

*Support to VET Reforms Project in Uzbekistan: Inception phase  
Assessment of the ITC sector of Uzbekistan*

# *Support to VET Reform Project in Uzbekistan*

*Assessment of the ITC sector of Uzbekistan*

*15. 11.2021*

*Prepared by:  
Umida Kadirova, local researcher*

## **Content**

<b>Abbreviations</b>	<b>3</b>
<b>Introduction</b>	<b>4</b>
<b>1. Overview of formal VET providers specialized in ITC education (technicums, colleges and professional schools).</b>	<b>5</b>
1.1. Quantitative and qualitative data on technicums, offering ITC specialized education as of Q4, 2021	7
1.2. Quantitative and qualitative data on colleges, offering ITC specialized education as of Q4, 2021	15
1.3. Quantitative and qualitative data on professional schools, offering ITC specialized education as of Q4, 2021	18
<b>2. Indication of types and volumes of ITC short courses provided by a private sector</b>	<b>21</b>
<b>3. Overview of the ITC sector in the economy of Uzbekistan</b>	<b>21</b>
3.1. Data on the number of operating public and private ITC companies in Uzbekistan	27
3.2. Data on the ITC clusters and professional associations	30
<b>4. Overview of the labour needs in the ITC sector of Uzbekistan</b>	<b>31</b>
4.1. Data on an annual demand for ITC skilled personnel	32

## Abbreviations

<b>MELR</b>	Ministry of Employment and Labour Relations of the Republic of Uzbekistan
<b>MHSSE</b>	Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan
<b>VET</b>	Vocational Education and Training
<b>ITC</b>	Information Technologies and Communications

## Introduction

This report presents the results of the overview of formal VET providers i.e., professional schools, colleges and technicums, offering ITC education in Uzbekistan, conducted within the framework of the “Support to VET Reforms Project in Uzbekistan”. Presented general and concise analysis was made as per open data collected from different governmental organizations in Uzbekistan on the role of the ITC in VET education as well as in the general economy of Uzbekistan. This report includes the general analysis and the comparative assessment of the ITC role as per main indicators of the economy based on validated data, reports of international organizations, administrative data of ministries and other related public as well as private organizations obtained during the assessment.

Digitalizing the economy is one of the priority development directions of Uzbekistan. Accordingly, there is a special attention to the development of the ITC sector in Uzbekistan. In order to accelerate the development of digital technologies in the country, President of the Republic of Uzbekistan Shavkat Mirziyoyev over the past three years, adopted 3 program documents on the accelerated implementation of information technologies. First and the main document is the Presidential Decree “On Approval of the Digital Uzbekistan-2030 Strategy and measures for its effective implementation” dated 5 October, 2020. Secondly, the Resolution of the President “On measures for the widespread introduction of the digital economy and e-government” dated April 28, 2020. Thirdly, the Resolution of the President “On measures to create conditions for the accelerated introduction of artificial intelligence technologies” dated February 17, 2021.

New technologies, especially artificial intelligence, are associated with changes in the labour market on a massive scale, including job losses in some sectors and the creation of new opportunities in others. In connection with the digital transformation across various sectors of the economy, as stipulated by the concept of ‘Digital Uzbekistan 2030’, there is a need to revise the list of required skills in terms of the demands of the labour market. In the context of digital transformation, the main challenges of professional educational institutions are focused on stimulating young people’s interest in natural sciences (STEM subjects) and training qualified personnel, while taking into account the impact of the digital economy on the labour market. The development of digital competence is becoming one of the main requirements for the training of highly qualified personnel in institutions of higher and secondary specialized education. The lack of qualified personnel in the field of digitalization is a major issue. In order to train highly qualified specialists in the field of information technology, the project “One Million Uzbek Coders” was launched at the end of 2019, the aim of this project is to provide everyone with a distance learning opportunity to master digital skills based on the training programmes of leading American companies. The implementation of this project will allow the general population to be involved in the development of new professions in the ITC field that will employ young people and also persons with disabilities. The project ‘One Million Uzbek Coders’, is implemented by specialists from Uzbekistan and the United Arab Emirates. Therefore, the introduction of modern information technologies into the training of mid-level specialists, taking into account the requirements of the labour market in the context of the digitalization of the country’s economic sectors, is becoming the primary task of the country’s VET system.

## *Support to VET Reforms Project in Uzbekistan: Inception phase*

### *Assessment of the ITC sector of Uzbekistan*

The introduction of advanced foreign experience into the educational process, the use of innovative pedagogical technologies, the creation of digital/electronic textbooks, teaching aids and other educational literature, as well as the implementation of distance learning methods is expected to yield significant results, for both the subjects and objects of the learning process.

## 1. Overview of formal VET providers specialized in ITC education (technicums, colleges and professional schools).

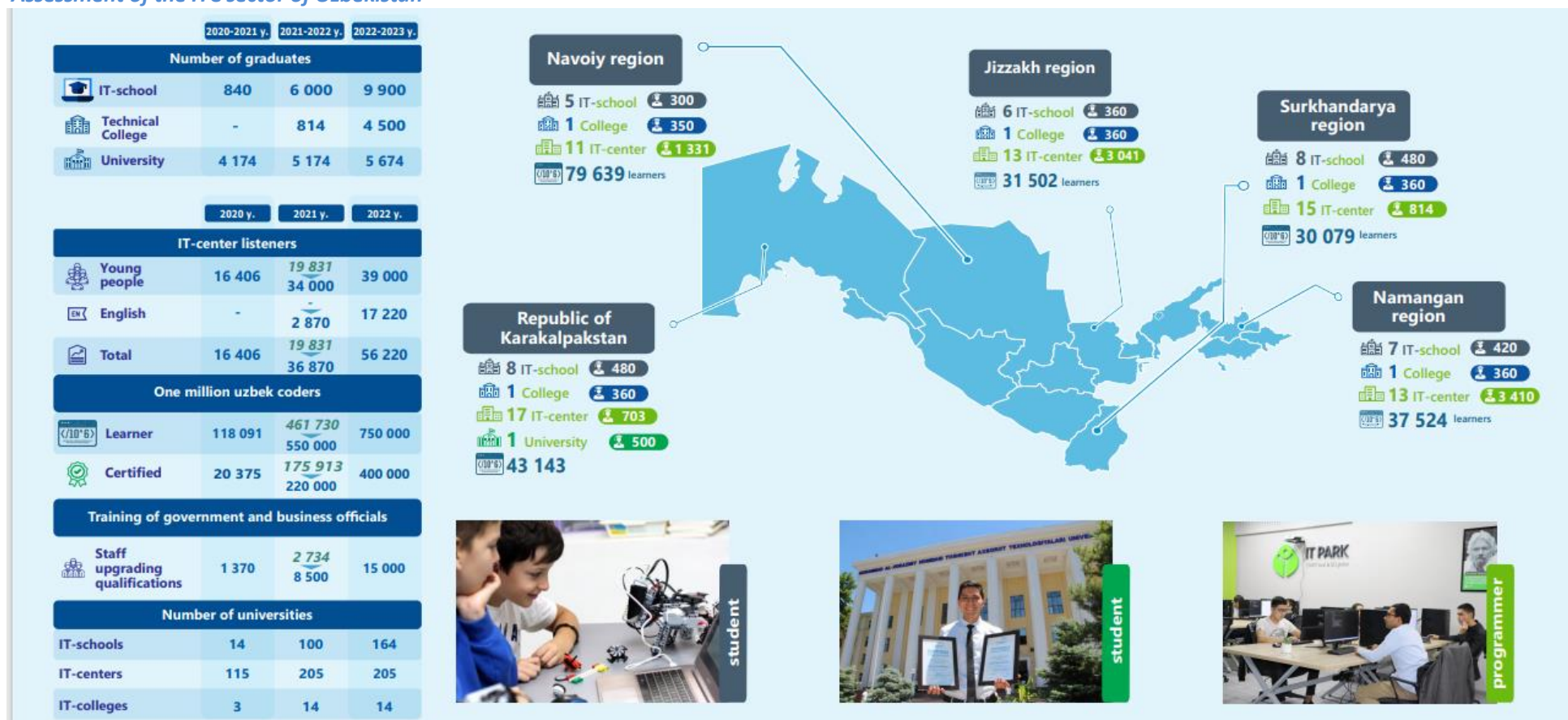
Consistent work is underway in the country in order to reform the education system by training highly qualified staff that meets the labor market requirements, implementing international standards for assessing the quality of education, creating effective mechanisms for practical application of innovative scientific achievements and accomplishing the tasks identified by the Action Strategy for five priority areas of development of the Republic of Uzbekistan in 2017–2021. In the meantime, the incompatibility of vocational education programs with the levels of the International Standard Classification of Education (ISCED) adopted by UNESCO, the inadequate

introduction of the National Qualification System of Uzbekistan into the educational process prevents the trained staff from taking a rightful place in the labor market. In order to improve the vocational education system on a par with international best practices, to train the qualified and competitive staff for the labor market by introducing the levels of primary, secondary and secondary specialized vocational education, as well as for the broad involvement of employers in this process the Presidential Decree #5812 “On Additional Measures for Further Improvement of the Vocational Education System” was adopted on September 6, 2019. The decree encompasses several targets including creating a network of educational institutions with the introduction of a new system of primary, secondary and secondary specialized vocational education and differentiated educational programs in accordance with the levels of the International Standard Classification of Education (hereinafter – the International Classification) starting from the academic year 2020/2021. As of Q4, 2021 as per the initial results of the VET reform initiated as per the Presidential Decree #5812, currently there are total of 214 technicums, 162 colleges and 339 professional schools in VET sector of Uzbekistan. Illustration #1 below provides a snapshot of ITC role in the education system of Uzbekistan.

**Illustration #1: Source: [https://mitc.uz/ru/pages/ict\\_education](https://mitc.uz/ru/pages/ict_education)**

Support to VET Reforms Project in Uzbekistan: Inception phase

Assessment of the ITC sector of Uzbekistan



## 1.1. Quantitative and qualitative data on technicums, offering ITC specialized education as of Q4, 2021

Out of 214 technicums, 14 are solely dedicated to training ITC specialists in 6 fields of education such as: Computer Engineering, Software Engineering, Information Security, Telecommunication Technologies (telecommunication, tele radio broadcasting, mobile connection), Postal Communication Technology and Digital Information Processing Analyst. Within the Republic these 14 technicums only started admitting students for educational years 2021-2022 with a total admission capacity of 10 375 students. 7 994 is the total number of students as per the 2021 admission plan, including 4 470 full time, 1 844 part time and 1 680 evening classes students. This constitutes 77% of the 14 technicums' total capacity. The factual number of applications received is 6 692, including 4 161 full time, 2 209 part time and 322 evening classes, which constitutes 83.71% of the admission plan, which means that the demand as per the application numbers against the forecasted admission plan is 16.29% lower. Top three regions/cities as per the highest number of applications received within 14 ITC dedicated technicums are: Djizzakh city (855), Tashkent city (602) and Republic of Karakalpakstan (302). Table #1 provides further detailed information for the year 2021 on the total capacity of technicums, admission plans, factual number of applications, including full time, part time and evening classes as well as government funded and self-sponsored as per regions, cities/towns and titles of technicums.

**Table #1 Source:** <https://www.edu.uz/en/>

#	Region	District/city/town	Name	Full time				Part time		Evening classes		
				Capacity of the technicum	Admission plan			Total # of applications	Admission plan Self-sponsored	Total # of applications	Admission plan Self-sponsored	Total # of applications
					Total	Government funded	Self-sponsored					
Total within the Republic				10 375	4 470	929	3 541	4 161	1 844	2 209	1 680	322
1	Republic of Karakalpakstan	Nukus city	Karakalpakstan Republic IT Agro Technicum	360	300	100	200	302	120	142	120	0
2	Andijan	Andijan district	Andijan Information Technologies Technicum	900	300	90	210	259	120	92	120	10

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

3	Bukhara	Shofirkon district	Bukhara Information Technologies Technicum	750	330	66	264	70	120	106	120	4
4	Djizzakh	Djizzakh city	Djizzakh Information Technologies Technicum	750	300	64	236	855	120	469	120	63
5	Kashkadarya	Karshi city	Kashkadarya Information Technologies Technicum	850	300	60	240	262	120	132	120	27
6	Navoyi	Karmana district	Navoyi Information Technologies Technicum	540	330	66	264	119	120	146	120	0
7	Namangan	Yangikurgan district	Yangikurgan Information Technologies Technicum	855	300	30	270	301	90	38	90	0
8	Samarkand	Samarkand city	Samarkand Information Technologies Technicum	1 440	360	60	300	233	270	180	210	17
9	Syrdarya	Saykhunabad district	Syrdarya Information Technologies Technicum	540	320	65	255	200	120	122	120	0
10	Surkhondarya	Angor district	Surkhondarya Information Technologies Technicum	540	300	60	240	235	120	110	120	2
11	Tashkent	Urtachirchik district	Tashkent region	435	320	65	255	268	120	190	120	115



Support to VET Reforms Project in Uzbekistan: Inception phase

Assessment of the ITC sector of Uzbekistan

			Information Technologies Technician									
12	Ferghana	Kokand city	Ferghana Information Technologies Technician	575	320	65	255	223	120	109	120	15
13	Kharezm	Urgench district	Urgench Information Technologies Technician	640	210	42	168	232	104	72	120	13
14	Tashkent city	Mirzo Ulugbek district	Tashkent Information Technologies Technician	1 200	480	96	384	602	180	301	60	56

As per the total number of applications received, top three high-in-demand fields of education out of 6 offered are: Computer Engineering (1 552), Software Engineering (961) and Information Security (792). Overall full time and part time forms of education are preferable. Table #2 provides a summary on the admission plan and factual number of applications in 2021 as per 6 fields of education offered by 14 technicums, dedicated to training ITC specialists.

**Table #2 Source:** <https://www.edu.uz/en/>

#	Field of education	Full time				Part time		Evening classes	
		Admission plan			Total # of applications	Admission plan	Total # of applications	Admission plan	Total # of applications
		Total	Government funded	Self-sponsored		Self-sponsored		Self-sponsored	
1.	Computer Engineering	1 280	260	1 020	1 552	477	714	400	107
2.	Software Engineering	1 130	236	894	961	300	289	300	58
3.	Information Security	870	178	692	792	343	405	350	60
4.	Telecommunication Technologies	930	196	734	750	464	620	350	68

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

	<i>(telecommunication, Tele radio broadcasting, mobile connection)</i>								
5.	<i>Postal Communication Technology</i>	230	53	177	101	200	113	220	27
6.	<i>Digital Information Processing Analyst</i>	30	6	24	5	60	68	60	2

It can be concluded from Table# 3 that out of 6 offered fields of education 4 have met or exceeded the admission plan. Table #3 provides a summary on a demand in %, calculated as per the total number of applications received against the admission plan for each 6 fields of education offered by 14 technicums, dedicated to training ITC specialists.

**Table #3 Source:** <https://www.edu.uz/en/>

#	Field of education	Demand against the admission plan					
		Full time		Pat time		Evening classes	
		Higher	Lower	Higher	Lower	Higher	Lower
1.	<i>Computer Engineering</i>	21.25%		49.68%			73.25%
2.	<i>Software Engineering</i>		14.96%		3.67%		80.67%
3.	<i>Information Security</i>		8.97%	18.08%			82.86%
4.	<i>Telecommunication Technologies (telecommunication, Tele radio broadcasting, mobile connection)</i>		19.35%	33.62%			80.57%
5.	<i>Postal Communication Technology</i>		56.09%		43.5%		87.73%
6.	<i>Digital Information Processing Analyst</i>		83.33%	13.33%			96.67%

Remaining 200 technicums are dedicated to training specialists in various areas, including ITC specialized education, offering fields of education such as Computer Engineering, Software Engineering, Information Security, Telecommunication Technologies (telecommunication, tele radio broadcasting, mobile connection), Television Technologies (audio-visual technologies, television studio networks and applications), Librarianship, E-trade, Computer and Software Engineering, Communication Networks and Switching Systems, Radio Mechanics, Information Systems (by networks), Computer Systems and Complexes, Communication and Telecommunication in Hydrometeorology.

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

Within the Republic these 200 technicums only started admitting students for educational years 2021-2022 with a total admission capacity of 113 798 students. 4 770 is the total number of students as per the 2021 ITC specialized field of education admission plan, including 521 government funded and 4 249 self-sponsored. This constitutes 4.19% of the total capacity of 200 technicums. The factual number of students admitted is 3 255, including 2 096 male and 1 274 female students, which constitutes 68.24% of the admission plan, and means that the demand as per the total number of admitted students against the forecasted admission plan is 31.76% lower. Top three regions admitted the highest number of students for the ITC specialized education are: Kashkadarya (1 001), Djizzakh (332) and Andijan (283). Table #4 provides further detailed information for the year 2021 on the total capacity of 200 technicums, admission plans and total number of admitted students for ITC specialized fields of education, including government funded and self-sponsored, male and female as well as study language breakdowns as per the country and its regions.

**Table #4 Source: <https://www.edu.uz/en/>**

#	Region	Capacity	Admission plan			Total# of admitted students	Including		Total # of admitted students as per study language								
			Total	Government funded	Self-sponsored		Male	Female	Uzbek		Russian		Karakalpak				
									Total	Including		Total	Including		Total	Including	
										Male	Female		Male	Female		Male	Female
1	In the Republic	113 798	4 770	521	4 249	3 255	2 096	1 274	3 202	2 066	1 222	0	0	0	53	27	26
2	Republic of Karakalpakstan	4 485	475	47	428	183	102	81	130	75	55	0	0	0	53	27	26
3	Andijan	6 250	660	70	590	283	133	150	283	133	150	0	0	0	0	0	0
4	Bukhara	3 060	100	18	82	88	140	63	88	51	37	0	0	0	0	0	0
5	Djizzakh	5 445	520	51	469	332	195	137	332	195	137	0	0	0	0	0	0
6	Kashkadarya	3 850	345	34	311	1 001	737	264	1 001	737	264	0	0	0	0	0	0

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

7	Navoyi	975	60	6	54	28	9	19	28	9	19	0	0	0	0	0	0
8	Namangan	7 915	570	63	507	212	128	84	212	128	84	0	0	0	0	0	0
9	Samarkand	4 470	600	66	534	215	96	119	215	96	119	0	0	0	0	0	0
10	Syrdarya	2 235	150	19	131	95	62	33	95	148	33	0	0	0	0	0	0
11	Surkhandarya	4 074	300	30	270	195	114	81	195	114	81	0	0	0	0	0	0
12	Tashkent	2 220	175	23	152	118	76	42	118	76	42	0	0	0	0	0	0
13	Ferghana	7 710	420	43	377	248	158	90	248	158	90	0	0	0	0	0	0
14	Kharezsm	2 565	275	35	240	200	109	91	200	109	91	0	0	0	0	0	0
15	Tashkent city	1 645	120	16	104	57	37	20	57	37	20	0	0	0	0	0	0

As per the total number of applications received, top three high-in-demand fields of education out of 13 offered are: Computer Engineering (1 682), Software Engineering (436) and Telecommunication Technologies (telecommunication, tele radio broadcasting, mobile connection) (112). Though, the share of male students is predominant, the share of female students interested in ITC fields of education is high as well. For instance, in Kashkadarya out of 1001 students admitted the share of male students is 73.63% or 737 students whereas the share of female students is only 26.37% or 264 students. On the contrary, in Andijan out of 283 students admitted the share of male students is 47% or 133 students whereas the share of female students is 53% or 150 students. Uzbek language is a preferable one among all available three (Uzbek, Russian and Karakalpak) study languages. Table #5 provides a summary on the total number of admission plan and the total number of admitted students in 2021 as per 13 ITC specialized fields of education, offered by 200 technicums, including government funded and self-sponsored, male and female as well as study language breakdowns.

**Table #5 Source:** <https://www.edu.uz/en/>



*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

8	Computer and Software Engineering	60	8	52	55	23	32	55	23	32	0	0	0	0	0	0
9	Communication networks and switching systems	30	3	27	25	17	8	25	17	8	0	0	0	0	0	0
10	Radio mechanics	30	8	22	0	0	0	0	0	0	0	0	0	0	0	0
11	Information Systems (by networks)	25	8	17	25	14	11	25	14	11	0	0	0	0	0	0
12	Computer systems and complexes	45	5	40	34	10	24	34	10	24	0	0	0	0	0	0
13	Communication and Telecommunication in Hydrometeorology	60	10	50	14	4	10	14	4	10	0	0	0	0	0	0

It can be concluded from table #6 that none of the 13 fields of education, offered in 200 technicums have met or exceeded the admission plan. Table #6 provides a summary on a demand in %, calculated as per the total number of admitted students against the admission plan for each 13 fields of education, offered by 200 technicums.

**Table #6 Source:** <https://www.edu.uz/en/>

#	Field of education	Demand against the admission plan	
		Higher	Lower
1	Computer Engineering		44.85%
2	Software Engineering		55.28%

## Support to VET Reforms Project in Uzbekistan: Inception phase

### Assessment of the ITC sector of Uzbekistan

3	Information Security		62.76%
4	Telecommunication Technologies (telecommunication, Tele radio broadcasting, mobile connection)		44%
5	Television Technologies (audio-visual technologies, television studio networks and applications)		100%
6	Librarianship		20%
7	E-trade		100%
8	Computer and Software Engineering		8.33%
9	Communication networks and switching systems		16.67%
10	Radio mechanics		100%
11	Information Systems (by networks)	-	-
12	Computer systems and complexes		24.44%
13	Communication and Telecommunication in Hydrometeorology		76.67%

## 1.2. Quantitative and qualitative data on colleges, offering ITC specialized education as of Q4, 2021

Currently there are 162 colleges in the country, offering vocational education in various areas, including ITC sector. However, there is no solely ITC sector dedicated college. These colleges provide ITC specialized education in 4 fields of education such as Computer Graphics and Design Operator, Computer Systems and Complexes, Information Systems (by industry) and Operator of Media Machines and Computer Networks.

Total capacity of 162 colleges within the Republic for educational years 2021-2022 is 8 815 students. 400 is the total number of students as per the ITC fields of education admission plan, including 90 government funded and 310 self-sponsored. This constitutes 4.54% of the total capacity of 162 colleges. The factual number of students admitted is 361, which constitutes 90% of the admission plan, and means that the demand as per the total number of admitted students against the forecasted admission plan is 9.75% lower. Top three regions admitted the highest number of students for the ITC specialized education are: Tashkent city (160), Kashkadarya (52), Andijan (49). Table #7 provides further detailed information for the year 2021 on the total capacity of 162 colleges, admission plans and total number of admitted students for ITC vocational training, including government funded and self-sponsored, male and female as well as study language breakdowns as per the country and its regions.

**Table #7 Source:** <https://www.edu.uz/en/>

Support to VET Reforms Project in Uzbekistan: Inception phase

Assessment of the ITC sector of Uzbekistan

#	Region	Capacity	Admission plan			Total # of admitted students	Including		Total # of admitted as per study language								
			Total	Government funded	Self-sponsored		male	female	Uzbek		Russian		Karakalpak				
									Total	including		Total	including		Total	including	
										male	female		male	female		male	female
1	Total within the Republic	8 815	400	90	310	361	537	287	329	521	271	32	16	16	0	0	0
2	Republic of Karakalpakstan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Andijan	2 510	85	35	50	49	431	81	49	431	81	0	0	0	0	0	0
4	Bukhara	1 440	50	10	40	31	9	22	31	9	22	0	0	0	0	0	0
5	Djizzakh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Kashkadarya	1 005	50	10	40	52	30	22	52	30	22	0	0	0	0	0	0
7	Navoyi	540	25	5	20	12	1	11	12	1	11	0	0	0	0	0	0
8	Namangan	720	25	5	20	18	5	13	18	5	13	0	0	0	0	0	0
9	Samarkand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Syrdarya	1 260	50	10	40	25	10	15	25	10	15	0	0	0	0	0	0





## Support to VET Reforms Project in Uzbekistan: Inception phase

### Assessment of the ITC sector of Uzbekistan

2	Computer Systems and Complexes	295	55	240	142	56	86	142	56	86	0	0	0	0	0	0
3	Information Systems (by industry)	55	30	25	31	17	14	31	17	14	0	0	0	0	0	0
4	Operator of Media Mashines and Computer Networks	50	10	40	25	10	15	25	10	15	0	0	0	0	0	0

It can be concluded from table #9 that none of the 4 fields of education, offered in 16 colleges have met or exceeded the admission plan. Table #9 provides a summary on a demand in %, calculated as per the total number of admitted students against the admission plan for each 4 fields of education, offered by 16 colleges.

**Table #9 Source:** <https://www.edu.uz/en/>

#	Field of education	Demand against the admission plan	
		Higher	Lower
1	Computer Graphics and Design operator		100%
2	Computer Systems and Complexes		51.86%
3	Information Systems (by industry)		43.64%
4	Operator of Media Mashines and Computer Networks		50%

### 1.3. Quantitative and qualitative data on professional schools, offering ITC specialized education as of Q4, 2021

Currently there are 339 professional schools in the country, offering vocational education in various areas, including ITC sector. However, there is no solely ITC sector dedicated professional school as they are meant to be opened as per a demand by employers in any region of the country. These professional schools provide ITC specialized education and train for 10 vocations such as Broadcasting Service Electrician, Communication Operator, Computer Graphics and Design Operator, Electrician for the Use and Installation of Transmission Systems, Electrician of Station Equipment of Radio Communication Networks, Hardware and Software Adjuster, Hardware and Software Adjuster (visually impaired), Master of Digital Information Processing, Operator of Media Mashines and Computer Networks and Radio Operator.

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

Combined in total 25 856 students are studying in the 1st and 2nd years of 339 colleges dedicated to vocational education and training in the ITC field. 15 870 students are studying in the 1st year, including 8 398 male and 7 472 female students and 9986 students are studying in the 2nd year, including 5 696 male and 4 276 female students withing 339 colleges of the Republic. Top three regions of highest number of 1st year students are: Navoyi (3 058), Tashkent city (2 465), and Andijan (2 193). Top three regions of highest number of 2nd year students are Navoyi (2 324), Andijan (1 276) and Tashkent (1 249). Table #10 provides further detailed information on the number of students as per each region of the country studying in the 1st and 2nd years of ITC specialized education in the 339 colleges.

**Table #10 Source: <https://www.edu.uz/en/>**

#	Region	1-year			2-year		
		Total	Male	Female	Total	Male	Female
	<i>Within the Republic of Uzbekistan</i>	15 870	8 398	7 472	9 986	5 696	4 276
1.	<i>Republic of Karakalpakstan</i>	649	292	357	259	113	146
2.	<i>Andijan</i>	2 193	961	1 232	1 276	634	642
3.	<i>Bukhara</i>	704	338	366	447	217	230
4.	<i>Djizzak</i>	368	158	210	371	183	188
5.	<i>Kashkadarya</i>	1 110	540	570	641	243	398
6.	<i>Navoyi</i>	3 058	2 251	807	2 324	1 771	553
7.	<i>Namangan</i>	1 465	732	733	836	394	442
8.	<i>Samarkand</i>	519	249	270	717	435	282
9.	<i>Syrdarya</i>	326	132	194	226	105	121
10.	<i>Surkhondarya</i>	855	477	378	801	487	300
11.	<i>Tashkent</i>	2 465	1 086	1 379	1 249	553	696
12.	<i>Ferghana</i>	1 256	623	633	196	118	78
13.	<i>Khorezm</i>	522	339	183	330	228	102
14.	<i>Tashkent city</i>	380	220	160	313	215	98

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

Table #11 provides a summary on the total number of 1st and 2nd year students studying for 10 professions in 339 colleges of the country, including male and female breakdowns. Top three professions with the highest number of students studying in the 1st year of education are: Master of Digital Information Processing (4 602), Operator of Media Mashines and Computer Networks (3 503) and Computer Graphics and Design Operator (3 039). Top three professions with the highest number of students studying in the 2nd year of education are: Master of Digital Information Processing (4 384), Hardware and Software Adjuster (1 869) and Operator of Media Mashines and Computer Networks (820). Though, the share of male students is predominant, the share of female students interested in ITC specialized field of education is high as well. For instance, out of 3 503 students studying in the 1st year of education for a profession of Operator of Media Mashines and Computer Networks the share of female students is 56.38% or 1 975 students whereas the share of male students is 43.62% or 1 529 students. On the contrary, out of 4 602 students studying in the 1st year of education for a profession of Master of Digital Information Processing the share of male students is 51.19% or 2 356 students whereas the share of female students is 48.8% or 2 246 students.

**Table #11 Source:** <https://www.edu.uz/en/>

#	Profession	1-year			2-year		
		Total	Male	Female	Total	Male	Female
1	Broadcasting Service Electrician	26	24	2	20	20	0
2	Communication Operator	92	52	40	25	4	21
3	Computer Graphics and Design Operator	3 039	1 373	1 666	771	379	392
4	Electrician for the Use and Installation of Transmission Systems	28	18	10	21	2	19
5	Electrician of Station Equipment of Radio Communication Networks	26	23	3	30	30	0
6	Hardware and Software Adjuster	2 166	1 044	1 118	1 869	960	909
7	Hardware and Software Adjuster (visually impaired)	41	17	24	20	15	5
8	Master of Digital Information Processing	4 602	2 356	2 246	4 384	2 287	2 083
9	Operator of Media Mashines and Computer Networks	3 503	1 529	1 975	820	356	464
10	Radio Operator	0	0	0	47	47	0

## 2. Indication of types and volumes of ITC short courses provided by a private sector

As of 25.07. 2021, there are 1 254 legal entities operating in the field of non-governmental education throughout the country, providing education and training in various fields, including ITC specialized education. Table #12 provides further detailed information on the number of legal entities operating in the field of non-governmental education providing retraining and advanced trainings as per each region of the country. Further detailed information on the exact number of ITC specialized retraining and advanced training centers as well as the types and volumes of those can be retrieved from the document #1, attached to this report, provided by the MHSSE.

**Table #12 Source: <https://www.edu.uz/en/>**

#	Region	Retraining and advanced training centers	Total
1.	Republic of Karakalpakstan	45	45
2.	Andijan	50	50
3.	Bukhara	33	33
4.	Djizzakh	14	14
5.	Kashkadarya	42	42
6.	Navoyi	53	53
7.	Namangan	40	40
8.	Samarkand	70	70
9.	Syrdarya	28	28
10	Surkhandarya	41	41
11	Tashkent	85	85
12	Ferghana	55	55
13	Kharezm	47	47
14	Tashkent city	651	651
	Total:	1254	1254

## 3. Overview of the ITC sector in the economy of Uzbekistan

Source: <https://mitc.uz/en>

## *Support to VET Reforms Project in Uzbekistan: Inception phase*

### *Assessment of the ITC sector of Uzbekistan*

Digitalizing the economy is one of the priority development directions of Uzbekistan. Accordingly, there is a special attention to the development of the ITC sector in Uzbekistan. In order to accelerate the development of digital technologies in the country, President of the Republic of Uzbekistan Shavkat Mirziyoyev over the past three years, adopted 3 program documents on the accelerated implementation of information technologies. First and the main document is the Presidential Decree “On Approval of the Digital Uzbekistan-2030 Strategy and measures for its effective implementation” dated 5 October, 2020. Secondly, the Resolution of the President “On measures for the widespread introduction of the digital economy and e-government” dated April 28, 2020. Thirdly, the Resolution of the President “On measures to create conditions for the accelerated introduction of artificial intelligence technologies” dated February 17, 2021.

These documents define the main institutional and organizational mechanisms for the development of the e-government system and the digital economy, in particular, the Centers for the Development of e-Government and Research of the Digital Economy. In the period 2020-2022, it is planned to implement more than 270 projects in various areas of public administration, economy and economic activity. “Digital Uzbekistan-2030” Development Strategy envisions the implementation of more than 1 600 activities, including 597 events on digitalization of regions for 2020-2022, 443 projects in the context of industries for 2020-2022, including the development of systems and software products for the automation of management, production and logistics processes at enterprises of the real sector of the economy.

As part of the further digitalization of the activities of state bodies, the following projects have been implemented:

- "Electronic work book", which made it possible to digitize data on work experience, vacancies in the labor market in the context of regions, industries and professions and provided these data online;
- "Electronic health care», an automated system of ambulance has been launched in the capital, which made it possible to reduce the call processing time by half;
- A phased introduction of the “Electronic Diary” system in general education schools has begun, which made it possible to keep a centralized record of students' progresses;
- - "Unified Social Register" system has been introduced in all regions of the republic and more than 1.2 million families receive benefits through this system;
- - “Digital Customs” project is being successfully implemented, in particular, 6 new information systems and 13 electronic government services have been introduced;
- In 2013, my.gov.uz - a single portal of interactive public services has been launched. Today the portal provides more than 270 types of electronic public services. By the end of 2021, the total number of public services will reach 300 types. Mobile application of my.gov.uz has been launched, providing more than 35 types e-government services. In order to facilitate the provision of public services to the population and entrepreneurs on the platform of the single interactive portal of public services, 17 types of public services are available in more than 500 post offices of the country;
- “Unified Identification System” of e-government users has been modernized and put into operation, and the number of users exceeded 950 000. Through this system, citizens can get access to more than 70 information resources of state bodies;
- “Unified database of legal entities” has been created on the basis of the database of the State Tax Committee. A single database stores 110 types of information about legal entities and individuals engaged in entrepreneurial activity, and is processed by ministries and departments;

## *Support to VET Reforms Project in Uzbekistan: Inception phase*

### *Assessment of the ITC sector of Uzbekistan*

- "Unified Register of Information Systems" (reestr.uz) has been launched, which allows organizing the formation of a unified database of information systems, as well as electronic approval of design and technical documentation;
- "Unified Database of Reference Books and Classifiers" (cs.egov.uz) has been introduced, which allows authorized agencies to form and maintain appropriate reference books and classifiers for centralized use in information systems and resources of government agencies in real time;
- Since 2017, a unified interdepartmental system of performing discipline "ijro.gov.uz" has been functioning in all state bodies, and this year the Virtual Reception of the President of the Republic of Uzbekistan has been launched;
- In 2018, "My Opinion" web portal (a portal of collective petitions) was launched to empower citizens to participate in public and state decision-making, initiate new ideas, laws and other regulations to be published for public discussion;
- Since 2019, the process of developing and approving regulatory legal acts has been fully automated through the unified system project.gov.uz, which enables to simultaneously carry out the processes of departmental approval and public discussion;
- As per the government decision in 2013, an open data portal was launched where more than 12 800 sets of open data were published by 177 departments. As per the database developed by Open Data Inception, in 2021, Uzbekistan ranked seventh in the world in terms of the number of open data resources. As per the level of data openness Open Data Inventory (ODIN), Uzbekistan has gained its 45th place in the world. Among the states of Central Asia, it occupies a solid first place;

Illustration #2 below provides an overview of the state of digital development in Uzbekistan, covering sections such as Infrastructure and Access, Internet Use and Enablers and Barriers.

**Illustration #2 Source:** <https://www.itu.int/en/ITU-D/Statistics/Dashboards/Pages/Digital-Development.aspx>

# Digital Development Dashboard <sup>BETA</sup>

An overview of the state of digital development around the world based on ITU data



## Uzbekistan

### INFRASTRUCTURE & ACCESS



#### Network coverage

Population covered by a mobile-cellular network (2020)

**99%**



Population covered by at least a 3G mobile network (2020)

**90%**



Population covered by at least a 4G mobile network (2020)

**61%**







## Mobile phone ownership

Individuals owning a mobile phone (2019)

**70%**



Female mobile phone ownership as a % of total female population (2019)

**62%**



Male mobile phone ownership as a % of total male population (2019)

**77%**



## ICT access at home

Households with Internet access at home (2020)

**94%**



Households with a computer at home (2020)

**41%**



Households with Internet access at home, rural (2018)

**74%**



Households with Internet access at home, urban (2018)

**86%**



## Mobile and fixed telephone subscriptions

Mobile-cellular subscriptions per 100 inhabitants (2020)

**100**



Fixed-telephone subscriptions per 100 inhabitants (2020)

**11**



## Uzbekistan

# INTERNET USE



### Percentage of population using the Internet

Individuals using the Internet, total (2019)

**70%**



Female Internet use as a % of total female population (2019)

**66%**



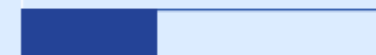
Male Internet use as a % of total male population (2019)

**75%**



< 15 years as a % of all < 15 years (2018)

**36%**



15-24 years as a % of all 15-24 years (2018)

**74%**



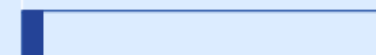
25-74 years as a % of all 25-74 years (2018)

**54%**



75+ years as a % of all 75+ years (2018)

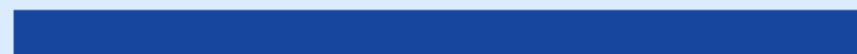
**6%**



### Broadband traffic

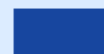
Average monthly fixed broadband Internet traffic per fixed broadband subscription (MB) (2020)

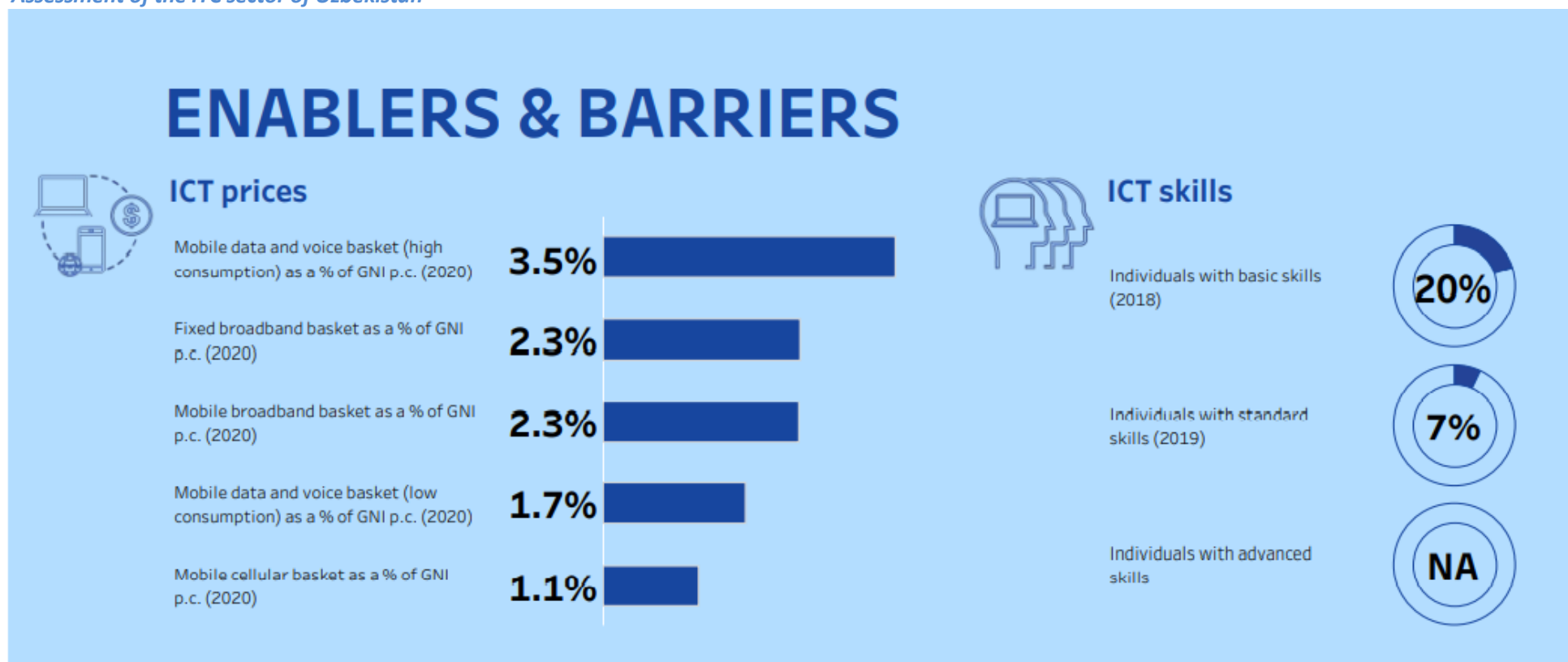
**38773**



Average monthly mobile broadband Internet traffic per mobile broadband subscription (MB) (2020)

**4360**





### 3.1. Data on the number of operating public and private ITC companies in Uzbekistan

Number of small business companies within the Republic for the period of 2019-2021, including registered, active, inactive, newly created and liquidated. (Excluding agriculture and livestock farms). As per the Table #13, it can be concluded that as of January 1, 2021 there are 340 more newly created small business companies compared to January 1, 2020 and 44 292 more compared to January 1, 2019. Also, there are 76 436 more active small business companies compared to January 1, 2020 and 148 273 more compared to January 1, 2019. Table #13 provides further detailed information on registered, active, inactive, newly created and liquidated small business companies, including ITC sector, for the period of 2019-2021. Individual data on the number of small business companies as per each region

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

of Uzbekistan can be retrieved from the analytical data document #2, attached to this report, provided by DaVinci Management Consulting company, engaged in providing consulting services, including sectoral market research in Uzbekistan.

**Table #13 source: analytical data provided by DaVinci Management Consulting, Uzbekistan**

<i>Number of small business companies within the Republic for the period of 2019-2021</i>															
	<i>2019 as of January 1<sup>st</sup>, units</i>					<i>2020 as of January 1<sup>st</sup>, units</i>					<i>2021 as of January 1<sup>st</sup>, units</i>				
	<i>Registered</i>	<i>Active</i>	<i>Inactive</i>	<i>Newly created</i>	<i>Liquidated</i>	<i>Registered</i>	<i>Active</i>	<i>Inactive</i>	<i>Newly created</i>	<i>Liquidated</i>	<i>Registered</i>	<i>Active</i>	<i>Inactive</i>	<i>Newly created</i>	<i>Liquidated</i>
<i>Republic of Uzbekistan</i>	276 237	262 930	13 307	48 922	15 601	353 921	334 767	19 154	92 874	15 646	436 981	411 203	25 778	93 214	9 895

Table #14 provides information on the number of state and private sector enterprises and organizations by type of economic activity, including ITC sector, in Uzbekistan for the period of 2020-2021. Individual data on the number of state and private sector enterprises and organizations by type of economic activity in Uzbekistan can be retrieved from the analytical data document #2, attached to this report, provided by DaVinci Management Consulting company, engaged in providing consulting services, including sectoral market research in Uzbekistan.

**Table #14 source: analytical data provided by DaVinci Management Consulting, Uzbekistan**

<i>Number of state and private sector enterprises and organizations by type of economic activity</i>										
<i>(Excluding agriculture and livestock farms. As of January 1<sup>st</sup>, units)</i>										
	<i>Registered</i>		<i>Active</i>		<i>Inactive</i>		<i>Newly created</i>		<i>Liquidated</i>	
	<i>2020</i>	<i>2021</i>	<i>2020</i>	<i>2021</i>	<i>2020</i>	<i>2021</i>	<i>2020</i>	<i>2021</i>	<i>2020</i>	<i>2021</i>
<i>Total</i>	419 490	503 538	398 133	475 197	21 357	28 341	96 743	95 311	16 880	11 547
<i>Information and Communication</i>	8 451	10 188	7 901	9 517	550	671	1671	1922	395	171

Table #15 provides information on the number of state and private sector organizations by ITC type of economic activity, in Uzbekistan for the period of 2019-2020.

*Support to VET Reforms Project in Uzbekistan: Inception phase*

*Assessment of the ITC sector of Uzbekistan*

**Table #15 source: analytical data provided by DaVinci Management Consulting, Uzbekistan**

<i>Information on the number of state and private sector organizations by type of economic activity "Information and Communication" (as of January 1<sup>st</sup>, units)</i>		
<i>Year</i>	<i>2019</i>	<i>2020</i>
<i>Information and communication total</i>	<i>6 975</i>	<i>7 901</i>
<i>Publishing books</i>	<i>122</i>	<i>145</i>
<i>Publishing reference books and lists</i>	<i>7</i>	<i>7</i>
<i>Publishing newspapers</i>	<i>315</i>	<i>315</i>
<i>Publishing magazines and periodicals</i>	<i>154</i>	<i>176</i>
<i>Other publishing activities</i>	<i>231</i>	<i>270</i>
<i>Release of computer games</i>	<i>90</i>	<i>109</i>
<i>Release of other software</i>	<i>206</i>	<i>248</i>
<i>Film, video and television program production</i>	<i>205</i>	<i>227</i>
<i>Post-production stage of film-video-films and television programs production</i>	<i>44</i>	<i>42</i>
<i>Distribution of motion pictures, video and television programs</i>	<i>50</i>	<i>46</i>
<i>Screening of films</i>	<i>87</i>	<i>95</i>
<i>Activities related to the publication of phonograms and musical recordings</i>	<i>71</i>	<i>76</i>
<i>Radio broadcasting</i>	<i>93</i>	<i>87</i>
<i>Activities for the creation and broadcasting of television programs</i>	<i>91</i>	<i>92</i>
<i>Provision of wire communication services</i>	<i>542</i>	<i>457</i>
<i>Provision of wireless services</i>	<i>1 065</i>	<i>1 127</i>
<i>Provision of satellite communication services</i>	<i>8</i>	<i>20</i>
<i>Provision of other telecommunication services</i>	<i>606</i>	<i>805</i>
<i>Activities in the field of computer programming</i>	<i>561</i>	<i>710</i>

## Support to VET Reforms Project in Uzbekistan: Inception phase

### Assessment of the ITC sector of Uzbekistan

<i>Consulting services in the field of computer technology</i>	272	309
<i>Computer equipment management activities</i>	122	149
<i>Other activities in the field of information technology and computer systems</i>	1 051	1 217
<i>Data hosting and processing services</i>	317	396
<i>Web portals</i>	49	70
<i>News agency activities</i>	207	188
<i>Other information service activities</i>	409	518

## 3.2. Data on the ITC clusters and professional associations

Source: <https://it-park.uz/ru/itpark/about>

On January 10, 2019, IT Park was established under the Ministry for Development of Information Technologies and Communications of the Republic of Uzbekistan. On July 24, 2019 the first IT Park in the Republic of Uzbekistan opened its doors in Tashkent. In a given short amount of time, IT Park has already brought its first fruits in the form of 28 new startups, created dozens of projects in the field of information technology, as well as trainings, workshops and meetings to encourage the youth of our country, their interest in this area and develop computer literacy among the population.

IT Park is a complex of facilities, buildings and structures designed to ensure the startup and market access, an extraterritorial free economic zone for IT companies, including integration with scientific and educational organizations. It is a place where active and talented people in the field IT will have a real chance to transform their ideas into real business projects through accounting, legal, marketing and educational support.

The following legal documents serve as a foundation for the establishment of IT Park:

1. Decree of the President of the Republic of Uzbekistan dated June 30, 2017. No.UP-5099 "On measures to fundamentally improve conditions for the development of the information technology industry in the republic";
2. Resolution of the Cabinet of Ministers dated 10.01.2019 No. 17 «On measures to create a technological park of software products and information technologies";
3. Resolution of the Cabinet of Ministers of 15.07.2019 No. 589 "On measures to organize the activities of the technological park of software products and information technologies";
4. Resolution of the Cabinet of Ministers dated 30.10.2020 No. 672 "On Amendments and Additions to the Resolution of the Cabinet of Ministers of July 15, 2019 No. 589" On Measures to Organize the Activity of the Technological Park of Software Products and Information Technologies ", as well as on invalidating some government decisions".

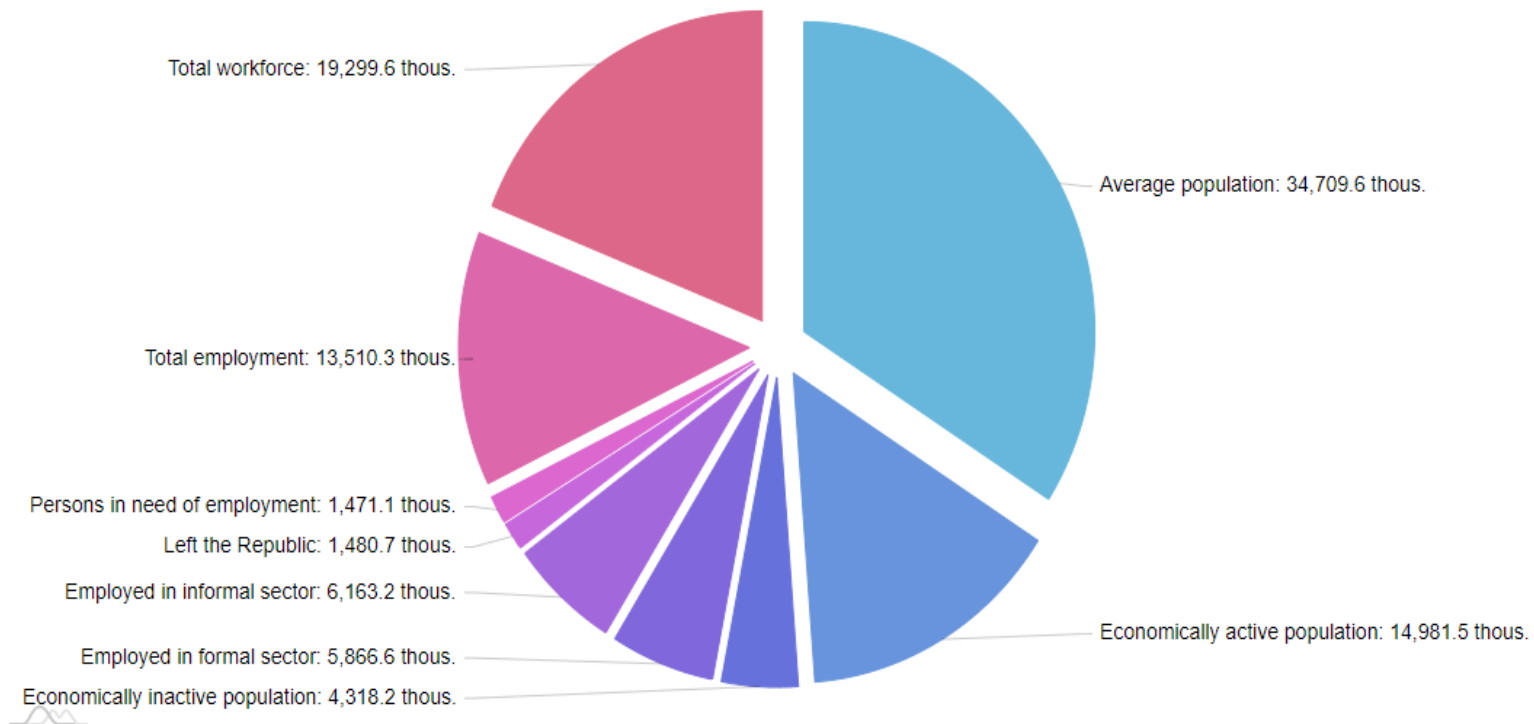
Assessment of the ITC sector of Uzbekistan

For a further detailed information on IT Park's scope, activities, milestones and targets, please see the attached to this report document #3, kindly provided by IT Park's administration.

### 4. Overview of the labour needs in the ITC sector of Uzbekistan

Open data information is not available for the overview of the labour needs in the ITC sector of Uzbekistan as it requires an analysis of consolidated data requested from a number of ministries. However, MELR provides an open data for labour market statistics on its website. Illustration #3 below provides a snapshot with a breakdown of the total workforce, total employment, persons in need of employment, labour migration, informal employment, economically active and inactive population.

Illustration #3. Source: mehnat.uz



#### 4.1. Data on an annual demand for ITC skilled personnel

Table #16 provides the information gathered on the basis of the demand from public and private sector companies on the supply of specialists in the ITC sector by VET providers as per regions of Uzbekistan.

**Table #16** <https://www.edu.uz/en/>

<i>Information gathered on the basis of the demand from public and private sector companies on the supply of specialists in the ITC sector by VET providers as per regions of Uzbekistan</i>			
<i>#</i>	<i>Region</i>	<i>Current # of students in VET facilities</i>	<i>2021/2022 Admission Plan</i>
1	<i>Republic of Karakalpakstan</i>	1 090	449
2	<i>Andijan region</i>	3 801	604
3	<i>Bukhara region</i>	1 270	123
4	<i>Djizzak region</i>	1 071	563
5	<i>Kashkadaryo region</i>	2 804	264
6	<i>Navoyi region</i>	5 422	924
7	<i>Namangan region</i>	2 531	489
8	<i>Samarkand region</i>	1 451	331
9	<i>Syrdaryo region</i>	672	311
10	<i>Surkhondaryo region</i>	1 865	511
11	<i>Tashkent region</i>	3 832	338
12	<i>Ferghana region</i>	1 700	577
13	<i>Khorezm region</i>	1 064	352
14	<i>Tashkent city</i>	910	484
	<i>Total within the Republic</i>	29 483	6 320