



## Analysis of the Rural Digital Literacy Policy in Iran

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### Abstract

**Purpose-** Nowadays, providing education in information technology and communication to the rural workforce is crucial for improving social capital and promoting sustainable development. However, inadequate policies have created a digital divide between rural and urban areas. Upgrading digital literacy is now a key goal for policymakers and planners. This research aims to analyze the digital literacy policy system in rural areas in Iran.

**Design/methodology/approach-** The research involves an analytical method, where existing documents are reviewed. Essential information was gathered by analyzing various digital documents, including the Cyberspace Strategic Document, Digital Transformation Strategic Document, Communications and Information Technology Strategic Document in the Sixth Development Plan, Digital Transformation Roadmap of Iran, and the Performance Report of the Ministry of Communications and Information Technology .

**Findings-** After examining the five strategic digital literacy programs of the country, it was found that the Cyberspace Strategic Document (2018-2025) did not sufficiently address rural digital skills, particularly in the agriculture sector, despite considering actions in the field of industry, business, services, human resources, culture, and lifestyle. However, other documents, such as the Digital Transformation Strategic Document, the Communications and Information Technology Strategic Document in the Sixth Development Plan, and the Performance Report of the Ministry of Communications and Information Technology (2019), emphasized various digital literacy components, including raising awareness of innovative methods for crop production, dealing with natural disasters affecting crops, employment based on capabilities, better access to electronic markets, facilitating the transfer of scientific findings to farmers, access to new electronic services (postal, educational, agricultural, banking, health), and empowering the rural workforce. However, some digital literacy components, such as facilitating crop cultivation planning for the next year, establishing major product purchase centers, and predicting weather changes, have yet to be fully considered in the country's digital programs.

**Practical solutions-** In order to fill the existing digital divide between rural and urban areas, experts have proposed various practical solutions, including providing various digital infrastructures and tools in rural areas, increasing the population coverage of broadband internet services in rural areas, equipping agricultural service centers with digital technology facilities to transfer information to rural farmers, upgrading the literacy level of rural workers, especially rural farmers.

**Originality and value-** Most of the studies on rural digital literacy have focused on evaluating resilience through digital literacy, and the analysis of the country's policy on rural digital literacy has received less attention from researchers. This research is innovative in this regard.

**Keywords:** Digital literacy, Digital Policy-making, Rural Policy-making, Sustainable Development.

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## 1. Introduction

Nowadays, the digital era has opened its umbrella over various aspects of human life and created its effects on economy, politics, culture, and social relations.

Accordingly, digital technologies and various communication devices are developing (Nazemi et al., 2021). We are living in an era where information and communication technologies are the primary tools of production (Azizi et al., 2009), and educating the workforce with literacy in such technologies is an undeniable necessity for improving social and capital positions in local communities (Abbasi-Kesbi et al., 2020). On the other hand, knowledge of modern information technologies is necessary for everyday life activities to avoid major challenges. The performance of digital information technologies is based on the quality of policy frameworks that are considered in the decision-making process at macro and micro levels in this field (Hassannejad Kashani & Nasrollahi Kasmani, 2017); therefore, governments around the world are striving to develop programs to improve digital literacy skills (Common Sense Media, 2009).

Accordingly, with the global trend in Iran since 2006, Information Technology and Digital Media Development Center was established as the government's digital media supervisor (Bahonar & Darzabi, 2014). In addition, the government has taken action to improve digital literacy and narrow the digital divide and has prepared significant plans such as the Strategic ICT Plan and Digital Transformation Strategic Document. However, despite the vital role of rural settlements in ensuring food security and sustainable development of the region and the country, rural digital transformation and improvement of digital skills have received less attention in national policy documents. Rural residents in Iran face limitations to physical access to computers, the internet, and other digital communication technologies, which hinder their ability to appropriately use digital equipment and tools in business and everyday life. This has resulted in a digital divide between urban and rural areas (Azizi et al., 2009).

Additionally, the existence of a rural-urban digital divide and low levels of digital skills in rural households have resulted in the backwardness of rural areas in the country's development progress. Consequently, numerous social, economic, and

environmental challenges have arisen, particularly the low resiliency of rural communities in dealing with natural disasters, income decline, poverty, excessive rural-urban migration, and the destruction of the natural life cycle in rural settlements. Considering that sustainable development and food security are still among the most critical global challenges, the development of agriculture in rural areas has faced extensive challenges. On the other hand, the complexity of human variables and the unexpected impact of environmental and global economic factors on agricultural activities will confront policymakers with increasing future challenges. Therefore, the need for deploying digital communication technologies that have proven effective in rural areas becomes apparent. Accelerating the process of knowledge and information exchange through digital information technology will be crucial in addressing rural communities' social challenges in accessing digital technology and will play a critical role in achieving sustainable rural development (Kostadinova, 2021).

As a result, strengthening digital literacy in rural areas through proper policy-making prepares rural residents to understand the world better, socially, rationally, and economically progress, and interact with digital technologies. Furthermore, strengthening digital skills and literacy nurtures the talents of rural residents, particularly youth (Hadziristic, 2017). On the other hand, introducing digital technologies into agriculture opens up better access to online services, accurate agricultural information, and food security, improving rural communities' livelihoods (Kremer & Hougbo, 2021). By creating added value and reducing costs, these technologies will lead to the quantitative and qualitative improvement of production, self-reliance, enhancement of well-being, the empowerment of rural communities, and a reduction in increasing rural-urban migration. (Navabakhsh & Motlaq, 2009).

Therefore, having digital literacy among rural communities can facilitate the process of marketing products in the digital space and create flexibility when facing various economic, social-cultural, and natural risks (Mósesdóttir, 2010; Hadziristic, 2017). However, the low level of digital literacy in rural society exposes them to a wide range of risks, including cultural decay and disillusionment with rural culture. Thus, through managing digital risks in rural communities, hazards arising from digital technologies are

identified and minimized on time. So, paying more attention to rural communities' digital literacy in policy-making and drafting government documents is better. Additionally, it is essential to take advantage of digital skills as a tool for empowerment, improving quality of life, reducing poverty, and increasing rural well-being by providing appropriate solutions in digital skills (Roknoddin Eftekhari, 2020). In this regard, the present study aims to analyze the digital literacy policy system in rural areas in Iran. The research question is how much attention is given to rural digital literacy in Iran's policy-making system?

## 2. Research Theoretical Literature

Digital literacy is an essential skill for the 21st century and cannot be ignored. Literature in the field of digital literacy is rich in terms of definitions and classification. However, there is no unanimity among experts regarding the definition of digital literacy due to its interdisciplinary nature (Hadziristic, 2017). Generally, digital literacy refers to the ability to use computers effectively, including the ability to use software, search engines, and email (Royal Society, 2012). Digital literacy aims to enable individuals to learn and use digital tools to solve problems (Media Smarts, 2015). According to the International Panel on Literacy and Technology, digital literacy means using technologies, tools, or communication networks to access, manage, integrate, evaluate, and produce information to employ in a knowledge-based society. This concept includes a range from continuous use of everyday life skills to the advantages of digital and information technology innovation skills. These skills include 1. the ability to access information, which means awareness and understanding of how to collect and retrieve information; 2. the ability to manage information, which pertains to the use of available organizational structures and classification; 3. the ability to integrate information; 4. the ability to evaluate information, which involves judging the quality, relevance, usefulness, or effectiveness of information; 5. the ability to produce information by adapting, applying, designing, inventing, and writing information; and 6. the ability to access internet facilities, which require high cognitive skills to produce information for farmers (Long, 1992). Therefore, in contemporary digital age academic literature, there is significant emphasis on the role of digital skills in creating various

social, cultural, economic, political, and environmental changes in local communities (Ghaffari & Bakhshizadeh, 2019; Adabi Firoozjah et al., 2018). So, the role of digital information technologies in the development of rural communities cannot be denied, and any society with greater access to digital technologies will also benefit from greater power (Ghaffari & Bakhshizadeh, 2019).

The analysis of rural digital literacy has been conducted by numerous researchers inside and outside the country during recent decades. Among these studies, one can refer to the research of Kass-Hanna et al. (2022) titled "Building Financial Resilience through Financial and Digital Literacy in South Asia and Sub-Saharan Africa." The findings of this study demonstrated that financial and digital literacy are critical factors in creating financial inclusion and resilience, and a specific heterogeneity has been identified in terms of digital and financial literacy among poor rural households and women. In another study conducted by Kurnia et al. (2022) titled "Enhancing Digital Literacy in Supply Chain Management: A Case Study of an Indonesian Port Corporation," the results showed that there is a gap between the expected level of digital literacy of port management and the digital literacy levels of employees. Marsdenia (2022) also investigated the Digital Literacy of Rural Communities to Achieve Economic Resilience. The results showed that community digital literacy has maintained commercial institutions during the COVID-19 pandemic, and moderate levels of human resources digital literacy have been vital to success. Wang et al. (2022) also conducted another study on Digital literacy and subjective happiness of low-income groups in rural China. The results of this study showed that digital literacy leads to practical happiness effects. Upadhyaya et al. (2019) also investigated Digital Inclusion: Strategies to Bridge Digital Divide in Farming Community. The results showed that various agricultural communities' solutions differ based on their access, skills, and utilization of information and communication technologies. A "one-size-fits-all" approach is unsuitable for developing countries increasing their technological literacy. Roberts et al. (2017) analyzed rural resilience in a digital society in another study. The findings revealed that rural individuals are unable to fully take advantage of the opportunities provided by digital technology.

Rural individuals are more susceptible to vulnerability if digital infrastructure and programs are not equally available to everyone.

Additionally, in Iran, a study by [Arasteh et al. \(2021\)](#) outlines a policy-making model for a digital university. The study identifies five policy-making dimensions: educational, structural, technological, and cultural-economical. In another study, [Tabatabaeian et al. \(2020\)](#) identified the challenges of policy-making for developing the digital content industry. The results showed that the major challenges in the growth of the content industry in Iran are access to science and technology by businesses, inadequate infrastructure, and inadequate governmental support. [Abbasi Kasabi et al. \(2020\)](#) developed a native model of the digital divide in rural areas of Qom province. The research findings revealed that understanding the culture of rural regions and social connections have the highest weight. In contrast, businesses with identification in rural economic development and smartening businesses have the lowest weight. [Pakzad and Khaje Naeini \(2017\)](#) evaluated media policies in the Islamic Republic of Iran Broadcasting (IRIB). The results showed that media horizon policies have weaknesses in the stage of policy design in terms of realism and flexibility, and the implementation of policies also faces challenges in education and employee participation. Finally, [Taghavi-Fard et al. \(2016\)](#) analyzed the coherence cycle of policy-making in Iran's information and communication technology governance system. The findings showed that most institutions studied, including The Information Technology and Communication Development Center, The National Virtual Space Center, The Technical and Vocational Training Organization, and The Management and Planning Organization of the Country lack policy coherence in their duties. [Bahonar and Chaboki Darzabi \(2014\)](#) also analyzed media literacy policies in three cultural and communication institutions in Iran. Their findings revealed that media literacy policies are limited to digital media at the Ministry of Culture and Islamic Guidance, and other media, including print and electronic media, have not been given adequate attention.

The review of the studies conducted in the field of digital literacy in rural areas indicates that there has been less focus on analyzing the digital literacy policy system in rural areas as an important issue in research. Most of the studies have mainly focused on topics such as evaluating

the digital divide in rural areas and other policy dimensions, including media policy, digital universities, and the digital content industry in general, and the research that has specifically focused on rural areas was related to resilience through digital literacy. Therefore, the analysis of digital literacy policies, especially in rural areas, has received less attention from researchers. For this reason, the present study aims to fill the research gap, to analyze digital policy-making (digital documents and programs) with a particular emphasis on the country's rural areas, and is innovative in this regard. The focus is on developing digital skills in rural areas to provide the basis for improving rural areas' welfare and sustainable development.

### 3. Research Methodology

The purpose of the current study was to analyze the policymaking system of rural digital literacy in Iran through document-based analysis using an inductive approach. Five documents related to digital technologies in Iran were purposefully selected as the statistical population based on their formulation and approval in legal references and implementation in the information and communication technology system. The unit of analysis was the propositions extracted from information technology and digital communications documents. The content analysis method was utilized using [Berg's \(2001\)](#) approach consisting of five basic steps: selecting and analyzing imperative digital literacy propositions in rural areas, interpreting the extracted propositions, coding and interpreting selected propositions based on concept, reviewing and confirming the selected propositions by digital literacy experts through a survey, and categorizing concepts based on a central issue with overlapping concepts in the axial coding stage. A general framework of rural digital literacy, including twelve components, was deduced based on exploratory research literature and expert opinions in this field. The study used questionnaires, checklists, and researcher-made forms to collect data.

### 4. Research Findings

In all countries around the world, numerous organizations are responsible for the field of information and communication technology. Similarly, In Iran, several organizations govern this area, [Taghavi-Fard et al. \(2016\)](#). Based on [table 1](#), which shows the titles of digital

documents produced in the country over the past decade, categorized by year, related organization, and purpose, two organizations, namely the Supreme Council of Cyberspace and the Ministry of Communications and Information Technology, have played prominent roles in the digital policymaking process of the country. These two agencies have prepared various documents intending to develop infrastructure and skills in the country's digital technology field. According to research results, the [Cyberspace Strategic Document \(2018\)](#), the [Digital Transformation Strategic Document \(2020\)](#), and the [Digital Transformation Roadmap of Iran \(2021\)](#) have been developed with the approach of promoting digital progress at the national level and neglecting rural areas. Only the document of the Ministry of [Communications and Information Technology's performance plan \(2019\)](#) and the [Communications and Information Technology Strategic Document in the Sixth Development Plan \(2019\)](#) have referenced digital technology development in rural areas. In general, the issue of promoting digital literacy in rural areas has been ignored by policymakers in the country.

#### **4.1. Qualitative content analysis of Iran's digital documents**

As mentioned, related content was evaluated during the five-stage process of selecting digital documents and programs. In the first step, documents that comprehensively expressed the overall objectives of the digital transformation roadmap and had been approved by the policy-making bodies of the country were selected. In the next step, the text of each document was reviewed separately, and the essential components of these texts were extracted. Coding was done in the third step. The initial concepts were extracted based on the essential components or propositions in this step. Then, irrelevant and unnecessary concepts were removed. Twelve concepts were then considered open coding. Finally, the axial coding was performed based on the document review. Some of the textual propositions representing the open coding are presented in [Table 2](#). Based on the digital documents of the country's analysis, in the last step, which is axial coding, the four main axes of training specialist human resources, developing digital cultural skills, digital economy policies, and developing digital software and hardware infrastructures were identified as essential factors, which cover a wide range and have been presented.

In recent decades, attention to promoting digital literacy in rural areas has become very important in policy texts. A review of digital transformation policies in Iran has shown that attention to digital technologies and literacy in using electronic tools in villages is considered an essential subject in the country's digital documents. Indeed, the utilization of terminologies like electronic and digital proficiency in policy documents highlights the significant focus of these documents on cultivating new skills in digital literacy. In essence, various policies exist in the field of digital information technologies within the country. Nonetheless, considering the advancements in the creation and circulation of information, nations with an evolved technological outlook have reconsidered their digital literacy policies. The amendment of regulations that conform to contemporary advancements is perceived as imperative.

As shown in [Table 3](#), after the surveys carried out on the digital literacy components in five national strategic plans, it was identified that in the [Cyberspace Strategic Document \(2018-2025\)](#), despite considering various measures in different dimensions such as industry, business, services, human resources, culture, and lifestyle, there was no reference to the digital skills of rural communities, especially in the agricultural and rural sector in the proposed strategies and objectives of the program. Furthermore, although the [Digital Transformation Roadmap of Iran](#) emphasized the necessity of developing general digital literacy at the national level, the emphasis was mainly on urban settlements. No attention was paid to any of the rural digital literacy components and the necessity of improving digital literacy levels among rural households. Regarding other reviewed documents, such as the [Digital Transformation Strategic Document, Communications and Information Technology Strategic Document in the Sixth Development Plan \(2016-2020\)](#), and the [Performance Report of the Ministry of Communications and Information Technology \(2019\)](#), some of the digital literacy components were individually addressed such as employment based on skills, better access to new electronic markets, promotion and transfer of scientific results to farmers, and access to modern electronic services such as postal, educational, agricultural, banking, health, news, and information services and the empowerment of rural workers. However, no attention was paid to other skills and digital literacy

components of rural areas in the text of national programs.

**Table 1. the features of digital literacy programs and policy documents in Iran**

Document title	Year of preparation and approval	Related organization	Purposes	Features
Cyberspace Strategic Document	2018	Supreme Council of Cyberspace	Balanced development of infrastructure, facilities for advancement of science, technology and innovation of cyberspace, reduction of social harms, access to the best new media in the Islamic world, coverage of 90% of people in the use of basic services of cyberspace, support for domestic production, achievement of the shortest Response time and incident management, promoting domestic content	<ol style="list-style-type: none"> <li>1. Comprised of 9 strategic fields, including science and technology, culture and lifestyle, human resources, governance and management, security, international relations, technical infrastructure, industry, business and services.</li> <li>2. With a macro approach at the national level and, subsequently, in urban areas</li> <li>3. Neglecting rural areas.</li> </ol>
Communications and Information Technology Strategic Document in the Sixth Development Plan (2016-2020)	2019	Information Technology Organization of Iran	The development of new job opportunities in ICT, the development of local content infrastructure in cyberspace, the development of a smart government, increasing the security of the production and exchange space	<ol style="list-style-type: none"> <li>1. Preparing the general objectives and strategies, quantitative goals of communication networks and information technology based on the overall goals of the Sixth Development Plan, quantitative goals, executive policies, resources needed to achieve quantitative goals, criteria for achieving goals and policies, proposing program priorities for sectors and sub-sectors, and operationalizing development programs in the annual budget.</li> <li>2. Attention to enhancing the level of digital literacy of citizens</li> <li>3. Attention to the development of digital services for rural and less developed areas</li> <li>4. Attention to increasing the broadband services coverage for rural areas' population.</li> </ol>
Digital Transformation Strategic Document	2020	Ministry of Communications and Information Technology	Creating a proper understanding of digital technologies in the policy-making and executive elements of the country, identifying existing challenges and opportunities, and specifying the fields of application of technologies in various economic sectors.	<ol style="list-style-type: none"> <li>1. The national-level overview</li> <li>2. It encompasses four main phases: Identifying Digital Transformation Technologies and Assessing the Current Digital Transformation Status of the Country, Evaluating and Selecting Digital Transformation Technologies, Determining the Direction and Strategies of Digital Transformation, and Presenting the National-Level and Macro Roadmap for Digital Transformation.</li> <li>3. Neglecting Rural Areas</li> </ol>
Digital Transformation Roadmap of Iran	2021	Ministry of Communications and Information Technology	Reducing the unemployment rate, reducing the Gini coefficient, reducing the number of unhealthy days per day, improving the water crisis index, improving psycho-	<ol style="list-style-type: none"> <li>1. The pillars of Iran's digital direction include Vision, goals, capacities, strategies, policies, and projects. These pillars have been presented in the form of three layers: Iran's digital capacities (including six legal structures), Iran's digital applications</li> </ol>

Document title	Year of preparation and approval	Related organization	Purposes	Features
			social security, and improving the ranking of the social capital index.	(including three structures), and the effects of Iran's digitalization (ten key national issues in three dimensions: social, economic, and environmental). 2. Attention to the effects of digital transformation at the national level. 3. Attention to the widespread use of digital services for urban dwellers and neglect of rural areas.
Performance Report of the Ministry of Communications and Information Technology	2019	Ministry of Communications and Information Technology	The diversity of the virtual economy, the realization of e-government, providing more accessible, cheaper, and faster services to citizens	1. Macro view at the national and global level 2. Attention to deprived and underdeveloped regions, including rural areas, with the aim of expanding internet coverage in rural areas, connecting villages to the national information network, expanding rural businesses (ecotourism and handicrafts), and benefiting from e-government services.

**Table 2. the coding stage identified from rural digital literacy documents**

Components/textual statements of digital literacy in rural areas	Open coding	Axial coding
Awareness of climate change predictions and weather fluctuations.	Environmental knowledge	Training of specialized human resources
Facilitation of agricultural production planning.	Development of management skills	
Empowerment of human resources in the field of rural digital transformation.	Efficient use of human resources	
Development of cultural infrastructure to increase digital literacy and effective use of information technology among rural farmers.	Digital culture	Cultural Development of Digital Skills
Awareness of up-to-date information on government plans and objectives.	Economic transparency	Digital Economy policies
Electronic agriculture education and electronic commerce of rural products and government support for investment in rural areas.	Economic value creation	
Awareness of the latest market prices and innovative methods of producing products using various digital media.	Economic innovation promotion	
Expansion of entrepreneurship activities and the creation of digital rural businesses.	Business opportunities	
Expansion of innovative electronic services (e-government, e-health, e-education, e-banking).	Development of electronic infrastructures	
Development of native digital tools (native software, etc.).	Digital localization	Development of Digital Software and Hardware Infrastructure
Adequate access to information infrastructure and communication facilities.	Information development	

**Table 3. the components of rural digital literacy in the government documents and policies**

Document Title and the components of rural digital literacy	Cyberspace Strategic Document	Digital Transformation Strategic Document	Communications and Information Technology Strategic Document in the Sixth Development Plan	Digital Transformation Roadmap of Iran	Performance Report of the Ministry of Communications and Information Technology
Awareness of climate predictions and weather fluctuations.	-	-	-	-	-
Development of native digital tools, such as native software	-	-	-	-	-
Knowledge of innovative methods of production and economic risks	-	-	-	-	-
Development of entrepreneurial activities and creation of rural digital businesses	-	-	-	-	-
Expansion of "agriculture and e-commerce" for rural productions	-	-	-	-	-
Development of cultural infrastructure to increase the level of digital knowledge and effective use of information technology among rural farmers	-	-	-	-	-
Expansion of novel electronic services (e-government, e-health, e-education, e-banking)	-	-	-	-	-
Adequate access to information infrastructure and communication facilities	-	-	-	-	-
Awareness of up-to-date information regarding government plans and objectives	-	-	-	-	-
Human resource empowerment in the field of rural digital transformation	-	-	-	-	-
Awareness of latest market prices and major product centers	-	-	-	-	-
Facilitating agricultural production planning	-	-	-	-	-

Therefore, rural digital literacy has received low attention in the country's policy-making system, and there is still a gap in this area. Most of the focus in this area has been on urban settlements and generally on national-level targeting, and only in the text of some policies and programs related to the country's information and communication technology and digital, limited reference has been made to rural digital literacy components, and it is far from being in the desirable situation. Therefore, until the digital policy-making system of the country and the programs prepared in this area adopt a position for literacy and skill training in the use of digital technologies in rural areas, the development and movement of these settlements cannot be expected to

be in harmony with the path of global technology transformation.

According to the findings of this study, in order to reduce the digital divide between rural and urban areas and reduce the resulting risks in rural areas, it is recommended that the country's digital development policies in the future pay more attention to the training of specialized human resources, cultural development of digital skills, digital economic policies, software and hardware development in rural areas. At the same time, through risk management measures, the adverse consequences of using such technologies should be minimized so that through fostering digital rural citizens, the ground for promoting the self-esteem and personality upliftment of rural residents is prepared, and ultimately,



sustainable rural development platforms are provided. Since paying attention to underdeveloped and deprived areas, especially rural communities, is one of the most significant factors in promoting social justice and achieving a resilient economy, some great strides have been taken in recent decades in Iran to provide services to villages. Alongside providing internet coverage to rural areas, special attention has been paid to their access to the national information network. This is aimed at facilitating their daily routines, benefiting from e-government services. Furthermore, it is intended to create opportunities for expanding rural businesses such as handicraft markets and eco-tourism.

### 5. Discussion and Conclusion

Low literacy and digital skills can lead to a digital divide, create poverty among rural communities, and hinder agricultural activities. The potential for digital literacy in future rural development strategies provides information relevant to developing rural communities and empowers communities in choosing and seeking their information. Additionally, it reduces rural isolation and promotes positive development in rural society. Rural residents gain helpful information, including the latest market prices. Ultimately, access to information is considered a catalyst for empowerment. Therefore, how digital technologies are used is important and should be included in future rural development strategies. Furthermore, digital literacy is essential for diversifying livelihoods by recognizing the non-agricultural rural economy's importance and promoting sustainable rural development (Chapman & Slaymaker, 2002).

In this regard, the present study was conducted to analyze the policy system of digital literacy for rural residents in Iran. Through examining the digital transformation documents in the country, it was revealed that two institutions, the Supreme Council of Cyberspace and the Ministry of Communications and Information Technology, play a prominent role in the country's digital policy-making process and have produced various programs in this field. In general, by examining the qualitative content of the country's digital transformation documents, it was found that the *Cyberspace Strategic Document (2018)*, *Digital Transformation Strategic Document (2020)*, and the *Digital Transformation Roadmap of Iran (2021)* were developed with a focus on digital progress nationwide, with little consideration for rural areas. Only in the text of the *Communications and Information Technology Strategic Document in the Sixth Development Plan (2019)* and the Ministry of

*Communications and Information Technology's Performance Document (2019)* are references made to the development of digital information and communication technologies and services in rural areas. Overall, the country's policymakers largely overlooked the issue of improving digital literacy in rural areas.

In fact, despite considering measures in various dimensions such as industry, business, services, human resources, culture, and lifestyle in *Cyberspace Strategic Document*, no reference is made to providing digital skills training for rural communities, especially those in the agriculture and rural sectors, in the strategies and objectives presented in the program. Although the *Digital Transformation Roadmap of Iran* emphasizes the need for digital literacy development at the national level, it mostly focuses on urban areas. Hence, the document mentioned does not focus on improving rural residents' digital literacy. Regarding other reviewed documents, such as the *Digital Transformation Strategic Document*, *Communications and Information Technology Strategic Document in the Sixth Development Plan*, and the *Performance Report of the Ministry of Communications and Information Technology*, each has separately emphasized some digital literacy components, such as employment based on abilities, better access to markets and increasing e-marketing power, facilitating the transfer of scientific information to farmers, accessing e-services, and empowering the rural workforce. However, no attention has been paid to other components of digital literacy for rural communities in the content of the country's digital transformation documents.

Therefore, although measures have been taken in recent decades to create electronic infrastructure and educate digital technologies in the country, urban areas have benefited more from them, and rural areas have been neglected. As a result, a type of gap and imbalance has emerged between urban and rural areas in the country.

Finally, by evaluating the country's digital policy documents, four key axes, including education of the skilled workforce, cultural development of digital skills, digital economy policies, and development of digital software and hardware infrastructure, were identified as important factors in the creation and development of digital literacy in rural areas. In this regard, the findings obtained in the research of *Basaki et al. (2016)* showed that since the level of education among rural farmers in developing countries is low, the government should increase their capacity by using information and communication technologies.

Furthermore, another research indicated that Iran's transition to a digital economy requires components such as defining growth and development strategies, developing partial applications of the digital economy, and understanding the opportunities ahead of the digital economy (Moradi & Hedayati, 2018). Additionally, Tabatabaeian and colleagues' (2021) research findings showed that lack of government support and necessary infrastructure are the most significant challenges for improving the content industry in Iran and require planning more than other areas. Finally, the research results of Eskandar et al. (2020) showed that increasing farmers' digital literacy and skills can be achieved through promoting cultural services and supportive policies.

Therefore, rural residents have a significant digital literacy gap in the country's policy system and documents. Since promotion, education, and research play a crucial role in agricultural development, any development in the agricultural sector requires a transformation in technology production and transfer. Otherwise, there will be no significant change in the agricultural sector. Therefore, technology managers in

the country should pay more attention to increasing the effective use of digital technologies and expanding knowledge facilities for human resources in rural areas. They should also conduct risk management programs for rural digital technologies. Such matters are among the critical factors in achieving sustainable development in the country's rural system, as they provide opportunities for employment, income growth, improved product quality, and agricultural product marketing processes, as well as reducing rural-urban migration.

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The authors equally contributed to the preparation of this article.

#### Conflict of interest

The author declare no conflict of interest.

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## تحلیل سیاست‌گذاری سواد دیجیتال روستایی در کشور ایران

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### چکیده مبسوط

#### ۱. مقدمه

امروزه، بدون آگاهی از کاربرد فناوری‌های نوین اطلاعاتی بسیاری از فعالیت‌های روزمره زندگی با چالش اساسی مواجه خواهد شد. بنابراین، دولت‌ها در سراسر جهان می‌کوشند تا در راستای ارتقای سواد دیجیتال، سیاست‌ها و برنامه‌هایی را تدوین کنند. در ایران نیز دولت به منظور ارتقاء سواد دیجیتال، اقدام به سیاست‌گذاری و تهیه برنامه‌های کلان دیجیتال نموده است. با این حال، با توجه به نقش کلیدی سکونتگاه‌های روستایی در تأمین امنیت غذایی پایدار سرزمین تاکنون کمتر در اسناد سیاستی کشور به ارتقاء سواد دیجیتال پرداخته شده است. در این میان، روستاییان در ایران با محدودیت دسترسی فیزیکی به رایانه و اینترنت مواجه‌اند و قادر به استفاده مناسب از ابزارهای دیجیتال در زندگی روزمره خود نمی‌باشند. این امر منجر به پیدایش شکاف دیجیتال شهری-روستایی در مقیاس سرزمینی شده است. از سوی دیگر، سطح پایین مهارت‌های دیجیتال در خانوارهای روستایی به واپس ماندگی مناطق روستایی از تحولات توسعه‌ای دامن زده است. نتیجه این امر، بروز چالش‌هایی نظیر لطمه وارد آمدن به مشاغل روستاییان در هنگام وقوع بلایای طبیعی، کاهش درآمد، مهاجرت بی‌رویه روستایی-شهری و مواردی از این قبیل است. با توجه به اینکه در آستانه هزاره سوم هنوز توسعه پایدار و امنیت غذایی از مهم‌ترین چالش‌های جهانی محسوب می‌شوند، این امر توسعه کشاورزی در مناطق روستایی را که بستر انجام فعالیت‌های کشاورزی محسوب می‌شوند، با چالش‌های گسترده روبه‌رو کرده است. لذا، می‌بایست توجه بیشتری به توسعه مهارت‌های فناوری دیجیتال در سکونتگاه‌های روستایی مبذول شود. بنابراین، تحقیق حاضر با هدف تحلیل نظام سیاست‌گذاری سواد دیجیتال روستایی در کشور ایران انجام شده است.

#### ۲. مبانی نظری تحقیق

با وجود آنکه ادبیات موجود پیرامون سواد دیجیتال از نظر تعاریف و طبقه‌بندی غنی است، اما به دلیل میان‌رشته‌ای این موضوع، در میان اندیشمندان در زمینه ارائه تعریف واحد از مفهوم سواد دیجیتال اجماع نظر وجود ندارد. به طور کلی، سواد دیجیتال به معنای مهارت استفاده از کامپیوتر به صورت مناسب دانسته شده است که شامل توان استفاده از نرم افزارها، استفاده از مرورگر وب و موتورهای جستجوگر اینترنت و ایمیل می‌گردد. در این راستا، هدف سواد دیجیتال را می‌توان، توانمند ساختن افرادی که قادر به یادگیری و استفاده از ابزارهای دیجیتال برای حل مشکلات هستند دانست. بنا بر تعریف پنل بین‌المللی سوادآموزی و فناوری اطلاعات و ارتباطات، سواد دیجیتالی به عنوان استفاده از فناوری‌های دیجیتال و ابزارها یا شبکه‌های ارتباطی به منظور دسترسی، مدیریت، یکپارچه‌سازی، ارزیابی و تولید اطلاعات به منظور به-کارگیری در یک جامعه دانشی است که شامل نوعی توانایی مداوم از مهارت‌های زندگی روزمره تا مزایای تحول‌آفرین مهارت‌های دیجیتال و فناوری اطلاعات از جمله: توانایی دسترسی، مدیریت، یکپارچه-سازی، ارزیابی، تولید اطلاعات و دسترسی به اینترنت می‌شود. از این رو، در ادبیات آکادمیک عصر دیجیتال امروزی، بر نقش مهارت‌های دیجیتال و فناوری‌های اطلاعات و ارتباطات در توسعه جوامع و ایجاد تغییرات متعدد اجتماعی-فرهنگی، اقتصادی، سیاسی و محیطی تأکید بسیاری شده است.

#### ۳. روش‌شناسی تحقیق

تحقیق حاضر با هدف تحلیل نظام سیاست‌گذاری سواد دیجیتال روستایی در ایران انجام شده است. لذا، به لحاظ روش، اسنادی-تحلیلی است و با استفاده از رویکرد استقرایی به تحلیل متون دیجیتال کشور به کمک روش مطرح شده توسط برگ (۲۰۰۱)

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#### ۵. بحث و نتیجه‌گیری

با بررسی اسناد تحول دیجیتال کشور مشخص شد که دو نهاد "شورای عالی فضای مجازی" و "وزارت ارتباطات و فناوری اطلاعات" از نقش برجسته‌ای در فرآیند سیاست‌گذاری دیجیتال کشور برخوردارند و در این زمینه برنامه‌های متفاوتی را تهیه نموده‌اند. به طور کلی، با بررسی محتوای کیفی اسناد تحول دیجیتال کشور مشخص شد که ۳ سند راهبردی فضای مجازی (۱۳۹۷)، سند راهبردی تحول دیجیتال (۱۳۹۹) و نقشه راه تحول دیجیتال ایران (۱۴۰۰) با رویکرد توسعه پیشرفت دیجیتال در سطح ملی و نادیده‌انگاری به مناطق روستایی تدوین شده‌اند و تنها در متن سند راهبردی ارتباطات و فناوری اطلاعات در برنامه ششم توسعه (۱۳۹۹) و سند عملکرد وزارت ارتباطات و فناوری اطلاعات (۱۳۹۸) به توسعه خدمات و فناوری‌های اطلاعات و ارتباطات دیجیتال در مناطق روستایی اشاره شده است و در کل، موضوع ارتقای سواد دیجیتال در مناطق روستایی تا حد زیادی از دید سیاست‌گذاران کشور پنهان مانده است. لذا، در متون و برنامه‌های نظام سیاست‌گذاری کشور خلأ بزرگی در زمینه سواد دیجیتال روستاییان وجود دارد. در واقع، از آنجا که ترویج، آموزش و تحقیق، امروزه نقش بسیار مهمی در توسعه کشاورزی ایفا می‌نمایند، هر گونه تحول در بخش کشاورزی نیازمند تحول در فرآیند تولید و انتقال تکنولوژی است. لذا، می‌بایست متولیان فناوری ارتباطات کشور توجه بیشتری بر ترویج استفاده از فناوری‌های دیجیتال در نواحی روستایی مبذول نمایند.

**کلیدواژه‌ها:** سواد دیجیتال، سیاست‌گذاری دیجیتال، سیاست‌گذاری روستایی، توسعه پایدار.


#### تشکر و قدردانی

پژوهش حاضر حامی مالی نداشته و حاصل فعالیت علمی نویسندگان است.

پرداخته شد. جامعه آماری پژوهش حاضر شامل پنج سند مرتبط با فناوری‌های دیجیتال اطلاعات و ارتباطات است که به صورت هدفمند انتخاب گردید.

#### ۴. یافته‌های تحقیق

بر اساس تحلیل اسناد دیجیتال کشور با استفاده از روش برگ، چهار محور اساسی شامل "تربیت نیروی انسانی متخصص"، "توسعه فرهنگی مهارت‌های دیجیتال"، "سیاست‌های اقتصاد دیجیتالی"، "توسعه زیرساخت‌های نرم‌افزاری و سخت‌افزاری دیجیتال" ضمن پوشش دادن طیف فراگیری از عوامل، مهم شناخته و ارائه شده‌اند. همچنین، با بررسی مؤلفه‌های سواد دیجیتال در پنج برنامه راهبردی کشور مشخص شد که در برنامه راهبردی فضای مجازی کشور (۱۳۹۷-۱۴۰۴) با وجود در نظرگیری اقداماتی در ابعاد مختلف از جمله صنعت، حوزه کسب و کار، خدمات، منابع انسانی، سبک زندگی، به مهارت‌های دیجیتال روستایی خصوصاً مشاغل بخش کشاورزی اشاره نشده است. در زمینه نقشه راه تحول دیجیتال کشور، با وجود اینکه بر لزوم توسعه سواد عمومی دیجیتال در سطح کشور تأکید شده، اما عمده توجه آن بر سکونتگاه‌های شهری بوده است و در آن توجهی بر هیچ یک از مؤلفه‌های سواد دیجیتال روستایی نشده است. در سایر سندهای مورد بررسی از جمله سند راهبردی تحول دیجیتال، سند راهبردی ارتباطات و فناوری اطلاعات در برنامه ششم توسعه (۱۳۹۵-۱۳۹۹) و سند گزارش عملکرد وزارت ارتباطات و فناوری اطلاعات (۱۳۹۸)، به طور جداگانه به برخی مؤلفه‌های سواد دیجیتال مانند اشتغال‌زایی بر اساس توانمندی‌ها، دسترسی بهتر به بازارهای فروش و افزایش قدرت بازاریابی الکترونیک محصولات، تسهیل روند انتقال نتایج علمی به کشاورزان، دسترسی به خدمات الکترونیک نوین پستی، آموزشی، کشاورزی، بانکی، سلامت، اطلاع از اخبار بهنگام روستایی و توانمندسازی نیروی کار روستایی تأکید شده و به سایر مؤلفه‌های مهارت و سواد دیجیتالی روستایی در متن برنامه‌های کشور توجهی نشده است.

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