ACTIVE PARTICIPATION AND EFFECTIVENESS OF YOUNG PEOPLE IN THE DEVELOPMENT OF THE DIGITAL ECONOMY

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Abstract: This article delves into the pivotal role of young individuals in shaping and propelling the digital economy forward. As the digital landscape continues to evolve rapidly, the active participation of youth emerges as a critical factor in driving innovation, entrepreneurship, and economic growth. Through an analysis of current trends and case studies, number of employees in the field of information technology, the share of households in the Republic of Uzbekistan with access to the Internet by service type, volume of provided communication and information services, average monthly salary calculated for employees working in legal entities whose main economic activity is ICT and volume of gross added value created in the information economy and e-commerce sectors.

Key words: *digital landscape, e-commerce, digital economy, ICT, communication and information services*

RAQAMLI IQTISODIYOTNI RIVOJLANISHIDA YOSHLARNING FAOL ISHTIROKI VA SAMARADORLIGI

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Annotatsiya: Ushbu maqola raqamli iqtisodiyotni shakllantirish va rivojlantirishda yoshlarning asosiy rolini ko'rib chiqadi. Raqamli landshaft jadal rivojlanishda davom etar ekan, yoshlarning faol ishtiroki innovatsiyalar, tadbirkorlik va iqtisodiy o'sishni rag'batlantirishning muhim omiliga aylanmoqda. Joriy tendentsiyalar va amaliy tadqiqotlar tahlili asosida axborot texnologiyalari sohasidagi xodimlar soni, xizmat turlari bo'yicha O'zbekiston Respublikasida Internet tarmog'iga kirish imkoniyatiga ega bo'lgan uy xo'jaliklarining ulushi, ko'rsatilayotgan aloqa va axborotlashtirish xizmatlari hajmi, o'rtacha oylik ish haqi va asosiy iqtisodiy faoliyati AKT bo'lgan yuridik shaxslarning xodimlari uchun axborot iqtisodiyoti va elektron tijorat tarmoqlarida yaratilgan yalpi qo'shilgan qiymat hajmi hisoblab chiqildi..

Kalit so'zlar: *raqamli landshaft, elektron tijorat, raqamli iqtisodiyot, AKT, aloqa va axborot xizmatlari.*

АКТИВНОЕ УЧАСТИЕ И ЭФФЕКТИВНОСТЬ МОЛОДЕЖИ В РАЗВИТИИ ЦИФРОВОЙ ЭКОНОМИКИ

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Аннотация: В этой статье рассматривается ключевая роль молодых людей в формировании и продвижении цифровой экономики. Поскольку цифровой ландшафт продолжает быстро развиваться, активное участие молодежи становится решающим фактором в стимулировании инноваций, предпринимательства и экономического роста. На основе анализа текущих тенденций и тематических исследований рассчитана численность работающих в сфере информационных технологий, доля домохозяйств Республики Узбекистан, имеющих доступ к Интернету по видам услуг, объем оказанных услуг связи и информационных услуг, среднемесячная заработная плата для работников юридических лиц, основной экономической деятельностью которых являются ИКТ, и объем валовой добавленной стоимости, созданной в секторах информационной экономики и электронной коммерции.

Ключевые слова: *цифровой ландшафт, электронная коммерция, цифровая экономика, ИКТ, коммуникационные и информационные услуги.*

INTRODUCTION

In the era of information and its dominance, digitalization and management of related tools require a lot of knowledge and skills in our daily lives, but the share of creating added value in the development of the economy is restricted to our participation as consumers and the contribution to the technological development of other countries.

Despite the fact that the economic efficiency of using digital technologies in production and service sector is guaranteed nowadays, enterprises do not consider the possibility of losing the employees with the knowledge of managing these digital technologies through indecision regarding the expected results according to the risk level of its application to their enterprise.

This, in turn, creates an immigration flow of mature and qualified personnel to foreign countries due to incentives from abroad. Accordingly, taking into account the practical situation of the insufficiency of socio-legal conditions for the so-called "digital generations" to carry out and conduct their activities in our country, it is

necessary to increase economic benefits for them in order to retain young people with knowledge of digital technologies in the domestic job market, and special emphasis should be placed on the importance of infrastructure development.

METHODS AND MATERIALS

This study adopts a mixed-methods approach to explore the active involvement of young individuals in driving the digital economy forward. Data will be collected from various sources, including statistical data from the National Statistical Committee of the Republic of Uzbekistan and relevant government agencies, as well as qualitative data in the form of case studies sourced from academic journals and industry reports. Quantitative analysis will involve descriptive statistics to identify trends and correlations related to youth participation in the digital economy, while qualitative analysis will focus on thematic analysis of case studies to extract insights into youth engagement and effectiveness. Comparative analysis will be conducted to compare youth participation across different regions, countries, and demographic groups, examining disparities and similarities in access to digital infrastructure, employment opportunities, and economic outcomes. Longitudinal analysis will track trends over time to assess the evolution of youth involvement in the digital economy and its impact on economic development. Ethical considerations will be paramount, with measures taken to ensure data privacy and mitigate bias. All data will be anonymized and aggregated, and any limitations or uncertainties in the data will be transparently acknowledged to uphold the integrity of the study.

RESULTS AND DISCUSSIONS

Students, who understand the role of digital technologies in managing the business and technological processes of today and the next decade, will strive to build their future professions accordingly. Most of the job - seekers who have acquired a profession related to digital technologies and the management of technological, business and financial processes are considered to have more than one profile.

The knowledge and skills they acquire as they pursue their careers are not confined to a single field or specialty, and if this happens, their desire to learn digitalization processes increases as the new opportunities appear to them. First of all, digitalization refers to information technologies and programming languages, and it is aimed at researching the effectiveness of the activities of young people, representatives of professionals that serve to form artificial intelligence and special software today.

If we analyze the logical and practical aspects of this, we will turn to statistical explanations:
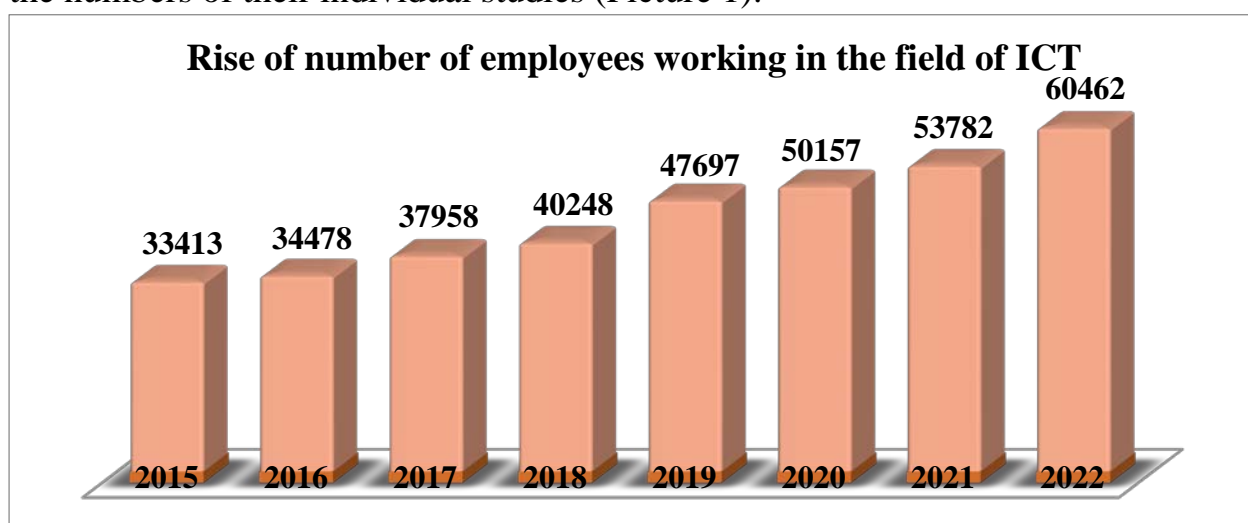
1. number of employees in the field of information technology: Picture 1

2. the share of households in the Republic of Uzbekistan with access to the Internet by service type: Picture 2

3. volume of provided communication and information services: Picture 3

4. average monthly salary calculated for employees working in legal entities whose main economic activity is ICT: Picture 4

5. volume of gross added value created in the information economy and e-commerce sectors: Picture 5

The number of employees working worldwide in the field of ICT has increased dramatically, and the demand for digitalization and its related aspects has increased due to its high efficiency for corporate enterprises.

This situation has also had its own effect among the ambitious youth in our country and this required monitoring of internal and external workers by referring to the numbers of their individual studies (Picture 1).

Rise of number of employees working in the field of ICT

2015	2016	2017	2018	2019	2020	2021	2022
33413	34478	37958	40248	47697	50157	53782	60462

Picture 1. Number of employees working in the ICT sector[42]

The number of employees working in the ICT sector is increasing year by year, most of them have increased sharply from 2018 to today, and among them there is an age group of 11 to 45 years. Over the past 5 years, the number of people employed in this field has increased by 20,000, and 47.2 percent of them are young people who have studied ICT as their second profession and continued their professional career in this field (Table 1).

Table 1

Specialists who changed the profile and their share, 2018-2022[43]

№	Representatives of specialized professions who changed their specialties to work in the ICT sector	Percentage	Person
1	**Math educators**	**21,1**	**6427**
2	**Architects and builders**	**17,24**	**5252**
3	**Power engineering specialists**	**16,18**	**4929**

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[42] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot
[43] Based on data from Statistics Agency under the President of the Republic of Uzbekistan and author's observations

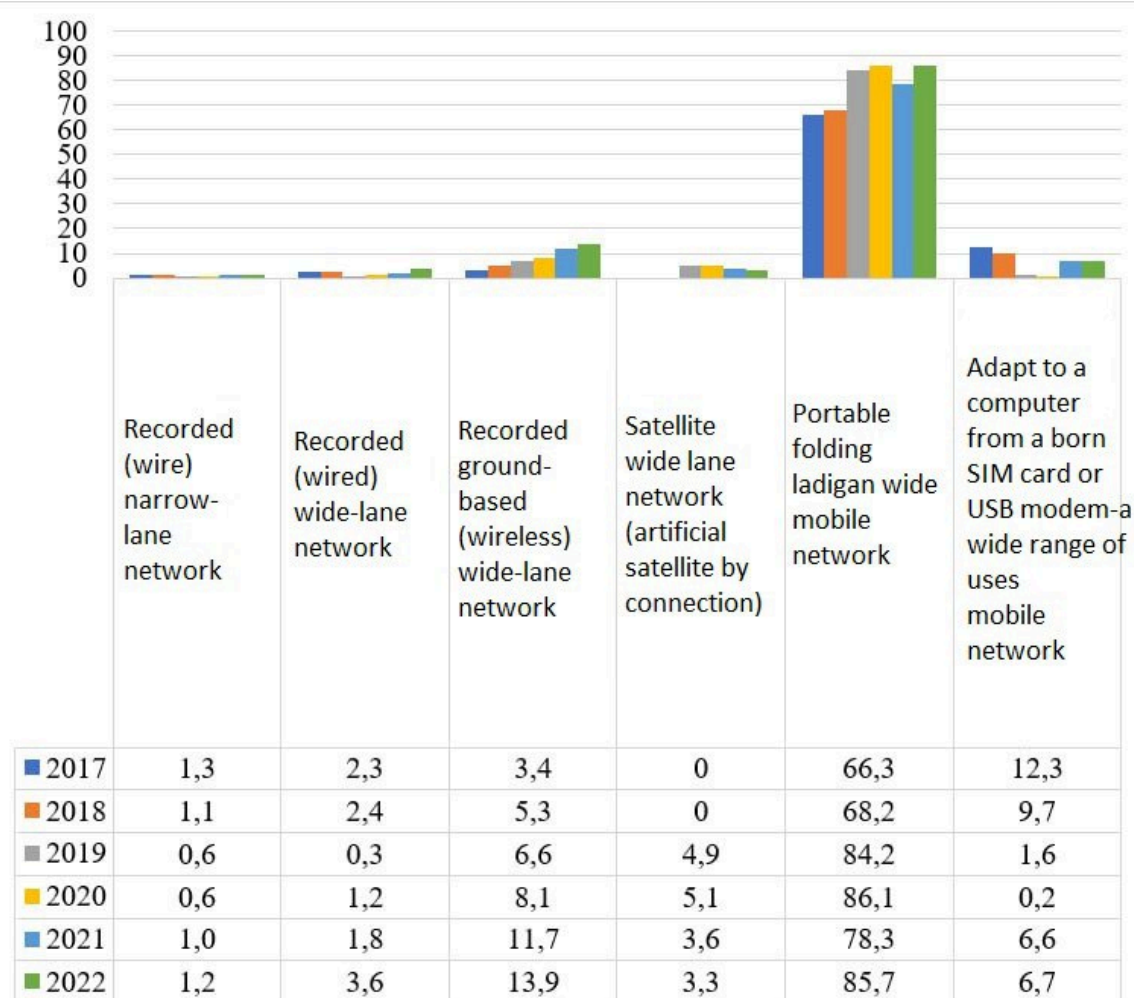| 4	**Automotive and Mechanical Engineering Representatives**	**16,12**	**4910**
5	**Economists and financial professionals**	**15,55**	**4737**
6	**Mining Representatives**	**5,79**	**1764**
7	**Linguists**	**3,52**	**1072**
8	**Historians**	**2,8**	**853**
9	**Artists and designers**	**1,7**	**518**

By 2022, the average number of employees employed in the ICT sector over the past five years consisted of 50,469, more than 50 percent of them had other professions before being employed in the sphere of ICT. In particular, the number of math teachers is 6427, which is an average of 21.1% of the total number of trained in this field. The results of the study show that quotas in higher educational institutions and specialties focused on the ICT sphere are doubled. It is observed that the increase of specialists in the field of ICT mostly due to available videos, textbooks and the services of training centers on the Internet than the practical work from academical institutions and it does not require many problems for them to get jobs on the market.

At the same time, it should be noted that the share of households with access to the Internet is increasing due to the increase in the use of the Internet and its practical effect on the expansion of services by young people who are employed in the field of ICT (Picture 2).

The ability to access the Internet for registered types of services in 2017 focused services on spontaneous development, their quality and expansion of the scope of work, and we can observe an increase in the share of broadband network use in contrast to the noted narrow-gauge networks. The share of fixed broadband wireless networks is increasing every year, more than the accumulated share of narrow-gauge and broadband wired networks.

The use of the satellite network has been recorded since 2019, and its share can be observed to decrease in the last two years due to the fact that its services require a relatively high financial contribution. Mobile broadband networks using a portable device have increased by 20 percent in the last 5 years, driving further development of business models for using and offering Internet traffic.

	Recorded (wire) narrow-lane network	Recorded (wired) wide-lane network	Recorded ground-based (wireless) wide-lane network	Satellite wide lane network (artificial satellite by connection)	Portable folding ladigan wide mobile network	Adapt to a computer from a born SIM card or USB modem-a wide range of uses mobile network
2017	1,3	2,3	3,4	0	66,3	12,3
2018	1,1	2,4	5,3	0	68,2	9,7
2019	0,6	0,3	6,6	4,9	84,2	1,6
2020	0,6	1,2	8,1	5,1	86,1	0,2
2021	1,0	1,8	11,7	3,6	78,3	6,6
2022	1,2	3,6	13,9	3,3	85,7	6,7

Picture 2. Households with Internet access by service type, 2017-2022 as a percentage[44]

Due to the diversification of access to the Internet and the expansion of its capabilities, the share of the Internet has decreased by 2 times in the last 5 years. This is based not only on the choice of its consumers regarding the possibilities of using the services, but also on the level of their use, the expansion of the fixed use spaces, and the process of transformation of service and use areas to digitalization. In particular, in 2022, 47.8 percent of the Internet use was formed in exchange for services provided to enterprises and organizations.[45]

The share of enterprises and organizations connected to the Internet in 2022 was 18.8% of the total number of enterprises and organizations, the number of computers connected to the Internet in enterprises and organizations is 667,842 and the number of computers connected to the local network is 568,589.[46] Based on the last 5 years of statistical data, this indicator corresponds to the average number of computers connected to the Internet of enterprises and organizations of 484 thousand units and the number of computers connected to the local network amounts to 437 thousand units.
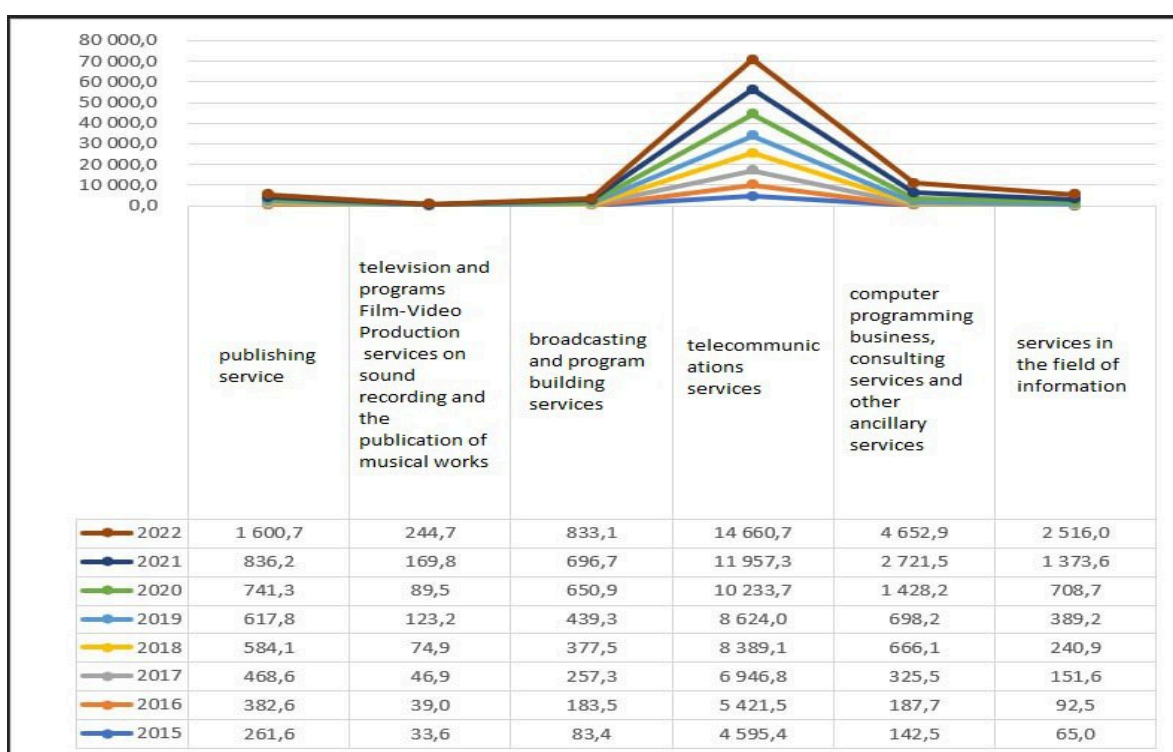
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[44] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot
[45] Based on autho's research
[46] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot

21.1 percent of them use digital technologies and the activity of using the services related to their Internet management system is not limited to solving administrative issues. In particular, activities such as the digitalization of the education system, the digitalization of employment management and support services can be a reasonable basis for confirming the above-mentioned sentence.

When researching the volume of communication and information services provided, more than 50 percent of workers and employees use and engage in digital technologies. The non-availability of communication and information services of digital technologies can be explained by the fact that it has become a demand of today's consumers, not a need, and the contingent of ideas to offer it is formed according to the wishes of consumers. (Pic. 3).

	publishing service	television and programs Film-Video Production services on sound recording and the publication of musical works	broadcasting and program building services	telecommunications services	computer programming business, consulting services and other ancillary services	services in the field of information
2022	1 600,7	244,7	833,1	14 660,7	4 652,9	2 516,0
2021	836,2	169,8	696,7	11 957,3	2 721,5	1 373,6
2020	741,3	89,5	650,9	10 233,7	1 428,2	708,7
2019	617,8	123,2	439,3	8 624,0	698,2	389,2
2018	584,1	74,9	377,5	8 389,1	666,1	240,9
2017	468,6	46,9	257,3	6 946,8	325,5	151,6
2016	382,6	39,0	183,5	5 421,5	187,7	92,5
2015	261,6	33,6	83,4	4 595,4	142,5	65,0

Picture 3. Volume of these communication and informatization services, 2015-2022, in current prices, billion soums[47]

From 2015 to 2022, we can see that the volume of publishing services has increased 8 times. Today, due to the expansion of the operational capabilities of publishing and due to the fact that the entrepreneurs and young people have mastered the tactics of aesthetic presentation, most of the appeals to the publishing service have been formed thanks to the increase in the conglomerate nature of publishing books, advertisements, business cards, various banners and project books.

The volume of services offered in the field of television and program film production, sound recording and publishing of music works increased by 7 times from

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[47] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot

2015 to 2022, and this led to the increase of number of profile holders focused on digital technologies.

Broadcasting and program services increased 10 times from 2015 to 2022, and telecommunication services increased 3 times, but the main development is due to the digital transformation of services which is also based on the significant increase in computer programming, consulting services, and information services.

The main service segment of computer programming, consulting services cover jobs related to logistics, machine control of textile industry enterprises, provision of digital capabilities of televisions and air conditioners, services related to video surveillance tools aimed at security and control, as well as programs related to general nutrition and commercial banks, public services, and shopping centers.

The fact that the above statistics and dynamic changes in the field of ICT are all growing indicators is based on the following factors:

- The opportunity to have high income through the use of ICT in the countries of the world;

- Anticipation of the probability that this field will be the most demanding field during the next half century;

- Possession of active progress of the human spirit through free creative views

- Model opportunities for innovative activities, investment activities and new business models due to the existence of mutual competition;

- Availability of free work schedule and benefits of independent work;

- To have a salary that can meet their financial needs;

- Being able to present expertise with a portfolio rather than permanent career growth;

- Not to be managed by the management staff, but only to fulfill the responsibilities and obligations related to the fulfillment of the terms of the contract;

- Absence of experiential dependence for career growth, i.e. vertically functionalized;

- Having a rating of representative of the demanding industry in 7 out of 10 enterprises.

Among the factors listed above, it is enough to justify the amount of wages calculated for employees working in legal entities whose main type of economic activity is within the field of "Communications and Information" in material terms.

In particular, in 2015, the average salary of employees hired by enterprises and organizations was 1 759 000 soums per month. This figure has increased up to 7 560 000 soums by 2022 as a result of a 6-times increase.

Although the average salary in our country has increased by 22% from 2015 to 2022, the monthly salary percentage of the representatives of this field has a much higher efficiency (Picture 4).
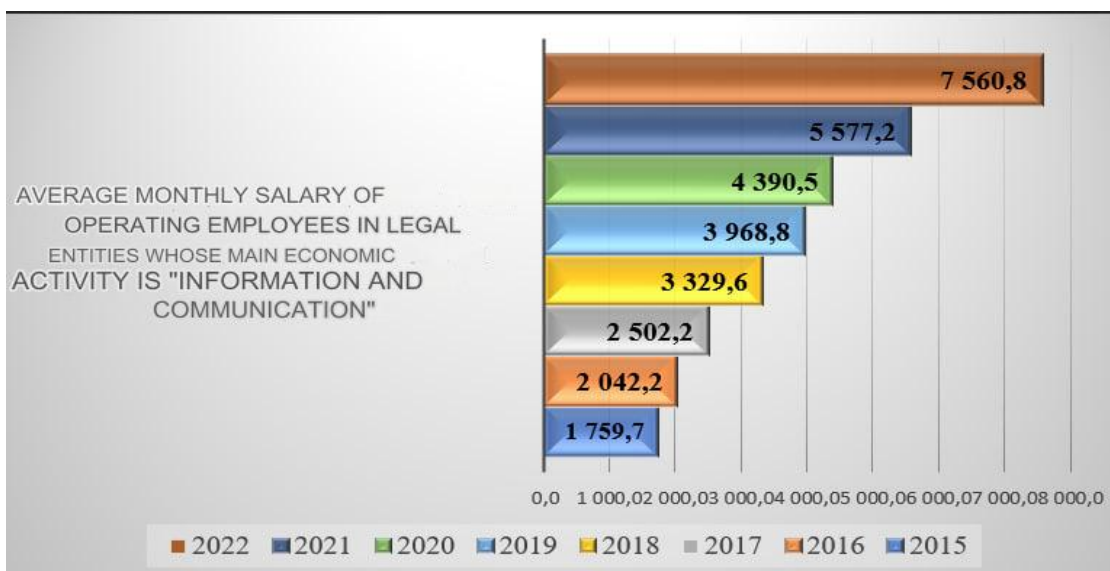
Picture 4. The average monthly salary accrued to employees working in legal entities whose main economic activity is "Information and Communication," 2015-2022 in thousand soums[48]

Most of the employees working in the field of information and communication technologies get the jobs from the orders of foreign companies and their average salary differs greatly from the payment in our country, at least 17 million soums, and at most 265 million soums.

During the Covid-19 Pandemic, which started in 2019, there was a sharp increase in the number of employees working in the ICT sector, and the flow of them to foreign countries increased sharply due to the opportunity to quickly upgrade their experience.
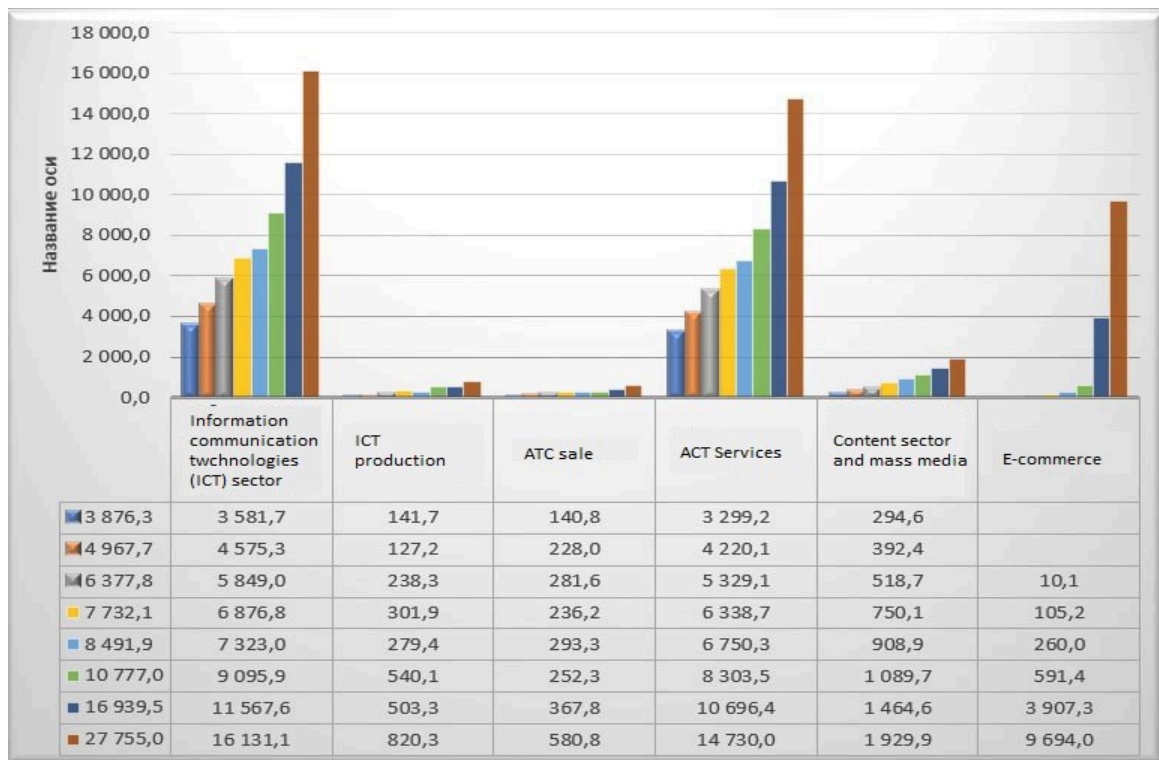
In particular, in 2015, 964 citizens of our country were hired to provide services to foreign companies in the field of ICT, and by 2019, this indicator was 2,164.

During the period of slowing symptoms and the impact of the pandemic, that is, in 2021, this figure covered 3,380 people. In 2022, the number of national ICT specialists hired by foreign companies increased by 700, amountibg to 4080.

Due to the high possibility of increasing these indicators, it is necessary to prevent the immigration flow of specialists and to expand their privileges and opportunities to serve our country according to their wishes.

Science-based proposals and recommendations. In 2021, ICT specialists and in the conduct of e-commerce activities require the development and activation of a mechanism aimed at preventing the outflow of immune immunity of personnel due to the relatively low determination of income tax rates, insufficient application of benefits that have a financial and legal basis in commercial management.

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[48] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot

	Information communication twchnologies (ICT) sector	ICT production	ATC sale	ACT Services	Content sector and mass media	E-commerce
3 876,3	3 581,7	141,7	140,8	3 299,2	294,6	
4 967,7	4 575,3	127,2	228,0	4 220,1	392,4	
6 377,8	5 849,0	238,3	281,6	5 329,1	518,7	10,1
7 732,1	6 876,8	301,9	236,2	6 338,7	750,1	105,2
8 491,9	7 323,0	279,4	293,3	6 750,3	908,9	260,0
10 777,0	9 095,9	540,1	252,3	8 303,5	1 089,7	591,4
16 939,5	11 567,6	503,3	367,8	10 696,4	1 464,6	3 907,3
27 755,0	16 131,1	820,3	580,8	14 730,0	1 929,9	9 694,0

Picture 5. Gross Value Added Generated in the Information Economy and E-Commerce, 2015-2022, in billon soums[49]

As a result of the growth in the number of people employed in the field of ICT, it can be seen that from 2015 to 2022 the information technology sector was developed mainly through ICT services and its share is increasing every year. Creation of "Coworking" centers at "IT Park" in order to further increase this value, as well as preventing immigration flows of specialists and taking into account the fact that that the establishment of a system of employment of trained ICT professionals in connection with ensuring their contribution to the economic growth of the country, 71.1% of those employed in the ICT sector will increase the efficiency of participation as an active population.

In order to scientifically substantiate this proposal, the English scientist F. Galton recommends using the quinces model. According to it, it is possible to determine from the binomial coefficient how an increase in opportunities and benefits can affect to prevent the immigration flow of the inability of specialists.

$$\binom{n}{k} p^k (1-p)^{n-k} (1) 50$$

Here:

(n/k) - benefits and valid reasons for specialists aimed at obtaining inaction;

probability coefficient of p-lights (usually obtained with a coefficient of 0.5, in our case due to 4 privileges is 0.25);

$$r_{i,j} = \frac{x_{i,j}}{\sqrt{\sum_{k=1}^{m} x_{kj}^2}} \quad (2)$$

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[49] https://stat.uz/uz/rasmiy-statistika/raqamli-iqtisodiyot
[50] https://web.archive.org/web/20080408163252/http://www.mathsisfun.com/probability/quincunx-explained.html

Formality (2) is used to form an oriented matrix, that is, to determine the probability of bad weather paths. Here:

$r = (x_{i,j})_{m*n}$ control factor;

i=1,2...m; j=1,2...n.

when mastering its productive dimensions, the following formula (3) is used:

$w_j q \dfrac{W_j}{\sum_{kq1}^{n} W_k}$ (3);

W_j-final size;

v_j-development indicators.

When determining the positive and positive selection, the following formula is used:

(Positive) $A_w =$
$\{\langle \max(t_{ij}|i = 1,2,\dots m)|j \in J\_\rangle, \langle \min(t_{ij}|i = 1,2,\dots m)|j \in J+\rangle\} \equiv$

(Negative) $A_b =$
$\{\langle \min(t_{ij}|i = 1,2,\dots m)|j \in J\_\rangle, \langle \max(t_{ij}|i = 1,2,\dots m)|j \in J+\rangle\} \equiv$

Determination of the discrepancy between them:

$$d_{iw} = \sqrt{\sum_{j=1}^{n}(4,25 - 1,25)2};$$

$$d_{ib} = \sqrt{\sum_{j=1}^{n}(3,3 - 0,9)2};$$

The positive efficiency of obtaining the immigration flow of disability in the ICT field through the proper consistent use of the above formulas is 1.25 and a negative impact of 0.5, in the positive case, a change in the volume of gross added value created in the provision of services in the ICT field is expected for the next 5 years:

Number of employees working in the field of ICT
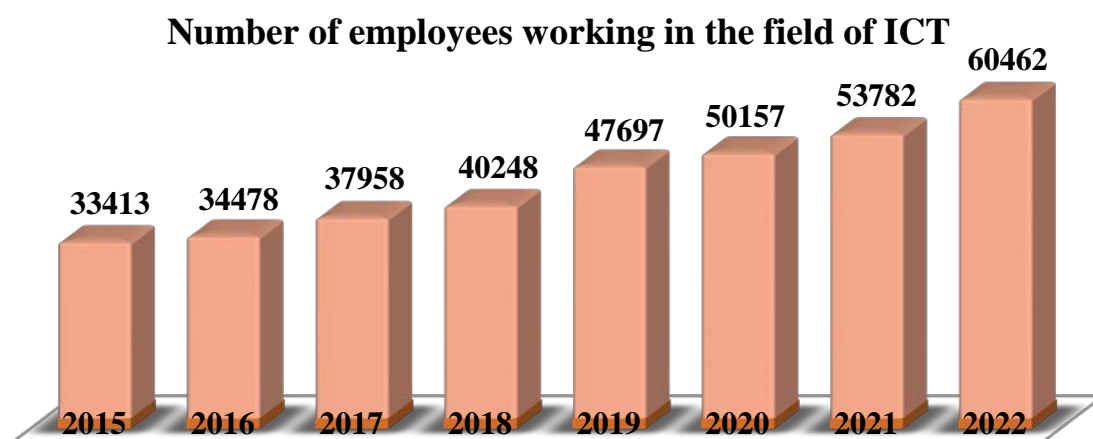
Picture 6. Gross Value Added Volume Forecast Generated for ICT Services by 2024 - 2028 in billion soums[51]

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[51] Author development

Indicators calculated using Galtonian and matrix distribution models further increase the level and proportion of value added through immigration prevention of the undesirability of youth employment in ICT. This, in turn, can contribute to a significant increase in intellectual investment and human capital indicators.

CONCLUSION

In conclusion, this article underscores the indispensable role of young individuals in driving the digital economy forward. Through an exploration of current trends and case studies, we have illuminated the significant contributions of youth to innovation, entrepreneurship, and economic growth within the digital landscape. As evidenced by statistics such as the number of employees in the information technology sector, the expanding access to the internet in households across regions like the Republic of Uzbekistan, and the increasing volume of communication and information services provided, it is evident that young people are not only active participants but also key drivers of progress in the digital realm.

Moreover, the rising average monthly salary among employees in the ICT sector and the growing volume of gross added value in the information economy and e-commerce sectors further underscore the economic significance of youth engagement in digital initiatives. By harnessing the creativity, ingenuity, and technological acumen of young individuals, societies stand to unlock new sources of prosperity, foster inclusive development, and build a more resilient and dynamic digital economy.

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