



Some Issues Raised to Promote Gender Equality in The Current Context: From Initial Research on Social Media About Public Awareness of Digital Transformation to Suggestions for Gender-Equal Approaches in Digital Culture

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ABSTRACT: Digital transformation is a new term recently issued in the Government's National Digital Transformation Program. However, digital transformation and the digital transformation context have been changing the way people live, work and interact with each other today. The most dramatic changes take place in the field of employment and from there spread to other areas of life promoting a culture of gender equality. Up to now, studies on digital transformation have mainly focused on technological changes and economic impacts, while to clearly and correctly understand digital transformation, the context of digital transformation, digitalization and the majority of people's awareness of digital transformation to promote a culture of gender equality have not received due research attention. The article will partly clarify and analyze the introduction of the term digital transformation, the Digital Transformation Program and point out the initial information collected about people's awareness of digital transformation to promote a culture of gender equality through the method of synthesizing public opinion on social networks.

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I. INTRODUCTION

The rapid development of the information technology sector in general and online social networks in particular is currently having a multifaceted impact on both personal and social life. The concept of digital transformation emerged in the context of technological advancements and the application of information technology platforms in various aspects of human life. This process has gradually and fundamentally altered the ways people live, work, and communicate within a new societal context—the era of digital transformation.

Research on digital transformation is an urgent and essential requirement to provide a scientific foundation for formulating policies and strategies that facilitate digitalization. This process aims to integrate digital transformation into all aspects of society, comprehensively reshaping human activities, creating positive changes to improve people's lives. Moreover, research on digital transformation also aims to promote gender equality through the use of digital data in both work and daily life.

The topic of digital transformation in Vietnam and globally is still relatively new, with limited research conducted on this field. Online social networks serve as a key digital environment where digital transformation is happening rapidly, especially among young people, who are the most active users of these platforms. Studying digital transformation in online social networks is a crucial first step in understanding the fundamental changes in this field, ensuring that digital transformation gradually adapts to all social groups and expands nationwide. Achieving the national digital transformation goals set by the government requires an understanding of public awareness regarding digital transformation on social media. This research provides policymakers and society with insights into how digital transformation is affecting people's lives and perceptions, ultimately fostering new gender-equal cultural norms in the ongoing digital transformation era worldwide and in Vietnam.

II. GENDER EQUALITY AND DIGITAL TRANSFORMATION

Gender equality refers to men and women having equal positions and roles, being provided with the same opportunities to develop their abilities for the benefit of the community and family, and equally enjoying the outcomes of development. Gender

equality is assessed from multiple perspectives and is regulated by the Gender Equality Law No. 73/2006/QH11, issued on November 29, 2006.

One crucial aspect of gender equality today is equality in labor and employment. In Vietnam, gender equality has improved in recent years; however, disparities remain between urban and rural areas and across different economic regions. Digital transformation introduces a new societal context, centering around the application of digital technologies to enhance productivity and economic growth. Simultaneously, digital transformation reshapes traditional social structures, replacing and renewing social relationships based on digital applications.

In this study, the concept of gender equality is applied as the equal positioning of men and women, ensuring they have the same opportunities to develop their capacities for the benefit of the community and family, and to equally enjoy the outcomes of development. A cultural approach to gender equality seeks to eliminate gender discrimination from a digital cultural perspective, ensuring equal opportunities for men and women in socio-economic development and human resource development. This approach aims to achieve genuine gender equality while fostering cooperation and support between men and women in all aspects of social and family life.

Researching digital transformation helps innovate social operational methods, raise public awareness of digital transformation, and promote new social relationships that support gender equality in today's digitalized environment.

Digital transformation involves transitioning governmental, economic, and social activities into a digital environment. It represents a breakthrough advancement in information technology application, utilizing digital technologies and platforms—such as big data and artificial intelligence—rather than standalone software. However, implementing digital transformation is influenced by various factors, including digital infrastructure (internet, computers, smartphones), online public services, digital governance, cybersecurity, human resources in the digital era, and public awareness of digital transformation. Among these factors, public awareness is a key determinant of digital transformation success. Therefore, localities must consider these aspects to effectively implement digital transformation (Nguyen Manh Hung, 2020).

Digital transformation is considered a component of the Fourth Industrial Revolution, introducing newer and far superior technologies compared to those of the Second and Third Industrial Revolutions. "Digital technology" is a core concept within digital transformation, referring to all technologies designed to create and utilize digital entities. Simply put, digital technology encompasses electronic tools, systems, devices, software, and resources that generate, store, and process digital data. Digital technology represents a shift from traditional manual methods to technology-driven processes, incorporating key pillars such as cloud computing, the Internet of Things (IoT), blockchain technology, and big data. In the digital environment, interactions occur through digital signals, represented in binary form (0 and 1).

Broadly speaking, digital technology refers to the processing of digital signals and falls within the field of information technology. In a narrower sense, digital technology represents a higher-level development of information technology. Applying digital technologies in daily life enables "faster computing, greater data processing, larger data transmission, and lower costs" (Ministry of Information and Communications, 2020). In this study, digital technology is defined as all activities related to digitalization and the use of digitalization to replace traditional work methods. The application of digital technology refers to using digital tools in income-generating activities to enhance quality, productivity, and efficiency. Furthermore, digital technology accelerates work efficiency, such as improving data management and security without relying on paper records. Digital technology adoption is rapidly expanding across various sectors in Vietnam.

At the national level, the Vietnamese government has introduced the National Digital Transformation Program (2020–2025), with a vision extending to 2030. This program aims to establish Vietnam as a stable and prosperous digital nation, pioneering new technologies and models. It seeks to fundamentally and comprehensively reform government operations, business activities, and the ways people live and work while fostering a safe, inclusive, and widespread digital environment.

The primary goals of the National Digital Transformation Program are twofold:

Developing a digital government, digital economy, and digital society.

Establishing Vietnamese digital enterprises capable of competing globally.

The program emphasizes the application of information technology and scientific advancements in economic and social development, particularly as digital transformation becomes increasingly urgent. The rapid advancement of information technology is influencing all social classes, including young people. Strategic documents on national digital transformation prioritize scientific and technological applications, especially information technology, in achieving fast and sustainable economic and social development.

However, there are still gaps in integrating digital transformation policies with gender equality objectives in the digital era. Further research is needed to bridge these gaps and achieve gender equality within the emerging global digital culture.

The National Digital Transformation Program highlights the crucial role of public consensus in ensuring the success of the national digital transformation strategy. The program emphasizes that people are at the center of digital transformation. Smart mobile devices serve as the primary tools for individuals in the digital world. Additionally, fostering a digital culture must align with protecting human values, ethical foundations, and national digital sovereignty.

Digital transformation is also a key method for achieving the United Nations Sustainable Development Goals (SDGs). Furthermore, successful digital transformation requires coordinated actions across all levels of governance and the active participation of the entire population.

Regarding the role of citizens, the program stresses two critical aspects of success:

Raising public awareness of digital transformation.

Promoting digital technology adoption in daily life across all social groups.

These principles are further detailed in the Implementation Guidelines, which state:

Community responsibility: Local communities, neighborhoods, households, organizations, and individuals must actively enhance their digital skills and understanding of digital transformation.

III. PUBLIC AWARENESS OF DIGITAL TRANSFORMATION THROUGH SOCIAL MEDIA DATA ANALYSIS

Digital transformation is closely linked to people's internet usage. According to Statista (2020), the number of internet users in Vietnam was 50.2 million in 2017, increasing to 59.2 million in 2019, an estimated 63.6 million in 2020, and projected to reach 75.7 million by 2023.

According to the Ministry of Labor, War Invalids, and Social Affairs, the age group with the highest internet usage is 20-24 years old, accounting for over a quarter of users. Differences in digital access and behavior between men and women not only reflect gender characteristics but also directly impact the digital transformation process.

For men: Their ability to quickly adopt and proficiently use internet technologies makes them pioneers in applying digital applications. However, they need to be more aware of digital culture to proactively engage beyond just work or personal entertainment, fostering social interactions that promote gender equality in digital access.

For women: Their cautious approach and focus on practical benefits of digital applications can drive the development of user-friendly, accessible platforms. However, barriers such as digital skills, confidence, and security concerns need to be addressed to encourage greater participation in digital services. Leveraging the strengths of both genders in digital transformation is a step toward fostering a digital culture that enhances gender equality in the digital era.

In Vietnam, internet usage has been steadily increasing. By the end of October 2011, over 26 million people were using the internet, equivalent to 31% of the population, leading ASEAN in internet users. Nearly two-thirds of internet users in major cities were under 30 years old.

Social media has become increasingly popular and influential across all sectors of society, particularly Facebook, the world's largest social network. By Q4 2019, Facebook had over 2.5 billion monthly users globally (Clement, 2020). The number of social media users has grown significantly in recent years: 43.8 million in 2017, 48 million in 2019, an estimated 49.6 million in 2020, and projected 52.8 million in 2023 (Statista, 2020a). Facebook is the most popular social media platform in Vietnam, with 45.3 million users in 2019 (Statista, 2020b).

Social media facilitates convenient, fast, and low-cost communication and information sharing, playing an increasingly vital role in daily life. Social media participation has expanded beyond youth to other demographic groups in Vietnam. Recognizing its importance, the Vietnamese government created two official Facebook accounts, "Government Information" and "National Competition Forum," in October 2015 to improve public access to press releases, prime ministerial directives, and government activities. This initiative encourages public participation in policymaking and implementation.

Furthermore, social media serves as a space for the public to share ideas, discuss opinions, and disseminate news, making it an essential area for studying public awareness of digital transformation. Digital transformation is impacting all sectors—management, production, healthcare, agriculture, retail, and more—fostering innovation and new business models. Young people are the primary workforce adopting digital technologies, driving fundamental changes in organizational structures, systems, and mindsets.

Given the current development landscape, enhancing public awareness of digital transformation, especially among the youth workforce, is crucial. This study aims to analyze social media data to understand public awareness of digital transformation, providing insights into current trends and guiding future research.

Studying public awareness of digital transformation on social media aligns with research methods in public opinion and communication studies. Since digital transformation relies on information technology, applying social media opinion analysis is appropriate. This approach allows researchers to track changes in public interest in digital transformation through internet and social media searches.

The study employs a thematic content analysis method, a valuable technique for building theories from empirical data. This approach is particularly useful for analyzing social media messages and text-based content using advanced data-scanning technologies such as artificial intelligence (AI) and machine learning (ML). These tools help researchers gather evidence for their findings.

For this study, researchers used Google Trends to analyze search interest in digital transformation-related keywords. By tracking search volumes and engagement levels over time, the study can quantify public interest in digital transformation topics.

Key search terms included "digital transformation," "digital technology," "youth," and "National Digital Transformation Program." Data was collected from social media monitoring tools to analyze engagement and discussions on these topics.

The study used integrated software tools (e.g., Sprout Social, Falcon.io, Mailchimp, Databox, Grow, ActiveCampaign, and CoSchedule) to gather and analyze social media data. The sample included 290,244,481 social media accounts (from platforms like Facebook, Twitter, and YouTube) and 42,172,789 data sources (including online news, fan pages, personal posts, group discussions, comments, and forums). These tools scanned social media to generate a comprehensive dataset on digital transformation discussions.

The findings indicate a significant increase in social media engagement with digital transformation topics. In 2023, there were 3,125 mentions of digital transformation, compared to 1,811 mentions in 2021. The number of mentions and interactions was nearly equal, suggesting active public discourse on the subject. Researchers used statistical software to generate visual representations of engagement trends.

Research Challenges and Limitations

Social media data collection faces challenges, particularly regarding data completeness and reliability. Unlike traditional surveys, social media users post content at their discretion, which may not always be representative. Users can also edit or delete posts, affecting data accuracy. Moreover, many social media posts contain links to external sources, which may change over time.

Despite these challenges, social media-based research provides rich data that traditional survey methods cannot achieve. The study primarily relied on cross-sectional (one-time) and longitudinal (over-time) research approaches. Unlike traditional surveys that focus on individuals, social media research analyzes multiple units, including posts, keywords, fan pages, and interactions.

To ensure data reliability, the study filtered raw data using verified social media accounts with authentication measures (e.g., two-factor authentication and real-time verification). However, even these measures do not fully guarantee data accuracy.

By analyzing public search and engagement trends on digital transformation, the study provides insights into how people adopt and discuss digital technologies. The findings help identify key topics, attitudes, and discussions shaping public opinion on digital transformation.

Understanding these trends can guide policymakers and businesses in designing better digital initiatives and strategies. By leveraging social media data, researchers can assess public awareness and attitudes toward digital transformation, offering valuable insights for future digital development strategies.

Figure 1. Public Interest in the Topic of Digital Transformation Over the Past Five Years (2016–2023) Among Vietnamese Internet Users



Source: Online survey conducted by the research team, 2023

The interest of internet users in digital transformation has significantly increased over recent years, as illustrated in the chart. The number of searches and interactions related to digital transformation has shown a sharp upward trend. The peak of searches and interactions on this topic occurred in 2023, reaching the highest level so far. It is projected that this trend will continue to rise as the National Digital Transformation Program is increasingly integrated into people's daily lives.

It is evident that digital transformation is now deeply embedded in the daily activities of the public, enhancing their awareness of its role across various aspects of society. The majority of internet users show a strong interest in digital transformation, particularly in the current context where direct interactions are gradually being replaced by indirect or online interactions through digital platforms. Virtual communication is becoming more prevalent, replacing traditional face-to-face interactions, and significantly altering methods of engagement, especially in the areas of employment and labor. Most internet users demonstrate a high level of interest in digital transformation, and this interest is expected to expand further across different demographics, especially as the COVID-19 pandemic continues to spread and evolve unpredictably.

The awareness of internet users regarding digital transformation has been increasing significantly. In addition, public awareness and interest in the topic of digital transformation on social media have also shown considerable search volumes. Research utilizing integrated social media tools to collect information about user accounts registered on social networks, with a random sample of accounts that have signed up for social media (especially Facebook), indicates that public searches and interactions on the topic

of digital transformation on social media have risen significantly. The topic of digital transformation is also frequently discussed and debated by social media users, especially in the context of the widespread implementation of digital transformation today.

The volume of mentions and interactions from social media users is nearly equivalent. Mentions of digital transformation on social media tend to receive corresponding responses and comments on the same topic. Public interactions regarding digital transformation on social media are almost continuous. Positive mentions, as well as supportive opinions from social media users regarding digital transformation, consistently outnumber negative mentions or opposing views on national digital transformation. It is evident that the Government's policy in the National Digital Transformation Program has received widespread positive reactions from the public on social media. Public interest, as well as the clear and systematic direction and implementation strategies, have successfully realized the Government's digital nation goals in the current era of rapid technological development.

Ho Chi Minh City is the area where social media users show the most interest in the topic of digital transformation. This public interest stems from the city's strategic vision and well-directed digital transformation efforts, as well as the practical implementation of digital transformation initiatives. This article will cite key statements and opinions from leaders that have received the most attention from social media users.

"Ho Chi Minh City wants to become a smart city, which means all citizens must use smartphones and high-speed internet. At the Review Conference on Development Cooperation between the Ministry of Information and Communications and the People's Committee of Ho Chi Minh City, the Ministry of Information and Communications expressed support for Ho Chi Minh City's decision to leverage technology to drive economic growth and address urban challenges. The Ministry of Information and Communications has consistently recognized Ho Chi Minh City as a 'leader' in the field of ICT (Information and Communication Technology). Regarding 5G network development, the Ministry of Information and Communications believes that Ho Chi Minh City should aim to extend coverage to all industrial zones, research centers, and universities within the city. 'The deadline for full coverage of Ho Chi Minh City is 2023, making it equivalent to New York in terms of telecommunications infrastructure,' the Ministry of Information and Communications proposed. The Ministry also urged telecommunications enterprises to view industry development as infrastructure building rather than solely focusing on profits.

Discussing the telecommunications sector, the head of the Ministry of Information and Communications noted that only 60% of the city's population uses smartphones, which is too low. A goal should be set for all citizens to use smartphones and for every household to have fiber-optic internet access. 'Without these two elements, Ho Chi Minh City cannot be considered a smart city. E-government is about providing information and public services to everyone, anytime, anywhere.'

Regarding cybersecurity, the Ministry of Information and Communications emphasized that Vietnamese professionals have strong capabilities in this field and should strive to make Vietnam a global leader. Achieving this would be similar to becoming a military superpower in the physical world. 'The city must take the lead in cybersecurity. Without strong security measures, no one will dare to engage in digital transformation because the risks are too high. Data is linked to human fate, and security must come first.'

During the process of building a smart city and applying artificial intelligence, a city of 10 million people cannot progress simultaneously across all areas but must prioritize key regions for investment. Therefore, Ho Chi Minh City has identified the Creative, Highly Interactive Urban Area in the East as a priority zone. This area accounts for 10% of the population and 10% of the city's total area, serving as the core accelerator to drive the entire city forward. It is projected to contribute 30% of the city's GDP and has the highest density of education, research, and technology application. In the near future, the city will invite central ministries and agencies to provide input on the implementation of this creative urban area." (As cited from VnExpress; Impact level: 1/10)

"Vietnam needs to build new social media platforms and a new search engine. The Minister of Information and Communications stated that a new social media network that respects fair play, complies with local laws, and a search engine that provides reliable results are essential in a new digital ecosystem. The Minister of Information and Communications held a meeting with the Southern Information and Communications Technology community on the afternoon of June 15. In his speech, the Minister encouraged Vietnamese enterprises to develop a new social media platform and a new search engine. 'A social network with billions of users generates enormous value,' the Minister said. For example, users have driven the valuation of the company that owns that social network to \$500-600 billion, yet the ones benefiting are not the users but a single individual. Social media participants do not get to set the rules but must abide by the regulations set by one entity.'

The Minister referenced a photograph showing a room where everyone was wearing virtual reality headsets, except for Mark Zuckerberg (CEO of Facebook). Regarding Google's search engine, the Minister pointed out that for a simple query, users receive hundreds of thousands or even millions of responses. Among these results, it is unclear which ones are correct, which are incorrect, which are useful, and which are not. Some businesses pay Google to have their search results appear at the top, making them more visible to users. 'In other words, knowledge has been corrupted by money.'

Speaking to IT businesses in Ho Chi Minh City, the Minister of Information and Communications argued that the world needs a new approach to social media, where users share in the value created by the platform. They should have a role in setting the rules and be protected within the network. 'A social network is a society, so fundamental human ethical values must be respected, and the platform must comply with national laws,' the Minister stated.

Similarly, in search engine technology, when users receive hundreds of thousands of answers to a single question, there should be a mechanism to highlight reliable answers. ‘These new societal demands open up opportunities for new social media platforms and new search engines within a new digital ecosystem. Vietnamese IT enterprises and startups have a significant opportunity to develop a new ecosystem with a new philosophy and a new business model, not just for Vietnam but for the world,’ the Minister stated.

The Minister encouraged businesses to shift their mindset and innovate to contribute to Vietnam’s digital transformation process and help build a strong nation. One example of digital transformation that will be implemented soon is the need for each industry and sector to establish a unified platform. These platforms could be used by all businesses, agencies, and citizens to facilitate widespread digital transformation, rather than each organization developing its own infrastructure separately.

For instance, Vietnam has about 2,000 newspapers and magazines. If each entity were to build its own platform, it would be costly and time-consuming. However, if a unified platform were created for multiple newspapers to use, it would be more cost-effective and accelerate digital transformation, making media operations more efficient. Additionally, according to the Minister, a new platform (expected to launch in July or August this year) could help newspapers optimize advertising and reduce the current situation where half of the digital advertising revenue of media agencies goes to foreign companies.” (As cited from Tecthimes).

IV. ISSUES IN DIGITAL TRANSFORMATION TO PROMOTE DIGITAL CULTURE FOR GENDER EQUALITY IN THE CURRENT CONTEXT

Practical experience shows that to enhance digital transformation among the public, solutions are needed to help people recognize, understand its importance, and actively participate in each step of the digital transformation strategy. This engagement allows policymakers to interact, adjust, and guide digital transformation activities to become a substantive part of people’s lives, ultimately fostering societal innovation. We recommend a holistic approach to finding solutions to increase public participation in the context of digital transformation as follows:

Leveraging Social Media (SM) to Enhance Public Discussions on Digital Transformation:

Social media provides an opportunity to expand public knowledge, promote learning opportunities, and improve digital literacy among individuals, social groups, and different demographic segments. This, in turn, facilitates widespread and inclusive gender equality.

Social media is an open space containing vast amounts of information, with the majority of its users being young demographics who quickly access and exchange information. SM offers numerous opportunities for accessing new knowledge and cross-border learning, enabling a broad audience to better understand digital transformation and incorporate it into daily life. Through SM, policymakers can also gain insights into youth perceptions via their opinions, attitudes, and sentiments about digital transformation. Additionally, it enables the mobilization of collective power to address challenges in the digital transformation process.

Enhancing Interaction Between Government Agencies and Specific Social Groups to Improve Digital Transformation Implementation:

Strengthening the engagement between state agencies responsible for digital transformation and particular community groups allows for better feedback and mutual support in executing digital transformation initiatives. This interaction creates opportunities to leverage strengths, disseminate digital cultural models that promote gender equality, and enable people to learn and apply digital technologies more efficiently.

Rapid public feedback during the application of digital technologies helps accelerate positive innovations in government digital transformation policies. Authorities at all levels should work to increase public access to digital technologies in state management activities related to digital transformation. This is an essential measure to foster nationwide participation in the National Digital Transformation Program.

Establishing official Facebook fan pages on digital transformation—given that Facebook is widely used in Vietnam—is highly necessary. These pages should be broadly developed to facilitate government interaction with citizens, helping to gauge public awareness and needs. They would also serve as platforms for disseminating state policies on digital transformation while scaling up digital cultural approaches to promote gender equality, foster economic growth, and improve social welfare.

Strengthening Research on Public Opinion Regarding Digital Transformation on Social Media and Broadly Publishing the Findings:

Conducting in-depth studies on social discourse surrounding digital transformation and widely disseminating research results will create opportunities for two-way dialogue and exchange between policymakers, digital transformation practitioners, and the public. This would help advance the goal of using digital culture education for the community to promote gender equality and establish a new digital society.

V. CONCLUSION

This article has primarily focused on initial findings by integrating digital tools to describe public perceptions of digital transformation on social media. Based on the data regarding public awareness of digital transformation through SM, it provides new recommendations on incorporating digital culture promotion to enhance gender equality.

A limitation of this study is that it has not provided scientific evidence regarding gender inequality in digital environments, as research on such quantitative data remains in its infancy, primarily limited to initial public perceptions of digital transformation.

Practical experience indicates that people genuinely care about digital transformation if they perceive it as directly or indirectly affecting their lives. Understanding public opinion on digital transformation helps identify societal needs, making digital initiatives more accessible and relevant. It also provides people with greater motivation to adopt new digital cultural models, using digital technologies to solve personal challenges and enhance cultural interactions that promote gender equality in employment and social life.

This insight will serve as a foundation for timely management decisions that align with public aspirations and contribute to the success of digital transformation policies.

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