Statistical analysis of network problems and their impact on the practice of social computing in Uzbekistan

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Abstract. Social computing is considered part of computer science, which studies the interaction of social behavior with computing systems. It is designed to create, maintain and recreate social conventions and social contexts using various programs and technologies. In this article, the level of use of the social network in various cities of Uzbekistan and the problems encountered during its use were considered. There are many social networks for the dissemination and receipt of information in the course of this study, a survey of faculty, students, specialists, employees, commercial and non-profit organizations was conducted in the form of an online survey and the level of use of social networks was determined based on the results of the survey.

1 Introduction

Recently, a number of social computing technologies have been stimulating the rapid development of social networks. These social networks have more opportunities for community development, the level of satisfaction and use of subscribers, as well as many additional features. Social computing is an environment in which a researcher identifies various problems that users complain about. The researcher should understand the impact of social networks on the privacy of user data, major changes in communication, the interaction of others with social computing, security issues and trends in trade and business [1].

A social network is an online system used for communication, establishing social relationships, dating between people with similar interests or offline contacts. In many cases, these systems are also used for entertainment (music and movies) and work purposes. The term “Social network” was first introduced by the English sociologist James Barnes in his 1954 article “classes and committees in Paris on a Norwegian island”, which was included in his collection of works entitled “Human relations”. Later, this term became widely used in various fields of the humanities [2].

The concept of “social network” became widespread and popular in English among Western researchers in the second half of the 20th century. Usually this term is understood in English as “someone's entrepreneurial network”. This applies, for example, to a circle of people familiar to a person engaged in entrepreneurship, as well as to all such circles. In the

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Russian language there is a concept of “blat”, denoting informal and socially significant human relationships.

From web domains such as Facebook, Twitter, LinkedIn, Wikipedia, peer-to-peer networks, research portals, Google scholar, WhatsApp, Skype, IMO, YouTube, open source groups and business networks on the internet to social computing networks that allow you to interact and interact on social networks, such as modern software applications and services have appeared. Many popular online social and academic networks such as YouTube and Facebook are actively developing in Uzbekistan [3]

The paradigm of social computing describes new frontiers of information systems research. For example, it introduces new ways for users to work, as well as many new features in order to improve the software [4]. The use of various information fields of data, as well as a wide range of computing devices, makes the user's interaction with information more changeable and dynamic.

Users faced various network access problems when they interacted with new information through several information domains and devices in social computing environments [5]. In the practice of studying social computing, scalability, quality, security and compatibility are issues related to computing. This article discusses the use of social networks and the problems associated with them.

In Uzbekistan, a huge number of subscribers use social networks every day to get information and access multimedia information. Even these social sites are used for commercial and non-commercial offers. Many social applications and services allow the user to easily collect available online data and interact with database domains.

2 Computer networks and the history of creation

The modern world of information and communication technologies is developing very rapidly in our lives. Today it has become difficult to imagine without the Internet. The Internet and the services provided in it are becoming a common way of life for both data transmission and reception networks. Information and communication technologies are one of the factors influencing the change and accelerated development of society, the use of ICT makes it possible to achieve progress in science, entrepreneurship and business, production and technology, as well as in other related fields, ensuring satisfaction of the social and personal needs of mankind in information resources. Computer networks are one of the most important components of modern information and communication technologies.

A set of computers located in network nodes and capable of exchanging information provided by them is called a computer network. Computers use common communication protocols through digital connections to communicate with each other. Connections can consist of different network topologies. Telecommunication network technologies will consist of wired, fiber-optic and wireless methods of radio frequency communication. Computer network nodes may include personal computers, servers, network equipment (Swich, Hub, and other devices), other specialized or shared hosts. They can have their own network addresses and hostnames.

A computer network is a network in which two or more computers and other devices are connected to each other using a transmission medium.

A computer (computing) network is a set of computers and terminals connected into a single system of branched information processing using communication channels is the highest form of a multi-machine association.

The computer and communication environment is an important network for the integration of communities, people, students and the corporate sector into social programs, universities and various social programs around the world [6]. A number of organizational management organizations must integrate their systems with each other. Computer networks
play an important role for communication between these systems. These networks have facilitated interaction between users, subscribers and active participants to gain knowledge, share knowledge, conduct business and increase revenue. The Internet was used to connect other computer networks, to unite communities to help other computer users. Computer networks have been influenced by numerous technological inventions and historical milestones.

In the late 1950s, a computer network was built for the semi-automatic radar (semi-automatic ground-based) radar system of the US Armed Forces using the Bell 101 modem. It was the first commercial computer modem manufactured by the American Telephone and Telegraph Corporation in 1958. The modem allowed digital data to be transmitted over conventional telephone lines at a speed of 110 bits per second (bps).

In 1959, Anatoly Kitov proposed to the Central Committee of the CPSU a detailed plan for the reorganization of the management of the Soviet armed forces and the Soviet economy on the basis of a network of computing centers. [7] Kitov's proposal, as well as the 1962 OGAS Economic Management Network project were rejected. [8]

In 1960, the airline booking system owned by Sabre Corporation (Sabre Global Distribution System) began to work online by connecting two mainframe computers.

In 1963, Joseph Chililder sent a memorandum to his office colleagues to discuss the concept of an “intergalactic computer network.” This memorandum mentions a computer network designed to provide general communication between computer users.

In the 1960s, Paul Beran and Donald Davis independently developed the concept of packet exchange for transmitting information between computers over a network. [9] Davis was a leader in the implementation of the concept. The NPL network, as well as the local area network of the National Physical Laboratory (NPL), owned by the United Kingdom, used a linear speed of 768 Kbit/s, followed by a high-speed T1 channel (linear speed of 1544 Mbit/s). [10]

In 1965, Western Electric introduced the first widely used telephone switchboard implementing computer control on a switching matrix.

In 1969, the first four ARPANET nodes were connected using a 50 Kbit/s channel between the University of California at Los Angeles, Stanford Research Institute, the University of California at Santa Barbara and the University of Utah.[11] In the early 1970s, Leonard Kleinrock performed mathematical calculations to simulate the operation of packet-switched networks, which formed the basis for the creation and development of ARPANET. [12] His theoretical work on “hierarchical routing”, which he conducted together with student Faruk Kamun in the late 1970s, is still crucial for the functioning of the Internet today.

In 1972, commercial services first became available on public data exchange networks in Europe, and in the late 1970s, they spread worldwide after the introduction of the X.25 protocol. The underlying infrastructure was used in the 1980s to expand TCP/IP networks.[13]

In 1974, Vint Cerf, Yogen Dalal and Carl Sunshine published the Transmission Control Protocol (TCP) specification RFC 675 and coined the term Internet. [14]

In 1976, John Murphy of Datapoint Corporation created the arcnet token transfer network, which used data storage devices for collaboration for the first time. In 1977, GTE first launched a long-range fiber optic network in Long Beach, California. In 1977, Robert Metcalf and Yogin Dahl of Xerox developed the Xerox Network Systems (xns). [15]

In 1979, Robert Metcalf decided to make Ethernet an open standard. In 1980, Ethernet, developed by Ron Crane, Bob Garner, Roy Ogus and Yogen Dalal, was upgraded from the 2.94 Mbit/s protocol to the 10 Mbit/s protocol.

In 1995, the data transfer rate of the Ethernet network was increased from 10 Mbit/s to 100 Mbit/s. By 1998, the Ethernet network had reached a data transfer rate of 1 Gbit/s. Later, higher speeds of up to 400 Gbps were added.
In the 1990s, there was a large-scale growth of electronic information on the Internet, computers and computer systems synchronized with the Internet. Currently, all computers are connected to wired and wireless computer networks. A number of social programs work in these networks for the exchange of information and management of individual, corporate and industrial enterprises.

3 Categories of social computing applications

3.1 Dailymotion

Dailymotion is a French video hosting service created in 2005 by Benjamin Bejbom and Olivier Poitier. During the creation of this site, 6 people invested 6 thousand euros. In September 2006, Dailymotion, in partnership with Atlas Ventures and Partech International, received revenue of 7 million euros. It was one of the largest revenues generated on the Internet in France at that time. The company's head office is located in the 17th arrondissement of Paris. With this social network, users can attract other users around the world with online videos, receive videos, distribute them, share them, and share their personal, commercial and non-commercial videos with other social groups on social networks.

3.2 WhatsApp

WhatsApp is a free system that provides instant messaging and voice communication services over IP, owned by the American company Meta. It allows users to send text and voice messages, make voice and video calls, share images, documents, user location and other information. This app is WhatsApp Inc. Created by the company. The company was founded on February 28, 2009 by Brian Acton and Jan Barisovich Kum. This company is based in Mountain View, Santa Clara, USA. The program was first launched in November 2009. In April 2012, about 2 billion messages were sent daily through the app.

3.3 Twitter

Twitter (from the English word Twitter, to tweet — "read", "chat") is a microblogging service and social network created in the USA, where users post and interact with messages known as "tweets". Twitter is a new social application designed to distribute messages on social networks. Twitter users write their own tweets about 140-letter news, topics and highlights and events, and follow the tweets of other users to get the necessary information. Twitter users send and receive messages called tweets. Users can use Twitter Via a browser, mobile app, or API. Until April 2020, services were provided by SMS. The program is provided by Twitter Inc., a company based in San Francisco, California. This company has more than 26 offices around the world.

3.4 Wikipedia

Wikipedia is a public multilingual universal Internet encyclopedia with free content. Wikipedia is a social website that is suitable for students, teachers, researchers, industrialists, businessmen, journalists and writers, as well as for all types of people, regardless of what industry they work in. The owner of the site is an American non-profit organization, the Wikimedia Foundation. The Wikipedia system, launched by Jimmy Wells and Larry Sanger
in January 2001, is currently the largest and most popular online encyclopedia site on the Internet.

![Graph showing number of Wikipedia articles by language.](image)

**Fig. 1.** Number of Wikipedia articles by language.

Wikipedia is also widely used in Uzbekistan. The Wikipedia section in Uzbek was created in December 2003. There are 217471 articles on 801442 pages on Wikipedia in Uzbek. 88,396 participants 352 edited the articles, 9399 times. The system has 1729 active participants and about 20 administrators.

### 3.5 MySpace

MySpace is the most popular social network for users who post their videos, photos and music, as well as create groups of friends, as well as personal profiles. From 2005 to 2009, it was the largest social network in the world. MySpace has surpassed Facebook in terms of the number of users and visitors worldwide.

### 3.6 LinkedIn

LinkedIn is a social network designed to find and establish business contacts. LinkedIn has more than 750 million registered users representing 150 business sectors from 200 countries.

### 3.7 YouTube

YouTube is a video hosting service designed for storing, delivering and showing videos to users. YouTube has become the second most popular video hosting in the world by the number of visitors. Steve Chen, Chad Herdley and Javed Karim, former PayPal employees in San Bruno, California, created YouTube in February 2005. They used Flash video technology, which, in turn, allows high-quality recording of small amounts of transmitted data. In November 2006, Google acquired YouTube for $1.65 billion. Before buying YouTube, Google had a similar Google Video service. Google has not abandoned its Google Video service, perhaps they used it as a place to search for videos on all video hosting sites. Currently, Google video search also includes YouTube. YouTube has a network of several services, such as YouTube Premium, YouTube TV, YouTube Go, YouTube Music, YouTube Kids, and YouTube Studio.
4 Indicators and problems of the use of social networks in the world and Uzbekistan

Today, 5.07 billion people worldwide, that is, 63.5 percent of the world's total population actively use the Internet. According to the latest data, more than 170 million people worldwide are connected to the Internet for 12 months at the end of 2022. Less than 3 billion people in the world remain without an Internet connection, most of whom are in South and East Asia, as well as Africa. Internet users are growing by 3.5% per year, and current trends show that by the end of 2023, two-thirds of the world's population should be online.

The use of social networks is also growing rapidly: in October 2022, the total number of users worldwide reached 4.74 billion. This is equivalent to 59.3% of the world's total population, and currently more than 93% of Internet users use social networks every month. Over the past 12 months, the number of social media users worldwide has increased by 4%. From October 2021 to October 2022, 190 million new users were registered on social networks, which led to an increase of more than half a million new users every day [16].

In January 2022, the number of Internet users in Uzbekistan amounted to 24.05 million people. In addition, at the beginning of 2022, the level of Internet use in Uzbekistan amounted to 70.4% of the total population. The analysis shows that in 2021-2022, the number of Internet users in Uzbekistan increased by 321 thousand, that is, by 1.4%. Today, information and communication tools occupy a significant part of our lives. In particular, social networks, along with the acceleration of the processes of globalization, have become the most important and irreplaceable means of exchanging messages between humankind. In Uzbekistan, in January 2022, 6.25 million people were users of the social network. At the beginning of 2022, the number of social network users in Uzbekistan amounted to 18.3% of the total population. The analysis shows that in 2021-2022, the number of social network users in Uzbekistan increased by 1.7 million, that is, by 35.9 percent. Instagram Facebook users were 1.55 million, Instagram users were 4.80 million, LinkedIn users were 340.0 thousand and Twitter users were 29.0 thousand in Uzbekistan in 2022 [17].

In this article, the level of use of the social network in various cities of Uzbekistan and the problems encountered during its use were considered. There are many social networks for the dissemination and receipt of information. In this research work, a survey of the teaching staff, students, specialists, working staff, and commercial, non-commercial staff was conducted in the form of an online survey. Firstly, according to the results of the survey, the level of use of social networks was determined (table 1).

Table 1. The level of use of social networks (in percent).

<table>
<thead>
<tr>
<th>Name of social network systems</th>
<th>Who doesn't use it at all</th>
<th>Use it, but not more</th>
<th>Sometimes use it</th>
<th>Like it</th>
<th>Active use it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telegram</td>
<td>4.27</td>
<td>4.27</td>
<td>6.35</td>
<td>17.29</td>
<td>67,82</td>
</tr>
<tr>
<td>YouTube</td>
<td>14.17</td>
<td>14.17</td>
<td>25.11</td>
<td>20.94</td>
<td>25,61</td>
</tr>
<tr>
<td>Facebook</td>
<td>24.06</td>
<td>23.02</td>
<td>16.24</td>
<td>17.29</td>
<td>19,39</td>
</tr>
<tr>
<td>Odnoklassniki</td>
<td>52.29</td>
<td>14.27</td>
<td>13.75</td>
<td>6.98</td>
<td>12,71</td>
</tr>
<tr>
<td>Instagram</td>
<td>38.42</td>
<td>12.92</td>
<td>12.92</td>
<td>23.34</td>
<td>12,40</td>
</tr>
<tr>
<td>VKontakte</td>
<td>58.12</td>
<td>18.54</td>
<td>13.33</td>
<td>6.04</td>
<td>3,97</td>
</tr>
<tr>
<td>Snapchat</td>
<td>81.67</td>
<td>8.75</td>
<td>3.54</td>
<td>3.54</td>
<td>2,50</td>
</tr>
<tr>
<td>Twitter</td>
<td>81.04</td>
<td>8.64</td>
<td>5.52</td>
<td>2.91</td>
<td>1,89</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>70.10</td>
<td>14.37</td>
<td>8.12</td>
<td>6.04</td>
<td>1,37</td>
</tr>
</tbody>
</table>

The result of the survey shows that who most often uses Telegram among the participants is about 68 percent of the surveyed users
5 Problems with the use of social networks in the survey

One of the problems raised by the survey participants is that it is possible to download and publish multimedia services without any authentication. These multimedia services create a conflict between users, society, and families. The power of social networks lies in the fact that they use it as a means of communication for the dissemination and discussion of multimedia information, videos among their users. According to the decree of the Supreme Court of the Republic of Uzbekistan dated March 12, 2019, several sites of the world information network Internet, as well as about 40 profiles, channels and pages in information resources Facebook, Youtube and Telegram, as well as in social networks are recognized as extremist and terrorist.

Another problem is the presence of advertising. Social networks have become user-friendly for interactive communication and dissemination of information among other communities on the Internet. Various organizations use social networks not only to highlight their products on the Internet, but also to advertise many products. Sometimes users encounter unnecessary advertising while watching videos, when downloading and downloading any multimedia services. The abundance of unnecessary advertising on social networks leads to a decrease in the speed of using the social network, as well as to a decrease in network bandwidth.

The main problems faced by survey participants in social networks are fake IDs and data. The main users of these social sites are inconvenienced by multimedia services downloaded from unknown identifiers and sources. In some cases, you can also see copyright infringement on social networks.

![Fig. 2. The percentage of users who have problems with social networks.](image)

6 Conclusion

Today's tension shows that our life would be unthinkable without the Internet or social networks. The activity of most people is connected with being aware of the daily news happening in the world, transmitting them to each other via the Internet, social networks and Telegram channels.

Information about the changes taking place in our country and around the world, events, news is reflected in all social networks. At the same time, in order to keep up with the news, it is much more convenient to use the Internet system, mobile phones and computer technologies. In addition, social networks are a very convenient tool for exchanging
information among themselves or in order to react to an event, express your opinion or interact.

All this shows that social media users have an unprecedented opportunity to express their thoughts, views and feelings. That is why social networks so "fascinate" a person of any age.

Today's era demands that we do not allow various negative situations in social networks that try to deceive and lure our youth into a trap by spreading slander and fiction around the world. After all, our main task is to educate young people in the spirit of devotion to the Motherland, to cultivate love for their people, country, while preserving national spirituality.

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