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DIGITAL INEQUALITY AS A FACTOR OF SOCIAL STRATIFICATION OF KAZAKHSTANI SOCIETY

The article discusses several ideological, conceptual, and methodological issues related to the emergence of a new foundation for the stratification of Kazakh society – digitalization. The objective of this article is to examine the distinctive characteristics of digital stratification within Kazakhstani society. This analysis will encompass an investigation of the positive and negative implications for the population of modern Kazakhstan, as well as an assessment of potential future developments. Additionally, this study will explore potential avenues for optimising the current situation. The theoretical basis of the research is the classical and modern concepts of social stratification: the multidimensional model of stratification of M. The theory of social stratification by P. Sorokin, the theory of “social space” by P. Bourdieu, and the concept of digital capital as a key resource by M. Ragnedda. As an empirical base, the results of sociological research conducted by the IFPR in 2022-2023 were used.

The main results of the study: digitalization has a contradictory impact on Kazakh society; digital resource, along with income, power, profession, etc., becomes a factor of social stratification of society, generating digital inequality; residents of several local rural communities are becoming socially vulnerable and less competitive in the labor market due to the inaccessibility of the Internet, the lack of technical means to ensure its use; digital tools create deceptive or alternative realities and thereby weaken and even reduce the influence of official institutions. The conclusions of the work will be useful both for developing a general line of modernization regarding the stratification system of Kazakhstan’s population within the framework of digitalization and for determining specific ways to manage these processes, taking into account the differentiation of interests, value concepts and worldview beliefs of various social groups.

Key words: stratification, digitalization, digital inequality, Internet.

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Цифрлық теңсіздік қазақстандық қоғамның әлеуметтік стратификациясының факторы ретінде

Мақалада қазақстандық қоғамды стратификациялаудың жаңа негізі – цифрландырудың пайда болуымен байланысты бірқатар дүниетанымдық және тұжырымдамалық-әдіснамалық мәселелер талқыланады. Мақаланың мақсаты – қазақстандық қоғамның цифрлық стратификациясының ерекшеліктерін, оның қазіргі Қазақстан халқы үшін оң және теріс салдарын, оның дамуының ықтимал бағыттарын, сондай-ақ оны оңтайландыру жолдары мен тетіктерін айқындау. Зерттеудің теориялық негізі әлеуметтік стратификацияның классикалық және заманауи тұжырымдамалары: стратификацияның көп өлшемді моделі М. Вебер, П. Сорокиннің әлеуметтік стратификация теориясы, П. Бурдьенің «әлеуметтік кеңістік» теориялары, М. Рагнедданың негізгі ресурсы ретінде цифрлық капитал тұжырымдамасы болып табылады. Эмпирикалық база ретінде 2022-2023 жылдары жүргізілген ФСДИ әлеуметтанулық зерттеулерінің нәтижелері пайдаланылды.

Зерттеудің негізгі нәтижелері: цифрландыру қазақстандық қоғамға қарама-қайшы әсер етеді; цифрлық ресурс табыспен, билікпен, мамандықпен және т. б. қатар цифрлық теңсіздікті туғыза отырып, қоғамның әлеуметтік стратификациясының факторына айналады; бірқатар жергілікті ауылдық қауымдастықтардың тұрғындары Интернеттің қол жетімсіздігіне, оны пайдалануды қамтамасыз ететін техникалық құралдардың болмауына байланысты әлеуметтік осал және еңбек нарығында бәсекеге қабілеттілігі төмен болады; цифрлық құралдар алдамшы немесе балама шынайылықтарды жасайды, осылайша ресми институттардың ықпалын әлсіретеді және тіпті төмендетеді. Жұмыстың қорытындылары цифрландыру жағдайында Қазақстан Республикасының халқын стратификациялау жүйесін жаңғыртудың бас желісін әзірлеу үшін де,

түрлі әлеуметтік топтардың мүдделерін, құндылық түсініктерін және дүниетанымдық сенімдерін саралауды ескере отырып, осы процестерді басқарудың ерекше тәсілдерін айқындау үшін де пайдалы болады.

Түйін сөздер: стратификация, цифрландыру, цифрлық теңсіздік, интернет.

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Цифровое неравенство как фактор социальной стратификации казахстанского общества

В статье обсуждается ряд мировоззренческих и концептуально-методологических вопросов, связанных с появлением нового основания стратификации казахстанского общества – цифровизации. Цель статьи – определение особенностей цифровой стратификации казахстанского общества, ее позитивных и негативных последствий для населения современного Казахстана, вероятных направлений ее развития, а также путей и механизмов ее оптимизации. Теоретической базой исследования являются классические и современные концепции социальной стратификации: многомерная модель стратификации М. Вебера, теория социальной стратификации П. Сорокина, теории «социального пространства» П. Бурдьё, концепция цифрового капитала как ключевого ресурса М. Рагнедды. В качестве эмпирической базы использовались результаты социологических исследований ИФПР, проведенные в 2022–2023 годах.

Основные результаты исследования: цифровизация оказывает противоречивое влияние на казахстанское общество; цифровой ресурс наряду с доходом, властью, профессией и т.д. становится фактором социальной стратификации общества, порождая цифровое неравенство; жители ряда локальных сельских сообществ становятся социально уязвимыми и менее конкурентоспособными на рынке труда вследствие недоступности интернета, отсутствия технических средств, обеспечивающих его использование; цифровые инструменты создают обманчивые или альтернативные реальности и тем самым ослабляют и даже снижают влияние официальных институтов. Выводы работы будут полезны как для выработки генеральной линии модернизации системы стратификации населения Республики Казахстан в условиях цифровизации, так и для определения специфических способов управления этими процессами с учетом дифференциации интересов, ценностных представлений и мировоззренческих убеждений различных социальных групп.

Ключевые слова: стратификация, цифровизация, цифровое неравенство, интернет.

Introduction

During the period of existence of independent Kazakhstan, radical transformations of social, economic, and political structures and institutions have been taking place in the republic. The transformations taking place in Kazakhstan are systemic, i.e. they affect the whole spectrum of social life. This is not just the renewal of some partial subsystems of society, but a qualitative change in the life of society as a whole. An integral part of these processes is the change of the former and the formation of new social groups and strata, i.e. the social stratification of Kazakhstani society.

Digitalization confidently enters the life of Kazakhstan society and becomes one of the foundations of social stratification. In his speech at the third session of the National Kurultai “Adal adam – Adal eenbek – Adal tabys” on March 15, 2024, Head of State K.K. Tokayev confirmed the previously announced course of the country on the development of digitalization and knowledge economy, stating:

“Kazakhstan should become a territory of comprehensive digitalization and accelerated development of artificial intelligence. This is our strategic task. The head of state specified how digitalization affects the life of the country: “Specific and measurable results of digitalization are increasing the capacity of railroads, saving fuel, increasing company revenues. This is how the digital ecosystem should be built. The government should scale this experience in all sectors of the economy” (Tokayev, 2023).

The current stage of economic and political reforms necessarily includes processes associated with a qualitative change in the social structure of Kazakhstan’s society, i.e. the formation of new and changes in previous social groups and strata (strata). Strata (social groups) in Kazakhstani society differ from each other on many grounds. These grounds were shown in the analyses. According to the results of the analysis, the possession of digital technologies, attitudes to forms of ownership, belonging to one or another sector of the economy, income level, participation in the distribution of the total income of the country’s

population, attitude to political power, ethno-clan characteristics, confessional affiliation, position in the professional sphere of activity, value orientations and attitudes, political regime are the grounds for distinguishing social groups from each other.

As a stratification factor, it is extremely important to study the topic of digitalization, because the lack of consideration and real, empirically supported knowledge about the whole range of relations characteristic of the social basis of political and economic reforms leads to the fact that the latter begin to be slowed down, muted or simply hindered by the inertia of the inadequate social system as a whole and, in particular, those of its elements that are directly interfaced with the political or economic institutions being changed.

In this regard, the purpose of this article is to determine the features of digital stratification of Kazakhstan society, its positive and negative consequences for the population of modern Kazakhstan, the likely directions of its development, as well as ways and mechanisms for its optimization, which is a priority and relevant in practical and theoretical terms problem of the humanities.

Modern science has not yet given exhaustive answers to the questions posed to the world community by digitalization, since this phenomenon has become a part of the life of modern man relatively recently. The relevance of its study is due to the ambiguous and in some cases negative impact of digitalization on the stratification of society. The object of research in the article is digital inequality, the subject is digitalization as a stratification factor.

The main hypothesis of the study is that if we do not develop educational programs on media literacy and do not teach critical thinking to citizens, do not influence the formation of information space, do not maintain a balance between freedom of speech and the need to regulate content in social networks and messengers, then digital technologies under certain conditions at the suggestion of political entrepreneurs can expose established political institutions and governing systems of society to the risk of deformation and loss of legitimacy. The task of the study is to show that digital inequality can become one of the main factors negatively affecting Kazakhstani society.

Materials and methods

As theoretical models, we used the multidimensional model of stratification by M. Weber, the theory of social stratification by P. Sorokin, and the theories of social space by P. Bourdieu.

Max Weber (he is considered to be the founder of the stratification theory) attempted to “unbundle” classes, for which he had to abandon the one-dimensionality of the Marxist approach to the criterion of class membership – the relationship to property. According to M. Weber, property is not the only criterion according to which a social group – stratum – is formed. In addition to property, he attributed power and prestige to such criteria. Moreover, these coordinates can be hierarchically subordinated to each other: there are societies where the main role is played by the possession of power resources, in other types of society the dominant role is given to material well-being, and thirdly – to prestige (Weber, 1992).

Pitirim Sorokin’s theory of “social space” was used to characterize stratification processes. P. Sorokin introduced this concept to designate the place of a social event, a group of people, and any individual. Furthermore, the concept was proposed as a means of defining the position of a person or any social phenomenon in social space. Sorokin defines social space as a system of relations between social phenomena, which he considers to be “points of reference”. In Pitirim Sorokin’s model, the coordinate axes of social space are represented by economic, political and professional stratifications (Sorokin, 2005).

The concept of social space, as elucidated by Pierre Bourdieu, encompasses three distinct forms of capital: economic capital, cultural-social capital, and symbolic capital. Symbolic capital, in particular, encompasses reputation, prestige, and other forms of social recognition. Bourdieu examines a range of forms of capital, including economic, political, cultural, social and others. He analyses social stratification based on the mechanisms of capital accumulation and transformation (Bourdieu, 2002).

The research conducted by the French sociologist provided a methodological foundation for the development of an analytical approach to the study of digital inequality, based on the concept of digital capital and the mechanisms of its transformation into other types of capital. In this context, digital capital is considered a “metacapital” that influences the possibilities of acquiring and using other forms of intangible capital (Vartanova, 2020). It is also worth noting the approach of M. Ragnedda, who defines digital capital as a resource that provides access to a wide range of other resources, including social, political, economic, human and cultural (Ragnedda, 2020).

The results of two sociological studies were used as the empirical basis of the research. The

initial study was conducted by the BRIF Research Group LLP on behalf of the SC MSHE Institute of Philosophy, Political Science and Religious Studies in 2022. The purpose of the research: is to study the modern social structure of Kazakhstani society, its structure, trends, and changes taking place in the social structure. A survey of 15 experts, 6 focus groups, and a quantitative representative national survey of the population (1504 respondents) was conducted. In the second study, the same agency conducted an expert survey in 2023 (10 experts were interviewed). The objective of this article is to identify and analyze expert opinion on social modernization in Kazakhstan.

As part of the research process, a significant amount of statistical data was analysed and utilised, including the statistical data of information and communication technologies and communications for the period 2022-2023, the results of the 2021 census, as well as the key indicators of the work of communication enterprises, postal and courier services in the Republic of Kazakhstan during 2022-2023, are presented herewith. Additionally, the dynamics of digital literacy of the population are included.

Results and discussion

1. Processes of social stratification and the dynamics of inequality

In contemporary sociological discourse, social stratification is defined as a hierarchically arranged system of social inequalities, whereby individuals and groups are placed in a hierarchy according to certain socially relevant attributes. Stratification thus perpetuates the inequalities that exist in any society.

What is the basis of inequality in society? The diversity of answers to this question has given rise to many theories and models of stratification. “To study the system of social stratification of a society, it is necessary to investigate how inequality is organized in it, that is, to understand that not all individuals have the same access to a set of material or symbolic goods that have “value” in terms of the most widespread collective beliefs in a particular society” (Abdiraiymova, 2022:104).

There are two directly opposite approaches to justifying the nature of inequality. The first one proceeds from the essential, natural differences of people, which explains their different abilities and, accordingly, their status in the social organization that reproduces the fundamental structures of inequality.

All concepts and models of stratification adjacent to the first approach are based on the belief in

the universal, insurmountable nature of inequality. Indeed, if inequality is natural, one should not waste energy on ambitious social projects to build a “society of equals”. One should try to acquire the highest possible social status based on one’s abilities. From this idea were born the concepts of social equilibrium, according to which people occupy unequal positions in society according to their abilities. These are all the theories of functionalism, according to which a person performs a social function and is rewarded for it by society. These theories are otherwise also called social integration theories (Parsons, 1992), (Warner, 1997), (Barber, 1972).

The second approach is based on the understanding of man as a social, public being (Therborn, 2011; Robinson, 2004; Sklair, 2002); hence inequality has a purely social nature and, consequently, in some societies it exists, while in others it does not, or at least it is strongly smoothed out, does not reach the stage of social polarization (a textbook example here is the former USSR and modern Scandinavian countries with their powerful social and specific tax policies aimed at overcoming the inevitable disparities in the level and quality of life of different groups of the population arising in a market economy).

To date, many theories of inequality and corresponding models of social stratification have been created. Nothing is surprising in the fact that the processes of social stratification are described by a multitude of theories and models: developing societies are changing their social structure, and, accordingly, the understanding of the essence of this structure is changing – hence the diversity of theoretical schemes depicting it (Shubina, 2011).

In addition, there are fundamental differences in describing the social structure of societies in different states, and phases of development. Stable societies that have been evolving on the same grounds for quite a long time have a stable social structure. Stratification processes in such societies can be described by a clear, classically formalized theory. Societies emerging from the state of revolutionary breakdown, which have not yet reached a stable state, cannot be described by any one limited theory – there are too many uncertainties, many changing parameters, unstable patterns, unclear statuses, and unstable structures in such societies. The adequate way to describe stratification in such societies is no longer a simple theoretical scheme, but a whole set of theories that capture one feature of this dynamic stratification, then another, then another. As a consequence, the so-called multidimensional model of stratification emerges, built from fragments of

different approaches to understanding the essence of social inequality and the social structure formed on its basis, as well as from fragments of different models schematizing these approaches. Such a multidimensional model does not possess scientific rigor, but its representativeness is quite high, and most importantly, it corresponds to the real processes of structuring the transit society. This correspondence to the realities of socio-economic and political transit should be preferred to formal adherence to this or that theory of stratification, which may be good as an abstract-general theory, but is of little use for describing the transit society, in which the parameters of structuring social reality are constantly changing.

Following the emerging hierarchy of socio-status groups, as a rule, the main stratification clusters of society are also distinguished. For example, one of the most widespread schemes or models of stratification of modern Kazakh society is the model of a given society that posits the existence of a series of hierarchically arranged layers:

- the lower stratum is comprised of technical employees, individuals lacking specialized qualifications or professions, and marginalized individuals;
- the primary stratum encompasses those engaged in trade and services, skilled laborers, and farmers, in addition to categories such as civil servants and self-employed individuals;
- the middle layer is comprised of a diverse array of actors, including small business owners, business professionals, such as salaried traders and financial experts, as well as creative and scientific intellectuals.
- the upper stratum comprises the political and economic elite, large and medium-sized entrepreneurs, top managers of international and Kazakhstani large corporations, the top bureaucracy, and the generals (Kadyrzhanov, 2011: 73-74).

Nevertheless, in our estimation, this model of stratification currently needs to be corrected. In Kazakhstan, a layer of “working poor” has appeared, who are difficult to attribute to the middle or even basic stratum. They have a sufficiently high level of professional education and a permanent place of work, but receive insufficient income for normal livelihood: they live from paycheck to paycheck, take new loans to close the previous loan, cannot lead a lifestyle that corresponds to their social status, so they are among the socially vulnerable strata of the population as the “working poor” (Economic Inequality..., 2023). The phenomenon of the “working poor” in Kazakhstan was first considered by Kazakhstani scientists in the interdisciplinary comprehensive study “The Impact of the COVID-19

Pandemic as a Factor Increasing Economic Inequality and the Growth of Working Poverty in Kazakhstan”.

The precariat, which represents a significant social stratum in contemporary Kazakhstani society, requires special attention. This group encompasses individuals engaged in work without the benefit of social guarantees and whose income is irregular and contingent upon the vagaries of the temporary workers, such as freelancers, labour market, interns and couriers. A sizeable proportion of the precariat is designated as “digital nomads (Melkov et al., 2019), occupies a distinctive position within the social stratification system and necessitates the conduct of specialized research. Although digital nomads can be classified as belonging to the middle stratum, they have the potential to move to the upper stratum in the context of the rapid development of digitalisation.

Modern sociology presents a number of approaches to conceptual modeling of digital stratification. The Dutch sociologist J. Van Dijk developed a theory of digital inequality, which presents a model of digital stratification of the information society in the form of concentric circles. The centre of the model represents a stratum of approximately 15% of the population, which is characterised by high levels of Internet access, income and education, mobility and social capital. They made up about 15 per cent of the population. The majority of the population is situated within the intermediate ring, characterised by limited social connections and media resources, less internet access and ICT skills. The population to this ring is between 50 and 60 per cent. Approximately who are excluded from active use of digital technologies are situated in the outer ring. This group encompasses those at the lower end of the socioeconomic spectrum, including the unemployed, the elderly, ethnic minorities and a significant proportion of migrants. This group includes about 25 per cent of the population (Van, 2013: 47-49).

Russian scientists have put forth a model of stratification of modern Russian society that is analogous to the model developed by Van Dijk, which is based on access to information and communication technologies (ICTs). A series of studies conducted in various regions of the Russian Federation yielded the following categories: The model proposes four categories of individuals in terms of their access to ICTs: the “digitally underserved,” who have no access to the Internet (5% of the population); the “digital basic,” that have a purely wired internet connection (26%); the “digitally active” is used to describe individuals

who utilise a range of technologies to access the Internet. The (66%); and the “digitally advanced” is used to describe individuals who own Internet-controlled devices, which are part of the Internet of Things (3%) (Shinyaeva et al., 2019: 75).

As ICTs develop, the models of digital stratification will be filled with new content.

2. Digitalisation in the context of statistical and sociological data

The accelerated advancement of digitalisation and its pervasive integration into all facets of human existence is reshaping traditional notions of the world, giving rise to a novel conceptualisation of reality. More and more people are getting involved in various spheres of production related to digital technologies. The level of digital literacy of the population is continuously growing (Table 1) (Digital Literacy Level., 2024).

Table 1 – The digital literacy of the population aged 6 to 74 is defined as the proportion of users who possess the requisite skills to operate a personal computer, smartphone, tablet, and laptop, utilise standard software applications, and utilise online services

Years	%
2018	79.6
2019	82.1
2020	84.1
2021	87.3
2022	88.3
2023	90.2

Nevertheless, the Concept of Digital Transformation, Development of the Information and Communication Technologies Sector and Cybersecurity for the Period 2023 – 2029 notes the insufficient level of digital (legal) literacy among the population, ICT professionals and organisational leaders in cybersecurity aspects (Concept of Digital Transformation., 2023).

In the 2021 census, along with the traditional areas of employment (industry, construction, etc.), a new employment column – information and communication – was singled out for the first time by the international classifier, with 257,861 people or 2.8% of the employed population. For comparison, 1,022,972 people are employed in industry (11.1%) and 694,534 people (7.6%) in construction (Employment of the population..., 2023). In 2019, the similar indicator in Russia amounted to 2.4%, while the European average was 3.9%: in Finland

– 7%, in the UK – 5%, in Norway – 4.5%, in the Czech Republic, France, Germany – 4%, in Poland – 3% (IT Cadres..., 2020).

Statistics inform that in our country there is a whole stratum of intellectuals who have made information and communication technologies a profession, and it will grow quantitatively rapidly. Not only is this stratum of people shaping the technological future of the country more than anyone else, the results of its activities will fundamentally reshape the social structure of the society. “Today, when ICT ownership becomes a new resource for development, this resource becomes a new basis for social stratification. The digital resource begins to fulfill the role of a basic stratification criterion in society” (Vershinskaya, 2016: 177).

In the past, prior to the widespread use of digital technologies, the primary determinants of social status and factors of social stratification were power, income, and profession. However, with the advent of the digital age, there is a need to modify and, in some cases, radically rethink these stratification categories. “Together with the nomination of knowledge and information as the main resource of power, for the first time in history, the condition for belonging to the ruling class is not the possession or the right to dispose of resources, but the ability to use them. The class of intellectuals acquires real control over the process of social production and redistributes in its favor an increasing part of the social wealth” (Kurganskaya et al., 2021: 53).

First of all, digitalization as a basic stratification principle begins to divide society into those who are online (online) and those who are not online (offline). In the social structure of the society, there is not only a stratum engaged in the creation of ICTs but also a layer of the population that is already using the results of their work, which allows them to work successfully remotely, outside the office. Digitalization “unbonds” a person from his/her place of residence, and the former idea of necessary professional competencies, work, and its search, study, and entertainment is changing.

In the context of sociological research into the changes occurring in the social structure of Kazakhstan society, conducted by the company “BRIF Research Group” on behalf of the Institute of Philosophy, Political Science and Religious Studies KN MNVO in 2022, experts observed the emergence of a new social stratum within the Kazakhstani population.

“I do not know to what extent it can be called a new layer, but a certain group, probably, it can. This is exactly what we were just talking about.

More independent people, in terms of place of work, who work more, conditionally outsourced, in this format, there are probably more of these people. And this creative class has probably become bigger as well. In this respect, I see certain changes. That is, more people now say: why work in an office from 9:00 to 6:00 in the evening, when you can go to another country and work on the beach, it's much more convenient. That is, these are the changes I see" (expert).

A sociological survey showed that 90% of respondents have access to the Internet. Every second seeks information for study and work, 43% use the found information for work, and almost every third (37%) – for entertainment (Table 2) (Key Indicators..., 2024).

Table 2 – Reasons for accessing the Internet (in %)

Reasons for accessing the Internet	%
I'm on social media	47,3
I run a social media page	19,0
For entertainment	33,8
To receive the news	58,6
For socializing	60,3
To find information for education, occupation, self-development	45,4
For work	39,3

Thus, skillful use of Internet opportunities becomes a social and cultural capital, helps to expand the circle of communication, get news, learn, and develop professionally.

“Now there is an opportunity to just sit at home and work, it is not necessary, as before, to run to work every day, to go somewhere all the time. There are a lot more opportunities now. When I was looking for a job for my husband, he is a cook, I subscribed to 3 channels in Telegram, and there are tons of job offers every day. He's had a job for a long time now, but I sometimes go on there for interest. My sisters sometimes talk about how there are no jobs in the city at all, but I disagree. There are tons of jobs in the city” (focus group participant).

“From my experience I say, with an official eight-hour job, I will not be able to buy a car or an apartment. Even if the bank approves a loan, I will fear, because 80% of my salary will be taken from me, and then there will be no money left for groceries and other expenses. Therefore, in addition to working 8 hours a day, you need to work part-time, taxi, if you have a car, do some work on the Internet

to buy a newer house or car” (focus group participant).

However, it is possible to get all these preferences and even change one's social status with the Internet. And here location begins to act as almost the main component of inequality.

The digital divide between urban and rural areas has been named by experts as one of the five major, critically acute, and negatively affecting Kazakhstani society.

“We have ‘Almaty-Astana and everything else’. There are more children in the village and less access to benefits. The imbalance. There is no Internet in the village (online education and information). Accordingly, they have fewer opportunities to get quality education in the future. And the village is Kazakh-speaking. They have fewer opportunities to find a job in the city, where Russian or bilinguals are needed” (expert).

The experts' conclusions are confirmed by statistical data: the volume of communication services only to the population (!) in Astana and Almaty is many times higher than in other agglomerations, even taking into account the number of residents (Table 3) (Key Indicators..., 2024).

Table 3 – Volume of communication services to the population from the beginning of 2023

Place of residence	Mln. tenge
Abai	7 241,6
Akmola region	10 183,2
Aktyubinsk region	9 859,4
Almaty region	12 157,8
Atyrau region	7 610,7
West Kazakhstan	5 594,2
Zhambyl region	6 502,2
Jetisu region	6 253,6
Karaganda region	15 725,7
Kostanay region	12 203,1
Kyzylorda region	5 135,3
Mangistau region	6 894,3
Pavlodar	11 868,6
North Kazakhstan	7 734,7
Turkestan region	4 833,6
Ulytau region	2 594,6
East Kazakhstan	10 321,9
Astana	183 903,0
Almaty	350 150,9
Shymkent	6 529,7

We will not specifically consider the gaps in communication services between the two capitals and the rest of the regions. We are interested, first of all, in rural areas, where, according to statistical data as of February 1, 2024, 7,580,007 people (37.7%) live (Bureau of National Statistics..., 2024). The table below shows an almost tenfold difference in the volume of communication services provided to the urban and rural population (Table 4) (Key Indicators..., 2024).

As of December 2023, the number of mobile subscribers reached 25,297.4 thousand. Of these, 17,927.5 thousand accessed the Internet via mobile devices. The total number of fixed internet users was 3,059.2 thousand. However, the statistics do not provide information on the availability of the Internet among mobile subscribers in rural areas. Given that the rural population constitutes approximately

one-third of the total population of the country, it can be assumed that the share of fixed Internet users in rural areas is only one-fifth of the total number of inhabitants of these territories (Table 5) (Basic Indicators..., 2024).

Table 4 – Volume of communication services to population, mln. Tenge

Years	Total	Rural areas
2022	609 961,3	58 611,0
2023	683 298,1	67 893,5

Consequently, the volume of Internet services provided via telecommunication wired and wireless networks is significantly lower in rural areas than in urban areas (Table 6) (Key Indicators..., 2024).

Table 5 – Access to telecommunications in 2023, thousand units

	Total	Rural areas
Number of cellular communication subscribers	25 297,4	635,3
The density of cellular subscribers per 100 people, units	127	
Number of fixed Internet subscribers	3 059,2	635,3
The number of individuals who have access to the Internet via a fixed connection and who are able to utilise high-speed broadband services	3 058,7	635,2
The proportion of the population that is connected to the Internet, expressed as the number of fixed Internet users per 100 inhabitants	15	8
The number of individuals who utilize mobile phones with internet access	17 927,5	
in addition, access to high-speed broadband internet is required	17 703,5	
The proportion of the population with access to the Internet via mobile phones, expressed as a ratio of one hundred individuals	90	
for every 100 people with access to high-speed broadband Internet, there are	89	

Table 6 – The provision of internet services via wired and wireless telecommunication networks, mln. Tenge

Years	Total	Rural area
2022	474 059,6	27 743,5
2023	566 762,4	34 695,9

According to SpeedtestGlobalIndex, Kazakhstan ranks 95th among 141 countries in terms of mobile Internet speed, and 96th among 174 countries in terms of fixed broadband speed (Concept of Digital Transformation..., 2023). The website of the Ministry of Digital Development, Innovation and Aerospace Industry (MDIAP) of the Republic of

Kazakhstan posted a list of rural settlements within the framework of the National Project “Affordable Internet” (2024-2027), the implementation of which should provide broadband access to the Internet in villages (List..., 2024). The situation when teachers from a rural school in Turkestan Oblast used to catch the Internet in the pasture due to the terrain and lack of land transmission, according to ICRIAP RK, should become a thing of the past.

According to the Government, 77% of settlements in Kazakhstan have access to mobile broadband, 58% are connected to 4G network, 2,046 are provided with 3G technology. By 2027, the coverage of each city of republican significance and the capital will be 75%, and regional centers – 60%. In

order to eliminate digital inequality between aul and city, a project is being launched to provide full access to modern digital services for more than 5 million rural residents. The transition to wireless access in rural areas will utilize 700 and 800 frequencies of 4G and 5G frequency bands. Planned investments amount to 151 billion tenge for 2024-2028.” (National Project “Affordable Internet” ..., 2023).

At the same meeting, Chairman of the Board of Kazakhtelecom JSC Kuanyshbek Esekeev noted the need to eliminate the digital divide between the aul and the city, including by increasing the level of education and awareness of the population of villages. According to him, a project is being launched to provide full access to modern digital services for more than 5 million rural residents: “We plan to make a new big project. We have a new strategy – transition to wireless access in rural areas. We will use the 700 and 800 frequency bands, that’s 4G and 5G, and we will change the networks to wireless networks, which have much higher characteristics. The planned investment is 151 billion tenge for 2024-2028.” (National Project “Affordable Internet” ..., 2023).

The authorities intend to increase the number of rural fixed Internet subscribers using high-speed broadband access through the use of the Starlink system of Elon Musk’s SpaceX company; the process was started by connecting 10 rural schools to broadband Internet using this technology. In the future, “Taking into account urbanization and economic feasibility, it will be worked out to connect the remaining villages with a population of less than 250 people to the Internet” (Concept of Digital Transformation..., 2023).

Understanding the complexities and contradictions of digital development has led to the development of three-level models of the digital divide, which include access to the latest ICTs (urban-rural divide, between older and younger generations, between individuals with different levels of education, etc.), competence gap, etc., etc.), differences in competencies and skills to use ICTs effectively (ICT skills gap), and ICT-induced life chances and opportunities (narrowing access to economic, educational resources, health knowledge, etc.) (Van et al., 2010).

3. Experts on negative aspects of social media proliferation

Experts in the course of the survey emphasized the growing role of the Internet and social networks in the processes of social structuring and recognized that Internet users are building up cultural and social capital. At the same time, they drew attention to the

negative aspects of a person’s turn to the Internet.

1. The “contagiousness” of entertainment social networks and the idle time spent on the Internet by individuals, expressed in mindless viewing of content. For example, as the sociological research conducted by the IFPRC of SC MSHE RK showed, the share of respondents accessing the entertainment network TikTok was 57% (TikTok is one of the three most visited networks along with YouTube and Instagram).

2. A certain decrease in the level of socialization in online education, in which contact with the student audience is lost, and the general outlook, which students receive in regular education, is not developed.

“That is, there are a lot of opportunities now to finish some courses, and in principle, get a pretty good level of education. But I wouldn’t call it education, but at least some definite training, in some definite directions” (expert).

“...Online education does not completely replace some moment of interaction between people in a group, in society, and yet it is a very important moment when you can discuss something with your classmates or just communicate with the audience. Online education and its possibilities should not be overestimated. That is, it will be both a challenge and a window of opportunity for education” (expert).

3. Deepening inequality related to access to knowledge for certain strata of citizens, in particular those living in remote locations.

“...We see that thanks to the Internet and the spread of digital technologies, access to knowledge has also become more simplified, but having access to the Internet does not mean having access to knowledge, because you need some kind of adapter to explain to people how to draw this knowledge from the Internet. There is a pretty clear disparity here between Kazakh-speaking people, for whom there is much less content available. And you can also note that they are less likely to speak English than people who know both Kazakh and Russian. And access to this knowledge, I think, is also a very important sign to pay attention to” (expert).

4. Expansion of opportunities for destructive forces to recruit and involve new adherents in their ranks.

“...It is thanks to the expansion of opportunities on the Internet, in social networks ...that people began to communicate with representatives of extremist organizations in the Middle East, to somehow transfer this knowledge, ideas and so on to each other. This is the case” (expert).

5. Manifestations of inequality concerning work, housing, digital technologies, and medicine.

“When it comes to digital technology, young people are better at it now. But to get some benefits from the state, you need the state to see you and put you in a certain category. And for that, you have to do some manipulations too. You have to know how to use Egov. It seems to me that the people who master these manipulations, they have a better command of the situation so that the state sees and hears them” (expert).

Foreign scholars also show great concern about the problems that digitalization brings. In 2018, the American Pew Research Center conducted a large-scale sociological survey on the topic: ‘Artificial Intelligence and the Future of Humanity’, which involved 979 participants, including businessmen, scientists, and politicians. “The question was posed as follows: do you think it is most likely that by 2030, the development of artificial intelligence and related technological systems will improve the human potential and empowerment? That is, in most cases, will most people live better lives than they do today? Or, more likely, will the development of artificial intelligence and related technological systems reduce human autonomy and agency to the point that most people will not be better off than they are today?” (Anderson, 2018).

In summary, despite concerns about potential disadvantages, 63% of respondents to the survey expressed the expectation that by 2030 most people will be living in better conditions.

Here are some statements from experts:

“AI and related technologies have already achieved superhuman performance in many areas, and there is no doubt that their capabilities will improve, perhaps very significantly, by 2030. ... I think it is more likely than not that we will use this power to make the world a better place. For example, we can virtually eradicate global poverty, significantly reduce disease, and provide better education to almost everyone on the planet” (Erik Brynjolfsson, director of MIT’s Digital Economy Initiative).

“Without significant changes in our political economy and data management regimes, [AI] is likely to lead to even greater economic inequality, increased surveillance, and more programmed and non-human-centered interactions. Every time we program our environment, we end up programming ourselves and our interactions” (Marina Gorbis, Executive Director, Institute for the Future).

In 2023, more than 300 leaders from a range of sectors, including business, politics, science,

digital technology, sociology, psychology, law and political science, as well as well-known public figures, participated in a sociological survey. Additionally, respondents were queried on their expectations regarding forthcoming changes. Of the experts surveyed, 42% expressed equal excitement and concern about the changes in the human-technology mix expected by 2035. A total of 37% of respondents indicated a greater sense of anxiety than excitement regarding the anticipated changes, while 18% expressed a greater sense of excitement than anxiety. A further 2% expressed the view that no major changes will occur by 2035, while 2% felt neither excitement nor concern (Anderson et al., 2023).

These results show the ambiguity in experts’ opinions about the prospects of introducing digital technologies into all spheres of social life, taking into account positive and negative aspects. Also, the research in dynamics shows: if in 2018 about a third of experts doubted that people would live better, then in 5 years’ time there are more doubters about the improvement of people’s lives in 2035.

“By 2035, technology will open a window into many of life’s inequalities, thereby empowering individuals to advocate for greater access and power over decision-making currently entrusted to people with arcane agendas and biases. However, if trends remain as they are now, people, organizations, and governments interested in amassing power and wealth over broader public interests will use these technologies to achieve increasingly repressive and self-serving goals” (Sean McGregor, founder of Responsible AI Collaborative).

Optimistic experts posit that there is still potential for empowerment in the governance of AI systems on a global scale. It is anticipated that society and governments will be able to adapt to new digital standards and regulations that will encourage pro-social digital activity and reduce anti-social behaviour. It is anticipated that citizens will develop new norms for digital life and enhance their digital literacy skills in social and political interactions. Nevertheless, at this juncture, there are no discernible indications of the commencement of a collaborative endeavour on the requisite scale to address these challenges. This is because the primary beneficiaries of digitalisation in the contemporary era are those situated at the pinnacle of the business and governmental hierarchies, who are not inclined to relinquish profits in order to serve the public interest. This is because the primary beneficiaries of digitalisation are those at the pinnacle of the business and government hierarchy, who are not

inclined to relinquish profits for the public interest (Anderson et al., 2023).

Those who espouse the technocratic approach to politics maintain that the advent of digital technologies has precipitated a shift in the logic employed by politicians. Rather than pursuing a more deliberative and reflective approach, they have been compelled to adopt an instrumental logic, which is defined as a mode of reasoning that prioritises the pursuit of tangible outcomes. This entails relinquishing pivotal elements of their volition and intentions, as well as their capacity for reflection and emotional expression that do not align with this logic. People living in the digital world are to a certain extent sacrificing their independence, their right to privacy, and their ability to make their own decisions. Experts concerned about this trend say that people accept this for the sake of staying competitive, participating in social and professional activities, entertainment, and success. They argue that people are giving up some control over their lives for the perceived benefits offered by digital tools, such as efficiency, convenience, and enhanced ability to process and analyze data.

But the world's leading experts do not share the optimism of technocrats and transhumanist ideologues who see digitalization as a panacea for all of humanity's ills, too often paid for at the cost of analog, high-quality, foundational experiences of what it means to be human. The experts who participated in this survey expressed fears that digital systems will continue to be driven by profit incentives in economics and power in politics. With the rise of artificial intelligence, human autonomy, and freedom could be jeopardized as decisions on key life issues are handed over to tools driven by algorithms.

Conclusion

The experts in the sociological study offered several noteworthy practical recommendations:

- It is necessary to monitor and reasonably regulate content posted on social networks and messengers to prevent the spread of destructive and aggressive messages;

- It is important to maintain a balance between freedom of speech and the need for regulation in social networks and messengers to prevent the incitement of mutual intolerance and hostility between adherents of different worldviews and socio-political views;

- It is of significant importance to provide support for initiatives that aim to reinforce national identity, with the objective of reducing ethnic fragmentation within society;

- It is necessary to improve legislation and measures to combat online crimes, including penalties for incitement to hatred and misinformation;

- Educational programs on media literacy and critical thinking should be developed and implemented for citizens, especially in schools and universities;

- A set of measures should be implemented to create an adequate and responsible information space where violations of rules and the dissemination of misinformation will not go unnoticed and punished;

- It is recommended that bloggers be encouraged to develop self-regulatory mechanisms that will encourage responsible behaviour and the creation of quality content.

We believe that postponing these measures could lead to the possibility that powerful digital technologies, at the behest of political entrepreneurs, could shake and, under certain conditions, overturn the established political institutions and governing systems of society.

The utilisation of digital tools that can generate distorted or alternative realities may result in an increase in interpersonal distrust and a weakening of trust in social institutions. This, in turn, can exacerbate already undesirable levels of polarization, cognitive dissonance, and public disengagement from vital policy discussions. For example, as noted by experts, in light of the rapidly gaining momentum of the "decolonization" trend, the active analysis and dismantling of cultural and historical characters, events, and works that constitute the nation's code may unfold, which is the area of most likely conflict.

If the gaps in organizational systems are not patched, ordinary people will be under increased pressure as they face not only the challenges of navigating an unfamiliar technological landscape on their own but also the systemic failure of traditional political institutions on which they rely and which have failed to adapt to previously unimaginable opportunities and unprecedented threats.

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