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ЦИФРОВАЯ ТРАНСФОРМАЦИЯ БОЛЬШОГО ГОРОДА КАК ОБЪЕКТ СОЦИОЛОГИЧЕСКОГО АНАЛИЗА

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На примере городской среды представлен социологический анализ феномена «цифровая трансформация». Описываются этапы становления научного дискурса о данном феномене (автоматизация, оцифровка, цифровизация и цифровая трансформация). На основе эмпирических данных предлагаются конкретные индикаторы социологического измерения цифровой трансформации города (соотношение цифровых и традиционных способов решения прикладных задач, выход цифровых технологий за пределы утилитарного использования, мотивация освоения новых технологий). С использованием полученных индикаторов выстроена типология цифровых типов горожан.

Ключевые слова: городская среда; цифровой город; цифровая трансформация; эмпирические индикаторы; цифровые типы горожан.

DIGITAL TRANSFORMATION OF A BIG CITY AS AN OBJECT OF SOCIOLOGICAL ANALYSIS

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The article presents a sociological analysis of the digital transformation phenomenon (the case of Minsk). The chronology of the stages of the formation of scientific discourse about this phenomenon (automation, digitisation, digitalisation and digital transformation) is described. Specific indicators of the sociological dimension of the digital transformation of the city based on empirical data are proposed (the ratio of digital and traditional methods of solving applied problems, the exit of digital technologies beyond their utilitarian use, motivation for the development of new technologies). Using the obtained indicators, a typology of digital types of citizens is constructed.

Keywords: urban environment; smart city; digital transformation; empirical indicators; digital types of citizens.

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Introduction

Initially the ideas of digital city appeared in the social sciences in the 1970–80s as a concept of new urbanism and smart growth based on sustainable development and preservation of urban specificity that should replace the industrial model of extensive, unified and ecologically wasteful urban development [1], as the capabilities of individual, collective and artificial intelligence due to information and communication technologies [2, p. 122–123]. This term became widespread around the middle of 1990s as a metaphor of the close connection between urban life and digital technologies. Despite the immense popularity of digital transformation researches, both in the scientific community [3–5] and in the business environment[1], there is still no common understanding of the term «digital city». Thus, the «digital city» depending on the context is interpreted as «smart», as «ubiquitous» or as «intelligent». The digital transformation is also understood as the process of integrating digital technologies into the socio-economic systems or the result of this process, and also as a certain stage of social and organisation development. Moreover, in public rhetoric digital transformation is described by using a variety of concepts – digitalisation, automation, technological modernisation, etc. As a result, the term «digital transformation» often refers to an extremely wide range of different phenomena and processes. In other words, the scientific discourse on digital transformation is still fragile and fragmentary. There is no universal interpretation neither of theoretical basis, nor the specific parameters of its measurement. Such flexibility could be acceptable in certain cases (for example, in the regional development documents) but if we speak about the sociological measurement of the digital transformation of any certain sphere or object ones need some fundamental postulates. Therefore, the digital transformation phenomenon as a sociological category still needed to be reviewed for accuracy and completeness.

For this reason, the main research questions of the article are the following: what the key empirical indicators illustrates the digital transformation of the city and what parameters allow adequately distinguish digitalisation and digital transformation in the case of a big city?

The theoretical framework of the research is represented by the concepts of the information and communication society (M. Castells [6], D. Tapscott [7]), digital urbanisation (C. Ratti and M. Claudel [8], A. M. Townsend [3], A. Greenfield [4] and R. Kitchin [5]), as well as the idea of «three generations of smart cities» by B. Cohen [9].

The empirical basis of the article is the results of an automated telephone interview (CATI) conducted in February 2021 among the Minsk employees (mobile phone numbers were chosen using the random number method). In total, 415 working citizens of Minsk took part in the interview (based on the size of the general population, the estimated value of the sampling error is 4.81 %); 57.8 % are men and 42.2 % are women of the total number of respondents. By age, the respondents were distributed as follows: 23.2 % aged from 18 to 29 years, 42.7 % – from 30 to 39 years old, 18.8 % – aged from 40 to 49 years old, 12.4 % – 50–59 years old and 2.9 % of respondents belong to the age group over 60 years old. A significant part of the respondents (73.4 %) at the time of the study had higher education, 20.7 % – secondary special education (technical school or college), 2.2 % – primary vocational, 2.4 % – complete secondary and 0.2 % – lower secondary. By areas of activity, the sample corresponded to the general population (table 1). The existing discrepancies between the parameters of the achieved sample and the socio-demographic characteristics of the general population (the employed population of Minsk, based on the population census conducted in 2019) could be explained for the next reason. During the interview there was a significant percentage of refusals related to the research topic (the use of digital technologies in professional activities and everyday life). Actually, the topic of the survey (digital technologies) acted as a filter and eliminated some of the respondents in such parameters as gender, age and level of education. The maximum discrepancy was observed in the level of education (the number of respondents with higher education in the sample significantly exceeds the number of employed Minsk residents with higher education) – the better-educated citizen are more likely to be loyal to everyday usage of digital technologies (and to speaking about it). The next factors are gender (men are more involved in digital technologies) and age (the heavy users of digital technologies are at the age from 30 to 39 years). In other words, the collected data reflects the opinion of urban professionals with higher education who have some experience gained by using digital technologies.

Table 1

Field of activity (comparison of the sample and the general population), %

Areas of activity	Sample	General population*
Information technologies (websites, programming, etc.), telecommunication services	11.0	8.5
Professional, scientific and technical activities	6.6	7.3

[1]Minsk Smart City Forum 2020 [Electronic resource]. URL: https://events.dev.by/minsk-smart-city-forum-2020 (date of access: 15.06.2021).

Ending table 1

Areas of activity	Sample	General population*
Health care and social services	13.1	9.1
Education and upbringing	7.1	9.2
Industrial production	17.1	16.9
Agriculture and forestry, gardening	0.2	0.2
Building sphere	9.0	7.6
Trading sphere	15.9	17.9
Transport sphere	4.4	6.5
Others	15.7	16.8

N o t e. * – compiled on the basis of data of the National Statistical Committe of the Republic of Belarus[2].

Discussion and results

The scientific discourse genesis on the digital transformation of society. The digital age begins in 1950s with the appearance of electronic computers that made possible to process and transmit information without human intervention. The peak of digitalisation was in the 2010s. One of the key points was the publication by the Capgemini Consulting (Center for Digital Business of Massachusetts Institute of Technology) the report named «Digital transformation: a road-map for billion-dollar organisations»[3] in 2014. Obviously, not only the content of digitalisation itself has changed significantly but also the approaches to its interpretation during this period. Here we will briefly cover the main stages of the digital transformation scientific discourse genesis.

Automation stage (1950–90s) – the self-regulating technical means and mathematical methods usage in order to relief a human from participation (or to reduce such participation) in the receiving, transforming, transferring and using energy, materials, products or information and to decrease the complexity of the operations performed. Comprehensive automation led to increasing labour productivity, improving product quality, optimising management processes, removing people from industries that are hazardous to health. The period of automation is associated with the theoretical concepts describing the social reality transformation under the influence of technogenic factors: the post-industrial society of D. Bell [10], the smart or intellectual city of P. Drucker [11], Sh. Tatsuno [12], M. Castells [6].

Digitasing stage (1990s – beginning 2000s) – the transition period from automation to digitalisation, the initial stage of introducing digital technologies, converting information into electronic form for subsequent processing in digital format (creating digital copies). The essence of digitalisation became conceptualised in details, including the definitions of its key terms, while the idea that digitalisation may cause significant social consequences had also arisen. American computer scientist N. Negroponte outlined the ideas of the digital economy believing that digital media and data processing will soon become the defining factors of everyday life [13]. According to D. Tapscott, key changes in the modern world are due to the transition from analog technology to digital technology, from semiconductors to microprocessors, from centralised computing to client-server architecture, from the separate existence of data, text, image and sound to multimedia, from specialised systems to open systems and others. The set of the indicated inevitable changes is the basis for the formation of an electronic community [7, p. 14]. In other words, a special culture associated with the information technologies usage emerged during this stage.

Digitalisation stage (2000–2015) chronologically intersects with the Fourth Industrial Revolution (Industry 4.0) and involves not only the creation of new digital products (robotisation, blockchain, augmented reality, etc.) but also the development of a digital interaction (accumulation and analysis of big data, internet of things, horizontal and vertical integration of digital technologies). There was a transition from individual technologies to innovative technological complexes – smart factory, smart city, smart planet, etc. Digital technologies went beyond that of a mere assistance in solving specific tasks (storage and processing of information, communication, etc.) and gradually transformed

into a habitat. This idea is most fully illustrated by the concept of smart city which gained popularity in the business community, and then in academia [3–5; 8; 9]. One can see an increase of the individuals and social spheres involvement in the digital reality at this stage. If at the previous stage of digitisation, very few people could use digital technologies (it was a closed, unknown, unpopular subculture – «freaks» or «nerds»), then digitalisation supposes an increased involvement of heterogeneous and multi-level actors. The establishment of digital elite is gradually taking place, the degree of closeness to which often determines its place in the social hierarchy (especially in developing countries).

In addition, the last one, digital transformation stage (2016 – up to now) – the transition of quantitative transformations to qualitative, evolving the digitalisation processes beyond the production and economic sphere, search for the consensus between technological efficiency and humanitarian aspects in digital transformation, attempts to mitigate the negative image of digital technologies as technocracy result (replacement of human beings with robots). Digital transformation finally blurs the line between the physical and digital aspects of society; they closely interpenetrate each other becoming a single human habitat. C. Ratti and M. Claudel metaphorically name such hybrid reality as integration of bits and atoms [8, p. 26]. Digital transformation in such circumstances is not only the new technologies but also the way of thinking – striving for continuous innovation, the necessity to integrate new technologies into all areas of activity. This means not only the installation of modern equipment or software but also fundamental changes in culture, worldview and communications. Russian economist Yu. I. Gribanov defines digital transformation as the process of radical transformation of the concept and format of functioning of socio-economic systems in all levels through digitisation, that is, the resources transfer to digital format, implementation and formation of a digital technologies pool, and digitalisation – creation of network platforms for the integration and interaction of digital technologies users, in order to achieve sustainable and long-term existence in the dynamic digital space conditions [14, p. 31]. In other words, the projection of existing social relations onto the digital city is gradually been replaced by their transformation (qualitatively new, initially digital phenomena of urban life appear). The key features of the new sociality are the convergence (merging) of previously divided spheres of life (home/work, public/private, etc.), transformation of value orientations, worldview, lifestyle (social responsibility, the concept of shared values, ethics, social aspect and environmental friendliness of technical innovations). Japanese researchers identified this transformation as a strategy for the transition to a digital society (Society 5.0), that designed to solve social problems through the integration of physical space,

cyberspace and high technologies. This strategy raises questions about the role of technologies in the life of society, about democracy in the era of digitalisation, about new principles of economics, ethics, social interaction, jurisprudence, about the role of information technology in solving the most pressing social problems (aging of the population, poverty, discrimination). The principles of smart growth need to be revised with the focus not only on the technological, but also on the socio-cultural aspect. Human and social capital are seen as a sources of wealth, which requires a conceptual shift in people's consciousness from maximising profit to maximising utility – when investments in human and social capital, as well as in traditional (transport) and modern (ICT) communication infrastructure, contribute to sustainable economic growth and a high quality of life with sound management of natural resources based on broad participation of the population [15, p. 105]. The research perspective is shifting towards the study of the social comfort of the smart city (mixed urban reality), includes educational and socialising aspects of the urban environment digitalisation (smart city – smart citizens), questions about the ethical dimension of smart cities is raised. A growing number of papers on the digital transformation sustainability shows the research-based attempts to synthesise the economy and ecology that lead to the birth of such a direction as the green economy, green cities [16].

Therefore, there is a significant expansion of the digital transformation research subject, which also involves the rights and opportunities of smart cities residents, their active role in the urban environment production, justice and social innovation, social comfort and safety, the transition to a circular economy, smart mobility and citizen participation in processes shaping the democratic principles of smart cities.

Empirical indicators of digital transformation of the urban environment (Minsk case). As noted above, digital transformation ensures the fullest possible disclosure of the digital technologies potential through their use in all spheres of human life. Such elements of a smart city as e-government, pilot projects of energy-efficient smart houses from the Ministry of Construction and Architecture are being introduced actively in Belarus, also, within the framework of the National Action Plan for the Development of a Green Economy it is planned to implement a pilot project of the ecologically attractive city «SymbioCity» [17, p. 65]. It should be emphasised that just the presence of smart technologies is not enough for digital transformation. Sticking point that often causes most difficulties for society is the transformation – consistent deliberate restructuring of habitual daily and professional practices. Digital transformation is often forced when a person uses digital technologies reluctantly, having no choice (like during the pandemic of COVID-19). This situation is often accompanied by technostress – anxiety, fear of

missing something important, an obsessive desire to follow technological innovations [18, p. 108]. People of retirement and pre-retirement age face forced digitalisation (and, therefore, with technostress) most often [19]. Obviously, the main problems are aroused not only in the field of technological modernisation and not even in teaching individuals to use new technologies, but in a fundamental restructuring of the way of life and thinking.

According to a report by the Center for Digital Business of Massachusetts Institute of Technology digital maturity [17, p. 62] can be represented as a combination of two interrelated parameters: digital activity (the frequency and intensity of use of digital technologies in everyday urban practices in this case), and the presence of the necessary conditions to stimulate change (the attitude of citizens to digital technologies, a conscious desire to replace analog actions with digital). Consider the empirical expression of these parameters based on the results of telephone interviews.

The results showed a high degree of digitalisation of the urban professionals. Thus, 76.3 % of respondents are fluent in various search engines, 68.8 % confidently use e-mail (table 2).

Table 2

The level of digital technologies and devices possession of working citizens, %

Digital technologies and devices	Use fluently
Search engines (Google, Yandex)	76.3
E-mail	68.8
Personal computer, notebook, smartphone	58.5
Microsoft Office (Word, Excel, Power Point)	32.0
Cloud Storage (Google.Disc, Yandex.Disc, OneDrive, iCloud)	31.4
Video conferencing applications (Zoom, Webex)	27.4
Professional software (Autocad, Photoshop), information and analytical systems	20.5

One can note a significant positive dynamics in the digital technologies development that apparently caused by the recent COVID-19 pandemic. It forced the whole world to virtualise most of the everyday and professional practices in a short time – 74,5 % urban professionals have faced the need to master independently technical innovations (new programs, mobile applications, technical devices) over the past 12 months. Such a need had developed not only at the workplace (33.1 %), but also at home (27.8 %), and more than a third of the respondents (38.9 %) noted that they had to master new technologies at both work and everyday life. As a result, more than 50 % of respondents noted that over the past 12 months they have become better at using a personal computer, laptop or smartphone, 49.8 % noted more confident use of search engines compared to last year, 40.5 % were closely acquainted with various applications for video conferencing. These facts shows indirectly the radical transformations in the citizen's interpersonal and professional communications sphere.

Digital transformation involves the release of digital technologies beyond professional practices with the increasing use of them in everyday life. Among others that means the emergence of new behavioural patterns and habits among citizens that become impossible (or much more complicated) without digital technologies. The study revealed that modern urban life and digital technologies are inseparable. According to the results of the survey citizens use social networks and messengers daily, use the services of Internet banking, mobile banking, watch Internet TV, use navigation systems at least once a week, use food delivery services, do online shopping or make the appointment of a doctor via the Internet regularly. Less popular, but quite acquainted the opportunities to rent a car, bike or scooter through special mobile applications, as well as taxi aggregators (table 3).

Table 3

Frequency of use of Internet resources in everyday life, %

Internet applications	Daily	Few times a week	Several times a month	Several times a year
Social networks (VKontakte, Facebook, Odnoklassniki, etc.)	69.8	13.9	5.9	3.4
Messengers (Viber, Telegram, Skype)	93.4	4.4	1.0	0.2
Food delivery services	1.2	16.1	35.9	16.3
Online shopping sites	2.2	9.5	43.2	29.8

Ending table 3

Internet applications	Daily	Few times a week	Several times a month	Several times a year
Online appointment with a doctor, ordering coupons to a polyclinic, online doctor's consultation	–	1.2	17.6	39.5
Internet banking, mobile banking	31.0	30.7	31.5	2.0
Internet Protocol Television (ivi, Megogo, Voka)	33.2	10.2	7.8	4.9
Car sharing, bike sharing, taxi aggregators (Uber)	2.0	14.4	26.1	18.8
Navigation systems (Navitel, Google Maps)	23.2	32.7	31.5	6.8
Online utility service (115.by)	0.5	0.7	9.5	25.6

Digital transformation in this case can be interpreted as an increasing number of digital actions performed – to what extent personal life is virtualised, how strong the dependence of it on the availability of digital technologies. Vice versa, how comfortable and painless the individual will be able to maintain his usual lifestyle if offline practices would be limited (as it was during the COVID-19 pandemic lockdown).

It is obvious that the degree of modern citizen's digitalisation may differ – someone feels comfortable in the digital environment and replaces traditional (analogue) practices with digital ones easily, while someone needs long-term adaptation and external support.

In order to identify the existing types of citizens depending on their immersion in the digital environment, a cluster analysis was carried out (hierarchical agglomerative cluster analysis using the Ward method). The basis for the cluster analysis was the frequency of various Internet resources usage in everyday urban life. A working hypothesis is that the more often an individual uses digital technologies in everyday life, and the more everyday actions he replaces with digital ones, the more deeply he is immersed in the digital environment and feels more comfortable in it.

Cluster analysis highlighted four types of «digital citizens»:

1) «digital immigrants»;
2) «digital natives»[4];
3) utilitarian users;
4) unadapted users.

If we arrange these types sequentially depending on the frequency of digital technologies usage, «digital immigrants» and «digital natives» will be polar opposites, while the remaining two types (utilitarian and unadapted users) gravitate towards one of the poles above (figure).

«Digital immigrants» Unadapted users Utilitarian users «Digital natives»

Distribution of the types of «digital citizens» depending on the frequency of use of digital technologies

The article proceeds to the detailed analysis of these types in the socio-demographic and value-psychological perspectives.

Socio-demographic portrait of «digital citizens». «Digital immigrants» – routinely use only 1–2 digital solutions (messengers and social networks as a rule), while all the other everyday practices they prefer to perform traditionally (make purchases in a store, pay bills at a bank office, visit a policlinic in order to make an appointment with a doctor, etc.). While entering the digital environment they may feel insecure and try to seek help. According to the interview data, 22.0 % of respondents are «digital immigrants» (56.0 % – female and 44.0 % – male). Most of them are older people (50 years and older), with a low income – 56.1 % «digital immigrants» have average monthly income up to 1000 Belarusian rubles.

«Digital natives» – routinely use at least 5–6 digital solutions (social networks and messengers, various electronic payments, Internet TV, navigation systems, online purchases, online registration, etc.). The number of digital actions they perform probably exceeds the number of analog ones (without the use of digital technologies). In fact, «digital natives» consider the digital urban environment their natural habitat and feel themselves comfortable there. On the contrary, the access to

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[4]The concepts proposed by the American writer M. Prensky were used as the names of the digital types [20].

«analogue world» is more uncomfortable for them – the necessity to going to a bank, contacting the reception personally or making a phone call instead of messaging and so on. Among the total number of surveyed «digital natives» was 34.1 %. Mostly «digital natives» are young citizens, under 39 years old (71.4 %), 55.0 % – male, 45.0 % – female; 60.7 % of them have upper intermediate income level (more than 1000 Belarusian rubles monthly) – for comparison, among the «digital immigrants» only 28.6 % of the same one.

Unadapted users – unlike «digital immigrants», they strive for a more active digital technologies usage, but face certain difficulties and barriers (perhaps a lack of digital competencies or material resources, psychological difficulties). There are 16.3 % unadapted users among the whole surveyed. Typically, their age is between 40 and 59 years old (less often over 60), 64.2 % – male, 35.8 % – female. In terms of income, they are closest to «digital immigrants» (below the average for the sample).

Utilitarian users – close to «digital natives», but prefer limited use of digital technologies (mainly in practical application – messaging, Internet banking payments, routing with the help of navigation system). Unlike «digital natives», who perform most professional and everyday practices virtually, utilitarian users combine digital activities with offline ones. The total amount of utilitarian users is 27.3 % of which 68.8 % – male, 31.3 % – female. Utilitarian users are a little older than «digital natives» are – there are more over 30 years' old persons among them (54.5 %). The income level of utilitarian users, like that of «digital natives», is upper intermediate (more than 1000 Belarusian rubles monthly).

Psychological profile of «digital citizens». The available data is not enough for the detailed analysis of psychological characteristics of «digital citizens». However, some features can be distinguished.

The respondents indicated their agreement or disagreement with the statements about the role of digital technologies in everyday life during the interview. Comparison of the different «digital citizens» types responses made it possible to trace certain differences between them.

Thus, «digital natives» more than «digital immigrants» consider new technologies as a tool for creativity, self-development and self-realisation, which allows people to be closer to each other, forms trust and cohesion. «Digital immigrants» on the contrary emphasise the negative effects of digitalisation – the growth of addiction and anxiety, damage to human health and environment.

In turn, utilitarian users are skeptical about the creative possibilities of new technologies and do not see them as an effective tool for rallying and solidarising people, but also they do not fear of new technologies unlike «digital immigrants». Unadapted users pay less attention to the negative aspects of the new technologies and accept their ability to connect people and enhance the level of mutual trust. However, in comparison with «digital natives» unadapted users have less information about the benefits of using new technologies in a pragmatic manner (tables 4 and 5).

T a b l e 4

Positive aspects of digital technology using, %

Consent with statements	«Digital immigrants»	Unadapted users	Utilitarian users	«Digital natives»
Digital technologies have created more opportunities for career, education and development	87.9	88.1	95.5	98.6
Digital technologies allow people to be closer to each other, increase the level of cohesion and trust	38.5	65.7	44.6	59.3
Digital technologies provide freedom, provide opportunities for creativity, self-realisation and self-expression	73.6	77.6	89.3	95.7

T a b l e 5

Negative aspects of digital technology using, %

Consent with statements	«Digital immigrants»	Unadapted users	Utilitarian users	«Digital natives»
Digital technologies can be dangerous to human health and the environment	50.5	40.3	42.0	34.3
Digital technologies take a lot of time and energy, make life hectic	47.3	32.8	32.1	32.1
Digital technologies make a person dependent and manageable	69.2	64.2	57.1	56.4

Another important aspect that distinguishes different digital types is the issue of new technologies mastering motivation. One can dived the key motives pushing citizens to learn digital technologies into three groups:

• benefit motives – the desire to work more efficiently, to cope with complex tasks, to get a promotion, to change a job, or to increase an income level;

• interest motives – the desire to make life more interesting and eventful, learn something new;

• fear motives – management pressure, fear of isolation, fear of losing a job.

The data showed that interest motives are take priority for the «digital natives». They usually learn new technologies in order to progress and move forward (77.9 %), to make their life more eventful and interesting (59.3 %). Utilitarian users emphasis the pragmatic usage of new technologies that help do things better, faster and more efficiently, allow to perform more complex professional tasks (61.6 %). No wonder that utilitarian users most often learn new technologies in order to change job – 28.6 % (in comparison the same things do 15.4 % of «digital immigrants» and 20.0 % of «digital natives»). The fear motives have an equal impact on all digital types of citizens. The only exception is the fear of losing a job due to the lack of digital competencies – it was mainly expressed by «digital immigrants» (14.3 %, while for other groups this figure is less than 9.0 %).

Conclusion

The paper has explored what the key empirical indicators and parameters illustrate the digital transformation of the city. Firstly, the concept of digital transformation differs fundamentally from the similar terms «digitalisation» and «digitisation». Digital transformation not first and foremost a driver of growth (efficiency, acceleration, maximisation), but a basis for qualitative transformations of society (new culture, new way of life, new thinking). The behavioural aspects when technical innovations become a means of social transformation, an important tool for thinking comes to the forefront. There are three empirical aspects of the urban environment digital transformation – the availability of new technologies (the access to various technological solutions in the smart city), the presence of the necessary digital skills and the last but not least the interiorisation of new technologies, i. e. conscious, voluntary, internally initiated usage of them for solving routine tasks, not only in professional sphere, but also in daily life.

In addition, the urban environment digital transformation is not a one-time transition from the old state to the new one. Digital transformation is an evolutionary process that involves different individuals with different rates. Empirical indicators of the urban environment digital transformation stage include, firstly, the ratio of online and offline behaviour patterns – the greater the number of personal everyday actions performed digitally, the higher the level of urban environment digital transformation; secondly, the going of digital technologies beyond their utilitarian use. As new technologies become instrument that facilitate creativity, self-realisation, rallying, solidarity and mutual trust, the urban digital transformation is growing. Finally, the motivation for new technologies mastering. The more often citizens learn newly emerging digital solutions guided not by the fear or external pressure but by the interest or the desire to makes their life variegated, the more correctly one can highlight the emergence of qualitatively new social phenomenon – the digital city.

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