



A review of information technology and national development in third world countries

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Received: 2023/09/01 Accepted: 2023/11/04 Published: 2023/12/01

Abstract

In the new system of globalization, we live in the age of information and media, an age in which information technology and mass media and virtual networks are considered an integral part of the lives of the audience of these technologies. The issue of transfer and absorption of technology in the third world is a complex category that has been around for years, both scientifically and in terms of cultural, political, and economic dimensions, not only in developing countries; Rather, it has occupied many western research societies and international organizations. On the other hand, national development is actually both the key to liberating nations from domination and dependence and the means to establish and consolidate it, because on the one hand, nations cannot stand on their own feet until they are developed, and on the other hand, until they are If they are not on their own feet and do not have a meaningful look inside themselves, they cannot develop, so the purpose of this research is to investigate the role of information technology in the national development of third world countries. In the upcoming review article, we will discuss the effective role that information technologies have on national development. First, we will give definitions of information technology and its types, and then we will examine national development and its dimensions.

Keywords

information technology, national development, third world countries

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Introduction

In today's world, information is considered the most valuable asset of any society, so that the importance of information technology and its effects for societies have increased dramatically and its growth and development can be felt (Ziaei and Moghadam, 2016, 8). How to transfer and absorb technology in the third world, both scientifically and culturally, politically, economically, is a complex topic that has been discussed for years not only by developing countries; Rather, it has occupied many western research societies and international organizations. The researchers conducted in recent years report a new development in the category of national economic development (Eisazadeh, 2023, 5), the category of development is one of the most complex concepts and a social phenomenon. Despite the passage of more than seven decades since the beginning of development theorizing in the world, there is still not much consensus about how to advance the process of national development, as well as the indicators and components affecting it in various countries and regions. However, despite the aforementioned theoretical and discursive pluralism, the intersection of different definitions of development can be considered fundamental changes or, in different interpretations, the upward movement of the entire social system (Myrdal, 1974, quoted by Abbasi Rashid, 2016). Today, development in different dimensions is on the agenda of all countries in the world. The development of a country is a general concept that is meaningful with development in different axes (Mustafa Sani and Nemati, 2018). Discussions related to development have entered international relations from the discourse of third world countries seeking independence in the sixties. Economic development issues have been discussed in European countries since the 17th and 18th centuries, and after the cultural and social revolution of Europe, i.e. the Renaissance and the subsequent industrial revolution, the wave of rapid progress in Western countries began., 5) On the other hand, the development of technologies, especially information technology, and its ever-increasing expansion in human societies, has created very extensive changes in various areas of human life (Darudi and Debastani, 2022, 3), now almost all countries in the world, from the poorest to the most advanced, use information technology to a large extent (Legzian et al. 2021: 6). Communicating with each other through new technologies and social media as an information, communication and interactive channel in the contemporary world is gradually gaining popularity, and the sovereign administrations of countries actively use the collective dominance of social media to advance public goals. They do (Graves et al. 2022, 82). Therefore, the effective use of information technology in the country can produce important results such as improving effectiveness, wider access to services, more responsibility, transparency and empowerment of citizens, reducing the cost and time of service delivery, as well as strategic advantages such as improving decision-making from A simpler and more effective way of information, promoting knowledge sharing and organizational learning, improving interaction with citizens, other government organizations and the industry and trade sector, using market leveraging forces to create better relations between the government and the private sector, and more ability to Influenced organizational change management (Sweeney and Sutar, 2021, 42), which is highly effective in the national development of countries. Today, information and communication technology as a powerful tool has affected the economic, social, cultural and political affairs of most countries of the world. The gap between the countries that use this technology as the axis of development of their national programs and the countries that do not use this phenomenon properly is increasing. Examining the available statistics and information of the countries in this field confirms the mentioned fact.

Literature study

Research background

Naseh (2022), conducted a research titled investigating the impact of information and communication technology on financial development in a selection of developing countries.

The results obtained from the estimation of the model show that in both models, the information and communication technology index has a positive and significant effect on the financial development indicators, which indicates a positive and direct relationship between the information and communication technology index and the financial development indicators.

Pardehan et al. (2022), in their research, showed that in developing countries, information technology can lead to development. Iszadeh Roshan (2016), conducted a research titled investigating the short-term and long-term causal relationship between information and communication technology and economic growth in the provinces of Iran. The results of this research showed that there is a two-way causality between economic growth and information and communication technology (all three components of the information and communication technology development index) in the short term in all provinces of Iran, but in the long term there is a one-way relationship of the information technology development index. And its connections and components are established with economic growth.

Heydari and Abdul Alizadeh (2015) conducted a research on the relationship between education development, economic growth, urbanization and information and communication technology. The obtained results showed that education has a positive effect on economic growth and urbanization, urbanization has a positive effect on economic growth and education, economic growth has a positive effect on education and has a negative effect on urbanization, and information and communication technology has an effect on economic growth and urbanization. It has a positive effect and a negative effect on the growth of educational expenses.

Technology and information

Computers entered the business realm from the military domain in 1952. After that, social transformations caused by information technology started from converting information into zero and one digits. These transformations have continued with vast changes in communication systems and the integration of computer power with communication technologies and have led to the end which is known by various names. Castells calls this era the "Information Age". A title that is perhaps the most used name for the contemporary era. This era is actually the product of the extensive development of information and communication technology. This rapid and intense development that started years ago and continues has led to its wide application in various aspects of society. Therefore, information technology is known as a powerful agent of economic and social changes. Predictions show that this technology will continue its rapid growth and comprehensive application in various aspects of human life in the coming years. Such an application was examined from different angles and has brought different names to the societies of this age. Transparent society, cybernetic space, knowledge-oriented society, cybernetic society, online society, care society, network society and information society are among the names that show the wide applications of information technology in the societies of this age (Soleimani et al. 2022, 6). The term information technology was probably coined in the late 1970s to refer to the use of computer technology to work with information. Various definitions have been provided for information technology, and inconsistencies between them are revealed with a detailed and deep investigation. However, many of them are similar in scope." Scott Morton considers this technology to be very broad and include all aspects of computers, both their hardware and software, as well as communication networks between two personal computers to the largest private and public networks. In addition, he considers integrated computer and communication technologies including a system that connects a personal computer to a supercomputer in an office to global networks as information technology (Wang et al. 2018: 239). Hicks defines computer and telecommunication technologies that provide automated means of working with information as information technology. His definition includes both hardware and software. Ward and Peppard use information technology specifically to refer to hardware, software, and

telecommunications networks. According to them, this technology has both tangible aspects such as personal computers, network cables, servers and the like, and includes intangible aspects, i.e. all types of software. Sharma and Jain also define this technology to include techniques that are related to working with information and include the use of telecommunication systems and computers in working with data and processing them. Thus, in addition to computer hardware and software, information technology also includes integrated computer and communication technologies (Kashaninejad, 2022, 6).

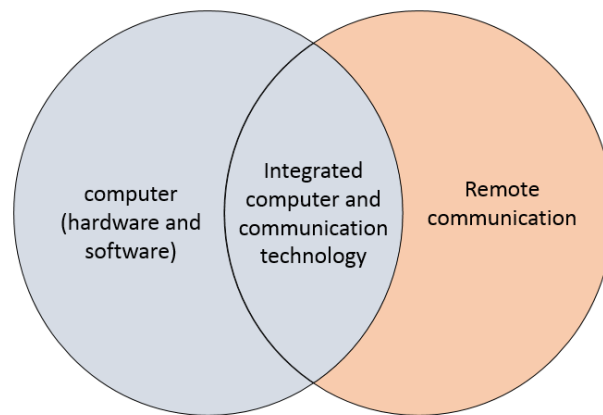


Figure 1 Information technology (Wang et al. 2018, 240).

The definition of information technology due to its changeable nature should be accompanied by a dynamic rather than a static attitude. Information technology is more of a strategy, idea, thought and tool in the field of humans along with innovation. Information technology is produced as a collection of thoughts that is provided to individuals and organizations by means of hardware mechanisms and plays a major role in the development of employees (Rashad Jo, 2018: 124).

Until now, various definitions of information and communication technology have been presented, which has made it difficult to reach a comprehensive definition and a single understanding; But in a general definition, according to the concept of technology, there are sets of methods and technologies that are used to facilitate and carry out the process of producing, gathering, organizing, storing, retrieving and publishing information, subject to having two basic conditions, i.e. using the computer as a tool. Processing and communication is said to be the highway of communication, information and communication technology (Karamzadeh, 2017: 220) The review of the definitions presented shows a wide range of concepts for information technology, which sometimes is limited to computer processing of operations and in some cases widely and as A change technology has been mentioned (Rajai et al. 2022, 5). Information technology is the computing and accounting equipment of the office where the computer is at the top. Brandt (2002) considers information technology to include tangible tools that are used to process information and provide it to end users (Sengari et al., 2014: 77) Information technology includes knowledge and new technical tools for information processing; That is, computer technology, remote communication and other tools that integrate and combine data, equipment, employees and methods of solving problems in managing, planning and monitoring the activities of organizations (Solemani et al. 2022, 7).

Technology components

- Technology: including tools, equipment, facilities and physical and hardware facilities
- Manpower: including human experiences, skills, knowledge, wisdom and creativity
- Software information: including instructions, procedures, process description and other required documentation or software sets.

- Organization software: including management methods and organizational systems, leadership power and creating motivation to optimize decisions and provide organizational goals (Khosravi, 2010, 2).

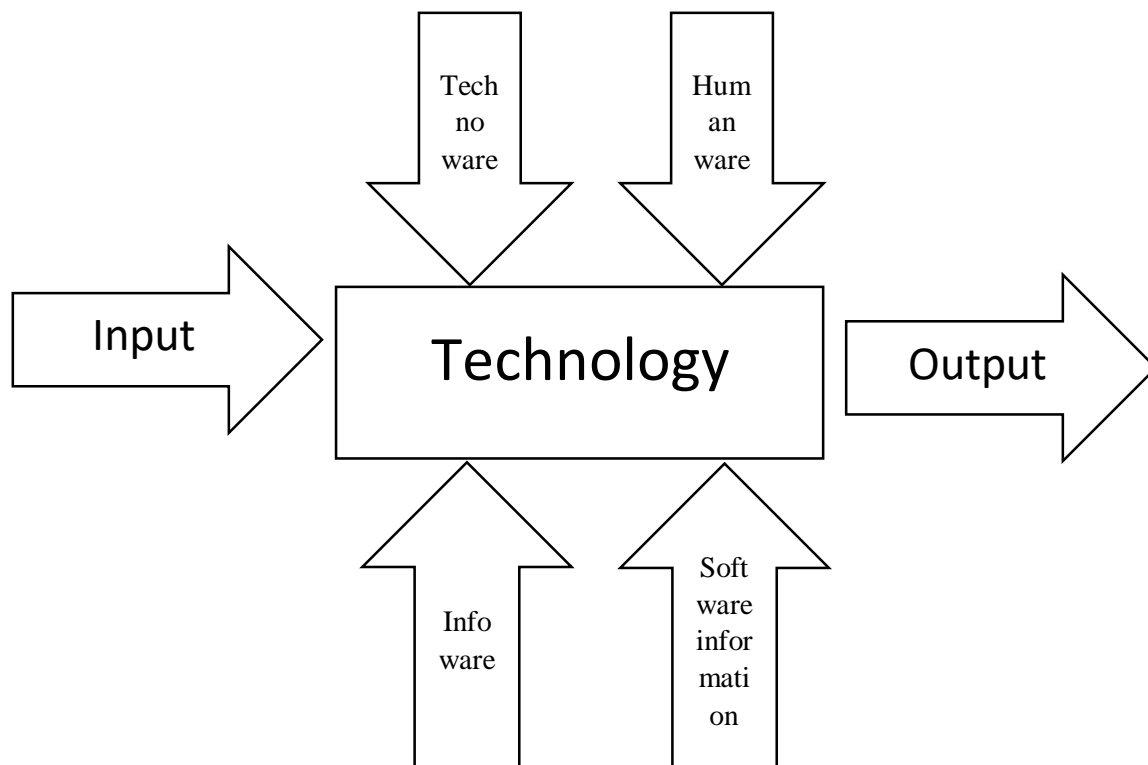


Figure 2 Technology components (Khosravi, 2010, 2)

Benefits of information technology

Every advanced technology creates new threats and opportunities for the organization. Change in technology transforms organizational and social systems. The advantages of information technology are as follows (Parasai Manesh, 2012, 12):

- Increasing the speed of receiving orders, accounting, recording statistics in the flow of information in transactions
- Reducing the cost of goods and services
- Faster and more effective support
- E-commerce all over the world and 24 hours a day, seven days a week
- Creating opportunities for the presence of all merchants, customers and small and medium-sized companies at the international level through easy access
- Eliminating time limits and...

Barriers and limitations of information technology

According to the study of Torn and others (2006), the following main obstacles were introduced (Motamadi et al. 191, 2021):

1. Resistance to new and changing technology
2. Difficulty of implementation and execution
3. Security issue
4. Lack of technological skills
5. Lack of potential customers
6. High cost of implementation and... (Parasai Menesh, 2012, 12).

Information technology development model based on the United Nations Development Program (UNDP)

1. Infrastructure development:

- Creating appropriate communication networks
- Development of public access
- 2. Development of human resources:
 - Education and training of specialists
 - Increasing the technical skills of users
 - Increasing entrepreneurial capabilities
- 3. Development of policies:
 - Developing clear and comprehensive policies
 - Development of legal and regulatory framework
 - The right of moral possess
 - Fair tax system
- 4. Development of content and application:
 - Development of sectoral and cross-sectoral applications in the field of electronic health and treatment, electronic commerce, electronic education, etc.
 - Localization of applications (in terms of the language used, etc.)
 - Development of public access to applications
- 5. Depending on the institutions
 - Creation and development of small and medium enterprises
 - Creation and development of incubators (growth centers)
 - Financing and allocation of credits
 - Support to increase the efficiency and effectiveness of institutions
 - Creating access to local and international markets for the private sector (Khosravi, 2010, 3-4).

National development

Development is a multi-dimensional process that requires fundamental changes in the social construction, the public perception and national institutions, as well as accelerating economic growth, reducing inequality, and eradicating absolute poverty; and its purpose is to reach a kind of stability and move forward at the same time. Development is the concept of providing wishes and ideas in relation to our insights and needs (Elliot, 2020; 7).

This concept is very complex and multi-dimensional, and in fact, one can find value lines in it. In the concept of development, we can also see the concepts of progress and evolution, change, transformation and transformation are also factors of development, and finally, development is combined with growth and improvement, and in it we can see renovation (Lehasaizadeh, 2017; 8). Perhaps the concept of development is one of those concepts that have the most contradictory definitions and each expert has imagined development in a special way according to their own opinions, ideals, tendencies and limitations. Development is a relative phenomenon according to time and space conditions. In addition to the improvement in production and income, it includes a fundamental transformation in the institutional, social, and administrative buildings as well as the general views of the people. In many cases, it even includes people's habits, customs and beliefs (Jaafari, 2013; 17). Today, the development of life is considered better and societies benefit from it more than in the past. In other words, development means a conscious, institutional and planned effort to achieve social and economic progress or a solution to relieve the pressure and problems that exist continuously between different parts of social and human life (Jaafari, 2012; 17) and It includes economic, social, political and cultural aspects that include quantitative and qualitative changes. Therefore, development should be defined locally and natively (Hamzah, 2023; 37), which can provide the interests of the majority of people.

- **Social development:** Social development is the transition from a traditional to an industrial or modern society through the division of labor that was considered by Durkheim and others who took it to mean social capital, human identity, relational rationality, trust, being human, etc.

The indicators of social development are: access to educational services, percentage of literate population, life expectancy, infant mortality rate, malnutrition and proper nutrition, level of health and disease control, suitable housing, equality between men and women and the most important issue of this The idea of human development and that in practice means confronting poverty and inequality. Social development has become more specific by dividing social life into four political, economic, cultural and social spheres, and its components around cohesion and unity have enjoyed relative identity and independence and a special internal logic.

- **Cultural development** Cultural development means promoting and elevating cultural life in the society, meaning achieving transcendental cultural values, cultural development means providing conditions and facilities for members of the society to grow the cultural indicators of the society. Education is the foundation of cultural development. And it plays a big role in speeding up the circulation of the cultural cycle and creating cultural balance. Development is achieved when science becomes culture. Sciences and techniques and achievements of culture are related to a particular society. Culture is the source of scientific knowledge, and scientific achievements in turn affect cultures and transform them. The faster the cultural cycle is, the richer that culture is. In this way, mass communication tools should be strengthened. Considering the all-round development, countries should be strengthened in the cultural development goals of cultural institutions and departments. The role of media and press in cultural development: Today, a developed society is considered to be able to emphasize the criteria of education and information and in fact the element of social knowledge in economic indicators. In such a society, the media and the press play an important role in raising the level of information and culture by producing and distributing information and lead the society towards development. If we know the problems of the society and the importance of technology in solving problems in Consider that intellectual deficiencies, wrong views and conceptual and cultural barriers that exist can be introduced to the society and here the media plays a very important role in cultural development.

- **Economic development:** Economic development is growth along with the increase of production capacities including physical, human and social capacities. In economic development, a small increase in production will be achieved, but along with that, social institutions will also change, attitudes will change, the ability to exploit existing resources will increase continuously and dynamically, and new innovations will be made every day. In addition, it can be said that the composition of production and the relative share of inputs also change in the production process. Development is a pervasive thing in society and cannot happen only in one part of it. Development does not have a specific limit and ceiling, but due to its dependence on human beings, it is a qualitative phenomenon, unlike economic growth, which is quite small and has no limits.

National development and application of information and communication technology

Studies in the field of development, especially after the Second World War, have attracted the attention of experts and thinkers. This issue has become more important and expanded because technology and new technologies have become increasingly important, especially in development. In the current century, what has been chosen and happened in the name of progress and development solutions in the country, it should be accepted that the actions in the name of the promised development have failed and a change of vision is needed to change the character and establish a new model. In the light of such enumerated problems and bleak prospects, it seems that the space development in Iran has reached a crucial turning point, and it is not permissible to delay in finding a solution. It is emphasized that the so-called new development model can neither be comprehensive nor sustainable. Therefore, the goal is not to restore or facilitate the "transition" to a higher level of this type of development; rather, the goal of "transformation" of the pattern of development towards sustainability and in the interpretation of this transformation begins with the transformation of thoughts, which has

marked the production of "another type of development", the author of unstable spaces. (Mozaffar Sarafi, 2018, 22)

The new model for social inclusion and mobilization of new resources relies on competent governance. The requirement of governance features is that its cornerstone is in the local community so that it gradually spreads to higher scales in the solidarity and integration of communities. The metropolitan environment is at the vanguard of realizing transformations that lead to a different type of development. Today, the state of information and communication technology in a country is considered as an indicator for estimating the economic development of that country. For this purpose, in the present study, to understand the concept of information and communication technology and its necessity in economic development and the relationship between electronic commerce and the knowledge-based economy through a case study of several countries, and at the end to examine information and communication technologies and economic productivity in the countries (Mohammed Salehi Far, Mohammad Ali Zanjani, Mohammad Azadnia, 2018, 1)

In order to achieve the sustainable development goals of the United Nations, information and communication technology plays an important role. In recent years, no other technology has been able to be as effective as information and communication technology in the development of countries and societies. Information and communication technology is the backbone of today's digital economy and has a huge potential for rapid progress in the goals of sustainable development and improving people's lives. (Navid Kaveh, 2019, 6)

Research findings

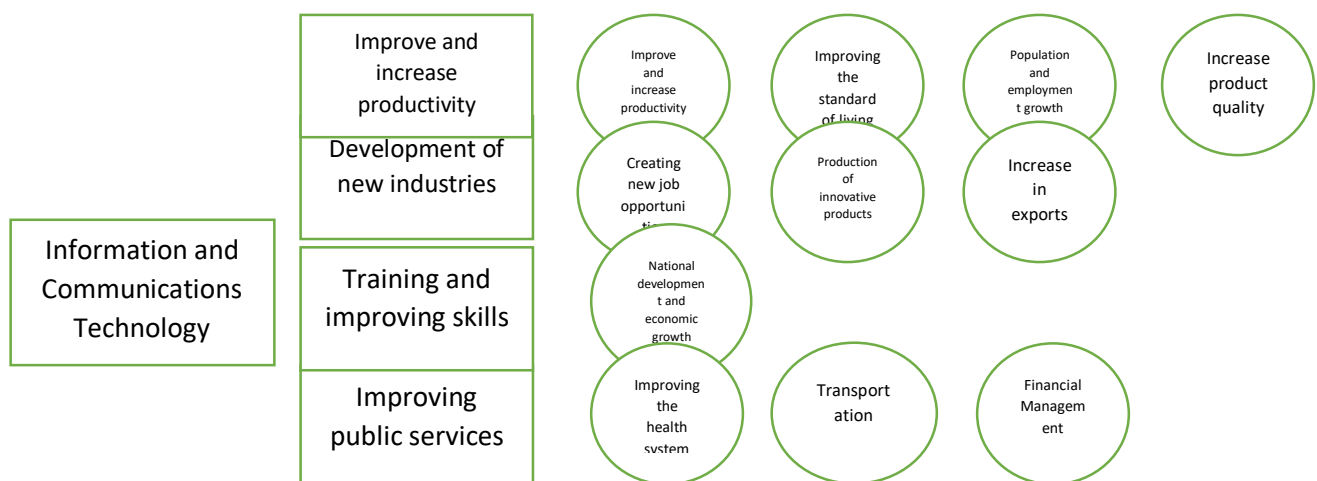


Figure 3 Source: author

The findings show that information and communication technology can play a very important role in the national development of third world countries. By using information and communication technology, these countries can improve and increase productivity in their existing industries, improve the standard of living of the population and increase employment. Below are some important findings in this field:

1. Increasing productivity: using information and communication technology widely can help improve and increase productivity in the economy of third world countries. These technologies can optimize production processes, increase the quality of products, and increase the ability to compete with other countries. 2. Development of new industries: Information and communication technology can help the growth and development of new industries in third world countries. For example, the information technology industry has entered many of these countries and created new job opportunities, produced innovative goods, and increased exports.

3. Training and upgrading skills: optimal use of information and communication technology requires training and upgrading the skills of the youth and the working population. Increasing access to online education and educational resources using technology can help the national development and economic growth of countries and empower society. 4. Improvement of public services: The use of information and communication technology in the provision of public services can improve the health system, education, transportation and financial management in third world countries. ICT-based technologies can mean making public transportation systems smarter, providing virtual financial services, and improving the speed of service delivery in various industries. With the help of information and communication technology, third world countries can take steps in their national development and growth. These technologies can improve infrastructure, increase employment, develop new industries and improve the quality of public services. The research results show that information and communication technology can play an important role in the national development of third world countries. Using can improve and increase economic productivity, develop new industries, improve skills and improve public services. These technologies can facilitate the improvement of infrastructure, increase of employment and growth of economic sectors. Also, the use of can lead to sustainable development and increase the quality of life of people in these countries.

Summary and conclusion

In addition to improving production and income, development includes fundamental changes in institutional, social, and administrative constructions, as well as people's general views. In many cases, development includes even people's habits, customs, and beliefs. Today, information and communication technology has an increasing importance and role in the development of societies, and the world is moving towards a knowledge-based economy. Information and communication technology is the fundamental difference between our era and the past. Communication and information technology has made it possible to design new organizational forms, new control systems, re-engineering of organizational processes and the like. Therefore, it is necessary to plan a suitable development of the capabilities of this system as one of the important tools of development and progress in modernizing the economic and social structures of our country.

In other words, the present age is called the age of communication. Because communication and transfer information from it is an important tool for decision-making, human interaction, giving and taking identity, directing thoughts and ideas and a tool for domination. Mass communication media, including press, radio and television, theater, cinema, internet, satellite networks, telephone, magazines and publications, etc. are busy in the world and attracting audiences. Media literacy seeks to recognize the relationship between knowledge and power and then the relationship between power and social justice. National strategies should include mechanisms to help users meet their information and communication needs, and a part of the national gross product should be used to create the necessary infrastructure and spread information technologies, which will provide the basis for responding to the demand. To provide society in the field of information and communication technologies. This national strategy should be set at multiple levels, the role of the government and the private sector should not be static in it and provide the ground for the active participation of the government in the setting of strategies. Today, development is both the key to liberating nations from domination and dependence and the means to establish and consolidate it. On the one hand, nations cannot stand on their own feet until they develop, and on the other hand, unless they are on their own feet and do not have a meaningful look inside themselves, they cannot develop. And a certain platform takes place, the structure of the information used in the communication process is definitely dependent on the communication platform and the way of communicating.

Virtual social networks are the product of Web 2 technologies. Most social networks have created a mechanism through which users can leave a message on their friends' profiles.

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