Even distribution of educational facilities	Uneven distribution of educational services
Health services	Local clinics and pharmacies integrated in neighborhoods	Decentralized healthcare system	Primary healthcare available but uneven
Retail and daily services	Dense network of local shops and markets	Balanced local retail distribution	Retail concentrated along major corridors
Green spaces	Urban forests, pocket parks, and green corridors	Well-distributed parks and public spaces	Large green spaces with limited accessibility



Indicator	Paris	Vienna	Tashkent
Mobility	Strong cycling infrastructure and pedestrian priority	Integrated public transport and active mobility	Car-oriented mobility structure
Multimodal connectivity	Strong integration of micromobility and transit	Highly integrated multimodal transport	Limited integration between walking and transit
Equity of service distribution	High accessibility in most districts	Relatively uniform accessibility	Significant spatial inequality
15-minute accessibility	Most daily services accessible within 15 minutes	Services accessible within or near 15 minutes	Partial accessibility within 15 minutes
Implementation maturity	Advanced	Mature and stable	Early-stage development

The results summarized in Table 2 demonstrate that Paris and Vienna exhibit relatively balanced accessibility across most proximity indicators. In these cities, mixed-use development patterns, well-developed pedestrian environments, and integrated public transport systems allow residents to access essential services within short distances. In contrast, Tashkent displays a more uneven distribution of accessibility indicators, particularly in relation to mobility infrastructure and retail service integration. These findings indicate that improving walkability, strengthening multimodal transport integration, and promoting mixed-use development are essential steps for advancing proximity-based urban planning in transitional cities.

However, implementing such planning approaches requires significant investments in pedestrian and cycling infrastructure, mixed-use redevelopment, and stronger integration with public transport systems.

3. Conclusion

The historical and cultural heritage of Bukhara is a living testimony to many eras and civilizations. Past experience shows that successful preservation of monuments is possible only with a combination of respect for traditions, a scientific approach and modern technologies. In the context of globalization, urbanization and the growth of tourism, the task of preserving the authentic appearance of ancient Bukhara is becoming especially urgent. Responsibility for the future of the city lies with both specialists and the general public, for whom Bukhara is not just a tourist attraction, but a part of the world's cultural memory. The analysis shows that despite the significant efforts made in the 20th-21st centuries, the processes of preservation, reconstruction and restoration of historical sites face a number of serious

problems. These include: inconsistency between modern engineering solutions and traditional construction technologies; lack of qualified specialists in the field of scientific restoration; destructive influence of natural factors and urbanization pressure; non-compliance with international standards in a number of restoration projects; commercialization and tourist pressure, leading to the loss of the authenticity of the historical environment. The future of historical Bukhara directly depends on a conscious attitude towards its cultural heritage. Only in the conditions of a scientifically grounded, ethically balanced and legally regulated approach is it possible to ensure the preservation of this unique civilizational phenomenon for future generations.

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