



# Elderly People and Digital Divide: A Case Study in Vietnam

**Do Duy HOAN**

Vietnam-Hungary Industrial University

**Nguyen Thi Xuan HOA**

School of Economics and Management, Hanoi University of Science and Technology

**Tran Thi Bich NGOC** (*Corresponding author*)

School of Economics and Management, Hanoi University of Science and Technology

*Email: ngoc.tranthibich@hust.edu.vn*

**Pham Thi Thanh HONG**

School of Economics and Management, Hanoi University of Science and Technology

**Duong Manh CUONG**

School of Economics and Management, Hanoi University of Science and Technology

## Abstract

*This research examines the digital divide among the elderly people in Vietnam using the Internet, which is dominated by demographic characteristics, socio-economic status and age-related issues based on the results of a sociological survey. Disparities in Internet access, digital skills, usage and outcomes among Vietnamese elderly were studied through survey data to suggest policy implications to bridge the digital divide, encouraging the elderly to adapt to the digital environment and improve their quality of life in an evolving digital society in Vietnam.*

**Keywords:** Elderly people, Digital divide, Digital society, Digital exclusion, Digital inclusion, Vietnam.

## Introduction

Along with the explosive development of digital technology and digital platforms, the digital economy is growing very quickly and becoming an inevitable development trend globally. According to the World Bank, the digital economy accounts for more than 15% of global GDP and is expected to grow rapidly, contributing 30% to global GDP, creating 30 million jobs by 2030 (DCO, 2023). Older adults, although facing difficulties due to the digital divide, still contribute significantly to the digital economy as they account for a high proportion of the population and belong to a potential customer group that have specific demand for products and services compared with that of young customers in society. Worldwide, the number of people aged 60 and over will increase to 1.4 billion by 2030, and this number will nearly double, reaching 2.1 billion by 2050, accounting for about 22% of the total global population (WHO, 2021).

Older adults still actively engage in economic activities in general and online operation such as e-commerce, digital banking services, etc. in particular. Research conducted by Rybaczewska and Sparks (2022) on the participation of Scottish elderly people in social networks shows that the proportion of people searching for information about goods and services in the 65 - 69 age group is 50%, but drops rapidly to 27.9% in the 65 - 69 age group. age 75 - 79 with; regarding online shopping, the participation rate in the 50 - 54 age group is 44.2% and drops sharply to 33.6% in the 70 - 74 age group and to 26.1% in the 75 - 79 age group; the percentage of online banking users in the age group 65 - 69 is 30.6%, higher than that of 27.6% at the ages of 75 – 79 years old.

In the period 2020 - 2021, the COVID-19 pandemic has seriously affected the supply chain, production and business activities in the world, but stimulated growth of online trading activities. And Vietnam is no exception. Vietnam's total retail e-commerce sale B2C, according to Vietnam e-Commerce and Digital Economy Agency (2024) was USD 20.5 billion in 2023, accounted for about 7.8-8% of the total retail sales of goods and consumer service revenue nationwide, and expected to reach USD32 billion in 2025 (Google, Temasek, Bain, 2022). In 2023, the number of elderly people in Vietnam will be 13.686 million people, accounting for 13.69% of the total population (GSO, 2021). They are considered important and potential customers of e-commerce in Vietnam's digital economy.

The National Digital Transformation Program to 2025, with a Vision to 2030, has a dual goal of developing digital government, digital economy, digital society, and establishing globally competitive Vietnamese digital enterprises. With the view that people are the center of digital transformation (DX), the program also offers measures to enhance digital competence and skills among people and businesses, forming a digital culture to develop digital society with the goal of “no one left behind”. Although there exists a digital divide among Vietnamese older persons, *i.e.* an inequality in the Internet access and disparities in the use of online applications, this issue has only just begun to be researched. Furthermore, researchers often focus on young consumers, not paying enough attention to digital inequality

among the elderly in the DX context. Therefore, there is a gap on the digital divide among Vietnamese older adults and on the problems they face when using the Internet that was not yet studied. In this study, the research team set out the purposes of the study as follows: (1) confirming the existence of a digital divide among Vietnamese older people in terms of Internet access; verifying their digital literacy and digital skills related to the usage and outcomes of using online services; and (2) proposing policy implications and measures to bridge the digital divide and encourage the elderly to adapt to a emerging digital society in Vietnam.

## 1. Literature Review

### *Digital divide within Older Persons*

The term “digital divide” first emerged in the United States in 1995 and was initially defined as the gap between those who had access to new technology and those who did not. It was understood at this time as the disparities in access to telephones, personal computers, and the Internet among certain demographic groups by the categories of gender, income, education level, race, household and geography (place of residence) (NTIA, 1998). In the early 2000s, when the Internet became popular, the digital divide was simply defined as the gap between those who have access to information/the Internet and those who do not" (DiMaggio *et al.*, 2001; Hargittai, 2002; Van Dijk, 2005).

The concept of the digital divide is gradually being perfected as it demonstrates digital inequality between all subjects in terms of Internet access in different geographical areas and levels of socio-economic development; it exists in all countries regardless of the development level. For example, in the EU in 2023, the average share of EU Internet users was 91%; the highest percentage of Internet users was registered in Norway with 99.7%, followed by Luxembourg and Switzerland with 99.3%; the lowest percentage of Internet users in the EU was recorded in Croatia (83.4%) and Bulgaria (80.4%) (Eurostat, 2024). Regarding the digital divide among older persons, in 2020, Denmark recorded the highest share of Internet users aged 60 - 74 with 97%; in contrast, this share was 25% in Bulgaria (Eurostat, 2021).

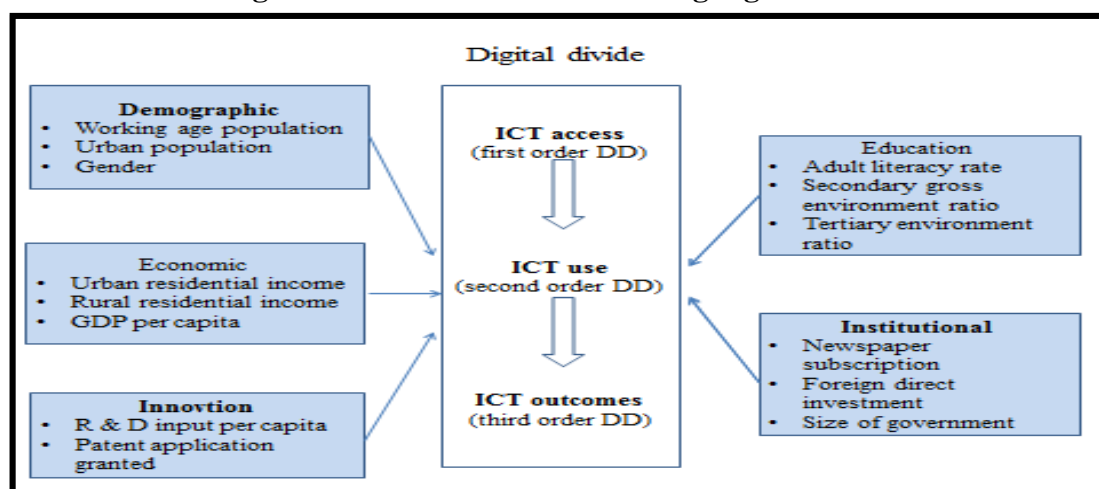
In the digital age, many jobs require digital skills. Digital skills are defined as “the ability to efficiently and effectively find information on the Web” (Hargittai, 2002) or to use ICT-based devices applications software and services to access and manage information to get maximum benefit (UNESCO, 2018). Regarding the importance of digital skills, Hargittai (2002) suggests that age has a negative impact on a person's level of Internet skills and that experience with technology is positively related to different online skills.

The age-related digital divide within older adults is highlighted in many studies. The aging causes physiological and health changes, such as decrease in hearing and vision, slow reaction and reduction in moving function, which limits the ability which limit the ability to access, use, and absorb information (Charness and Holley, 2004; Davis *et al.*, 2016; Neves and Vetere, 2019). The differences in the digital divide caused by personal characteristics,

location and resources, or in other words, demographic socio - economic factors have also been confirmed by Friemel (2014) who based on the results of a survey in Switzerland, has found that the digital divide is clearly observed among the elderly aged 65 and over; the number of Internet users at the age of 70 years old and older has dropped sharply; differences in gender, education level, income, technology preferences, marital status, encouragement from relatives are also causes of digital inequality. In the report on survey results under the framework of the research project “Digital Divide and Elderly People: Digital Literacy and E- Inclusion” conducted in November and December 2015 in Spain, Abad (2016) analyzing the use of the Internet by the elderly for different purposes has drawn the following notable conclusions: (i) demographic characteristics (gender, age, education level, employment, income) has an impact on the digital divide; motivation and positivity in using the Internet decrease with age; (ii) daily usage time, usage frequency and proportion of people using online services also decrease with age; (iii) one third of respondents learned how to use digital devices with the family members and friends’ support.

In recent years, based on Resources and Appropriation Theory developed by Van Dijk (2005), the researchers have proposed different models to evaluate factors influencing the digital divide among people with regard to their country-specific conditions. Srinuan (2012), synthesizing studies on factors affecting digital divide, has proposed 6-factor model for the evaluation of digital disparity in Thailand that are: (1) socio-economic status; (2) knowledge and skills; (3) attitudes and culture; (4) price, speed, content and quality of service; (5) institutional structure and type of government; and (6) information and communication technologies (ICT) infrastructure. Song *et al.* (2020), studying the van Dijk’s Causal Model of Resources and Appropriation Theory of the Digital Divide (2005) and the socio-economic characteristics of China over the past decades, have proposed a model to evaluate the factors affecting the digital gap that can be used in China (Figure 1).

**Figure 1: Model of factors affecting digital divide**



Source: Song, *et al.* (2020).

### The elderly people in Vietnam

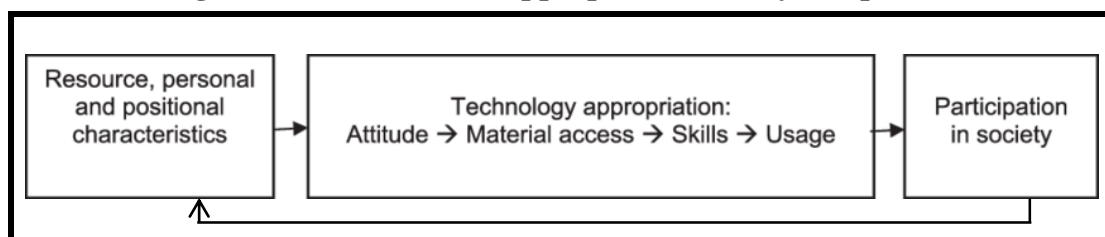
Around the world, the concept of older people is inconsistent depending on a country's regulations on the age, at which a person can receive pension, social security benefits or recognition of biological age thresholds. Most developed countries define that older adults are people aged 65 years or older (Kowal and Downd, 2001). According to the United Nations, older adults are people aged 60 years or older (Mirkin and Weiberger, 2001). In Vietnam, the elderly defined in the Law No. 39/2009/QH12 are Vietnamese citizens aged full 60 or over. In Vietnam, according to the General Statistics Office population projections (GSO 2021), under the assumption of total fertility rate (TFR) by medium variant equivalent to replacement fertility rate, an average of 2.1 children per woman for the period 2019–2049 the older population (aged full 60 and older under the Law on Elderly) will reach 17.28 million (16.53% of the total population) by 2029; 22.29 million (20.21% of the total population) by 2038; and 28.61 million (24.88% of the total population) by 2049. Thus, since 2019 Vietnam has officially entered the period of population aging because the ratio of people over 65 years old to the total population has reached 7.7%, exceeded the United Nations' conceptual threshold of an “aging society” when the proportion of elderly people aged 65 and is higher than 7%.

## 2. Methodology and Materials

### 2.1. Research Model

The Resources and Appropriation Theory developed by Van Dijk (2005) describes the cause-and-effect relationship between components, whereby an individual's inequality is affected by demographic characteristics, personal status (gender, culture, place of residence, employment, income etc.) and use of resources that govern Internet access (physical access, material access and skills, usage); Internet access, in turn, dominates usage outcomes; this result has a reverse impact on the initial personal factors.

**Figure 2: Resources and appropriation theory (simplified)**



Source: Van Dijk (2005).

The theory is validated by the evolving reality of digital technology, thereby, before 2010, physical access was the main concern in the practice of the so-called first level (first - level digital divide). Van Dijk (2020) pointed out that differences in the maintenance costs of personal digital devices and peripherals, and factors such as resources, personal location, skills and motivation of Internet use causes inequality in material access, which in turn causes differences in skills, usage (second - level digital divide) and outcomes (third - level digital divide).

Reviewing the models applied to studies in Thailand and China, although there are differences depending on the specific characteristics of each country context, but the factors affecting the digital divide presented in the models are similar to Resources and Appropriation Theory. So, the authors believe that the model proposed by van Dijk (2005) is the basis for assessing the situation of digital divide within the elderly in Vietnam and validating the following hypotheses:

- There exists digital divide among the elderly in Vietnam; socio-demographic characteristics (age, gender, place of residence, education level, income...) and age-related issues (physical and mental health, habits ...) are considered as factors that influence Internet access, skills and use, and usage outcomes.
- Digital inclusion among Vietnamese elderly has disparities in all three levels of the digital divide such as access, digital skills, use and outcomes of Internet use.
- Inadequate attention from government agencies and relevant organizations is also a reason that hinders bridging the digital divide among the elderly in Vietnam.

## 2.2. Research Method and Materials

In the study, qualitative research methods and descriptive statistics were used to evaluate the results of the sociological survey conducted by the research team in October 2021 and provide evidence for the stated hypotheses of the digital divide within the Vietnamese elderly in emerging digital society. The number and proportion of Internet users and non-Internet users aged 60 years or older by age, gender, education level and place of residence are shown in Table 1.

**Table 1: Summary of the survey sample analysis by sex, place of residence, and educational level of the Internet users' and non-Internet users' respondents (person)**

Age groups	Total	Place of residence				Education level					
		Urban areas		Rural and remote areas		Primary and lower second.education		High school education		Higher education	
		Male	female	Male	female	Male	female	Male	female	Male	female
Internet users											
60-64	246	166		80		76		125		45	
	246	66	100	37	43	31	45	55	70	17	28
65- 69	109	70		39		32		51		26	
	109	41	29	27	12	20	12	30	21	18	8
70-79	122	60		62		69		42		11	
	122	26	34	35	27	32	37	23	19	6	5
80+	25	13		12		17		4		4	
	25	6	7	10	2	12	5	-	4	4	-
Total	502	139	170	109	84	95	99	108	114	45	41
	502	502				502					

Non-Internet users											
60-64	27	7		20		13		11		3	
	27	3	4	9	11	6	7	4	7	2	1
65- 69	22	5		17		17		5		0	
	22	2	3	5	12	4	13	3	2	0	0
70-79	58	19		39		41		16		1	
	58	11	8	9	30	28	13	6	10	1	0
80+	28	10		18		20		8		0	
	28	8	2	6	12	10	10	4	4	0	0
Total	135	24	17	29	65	48	43	17	23	3	1
	135	135				135					

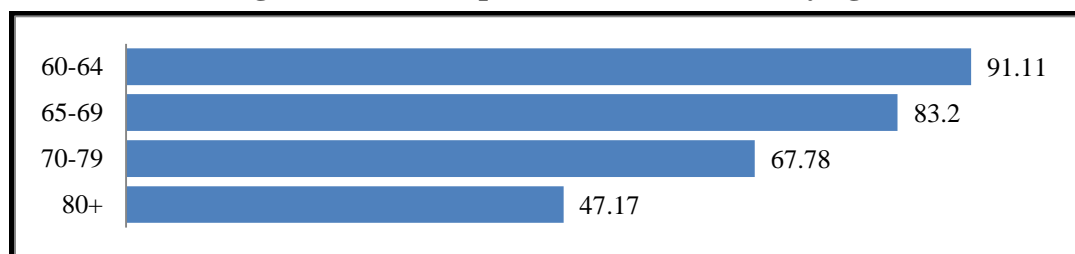
Source: The survey’s results of the research team.

### 3. Research results

#### 3.1. The digital divide within the Vietnamese Elderly

The results of a survey conducted by research team on physical access presented in Table 1, show that:

- The number of Internet users accounted for 78.81% of the total number of respondents; at all ages, there is a slight difference in the percentage of men using the Internet compared to that of women (49.40 vs. 50.6%).
- The influence of education attainment on Internet access is also clearly shown, comparing the percentage of Internet users and non-Internet users graduated primary and lower secondary schools with those who have higher education at all ages. For example, out of a total of 285 respondents who have primary and lower secondary school education, the number of Internet users is 194, accounting for 68.07%, while this proportion among those who have higher education is 96.0% (96/100).
- There are differences in network access between urban and rural areas. Among Internet users, 61.55% (209/502) live in urban areas and the rest of 38.45% live in rural areas. In contrast, out of 135 non-Internet users, 94 people live in rural areas, accounting for 69.63%, more than two times higher than those in urban areas (30.37%). This is explained by the facts that people living in urban areas have better living conditions and Internet access than those in rural areas; household income in urban areas is 1.5 times higher than in rural households (GSO, 2022); over 35% of the elderly in Vietnam still have to work for a living, in which 41.56% of the total rural elderly people are still working, while this rate of urban elderly people is 21.78%; in terms educational attainment, at all ages, urban elderly people are more educated than rural counterparts (GSO, 2021).
- The proportion of Internet users decreases with age regardless of gender, place of residence and education level (Figure 3).

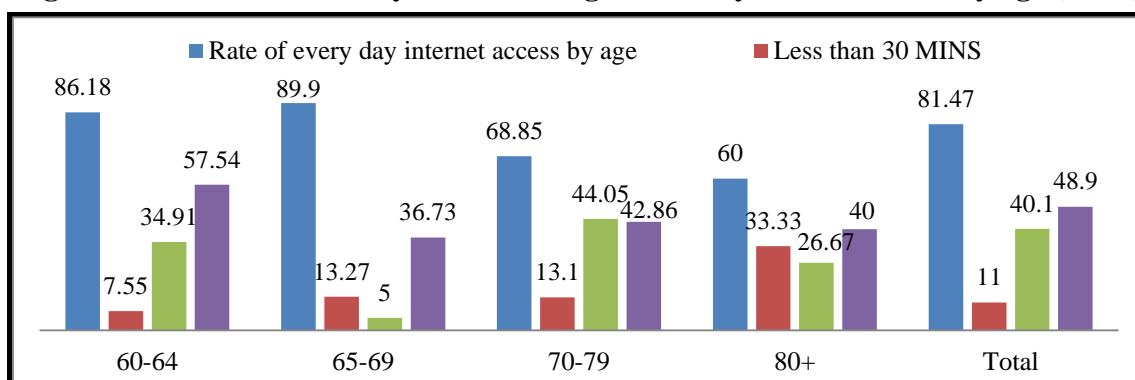
**Figure 3: Internet penetration share (%) by age**

*Source:* The survey's results of the research team.

Thus, gender disparities, deep inequalities in education, income and living standards of the elderly living in rural and urban areas lead to a digital gap between the elderly in all age groups of Internet users and. It can be said that the demographic and socio-economic characteristics of the elderly in Vietnam dominate the digital divide, creating inequality even in physical access, the first - level digital divide.

### **3.2. Digital Inclusion of the Vietnamese Elderly: Differences in Skills, Usage and Outcomes**

The share of 78.81% of elderly people using the Internet is considered high for a developing country like Vietnam. The activeness, level of digital literacy and digital skills and digital integration of older people are reflected in their efforts to use ICT in many activities.

**Figure 4: Prevalence of daily network usage of elderly Internet users by age (in %)**

*Source:* The survey's results of the research team.

There are 81.47% of the total 502 Internet users who go online every day, of which the number of daily Internet users over 60 minutes accounted for 48.9%, making 4.4 times higher than those who use Internet less than 30 minutes; the survey results also show that the percentage of people using the Internet for more than 60 minutes a day in cities is 72%, 2.7 times higher than that of 28% in countryside. These disparities also show the differences in digital literacy, skills and Internet usage between urban and rural Internet users of each age group. Similar differences in digital skills and Internet usage were also found across usage intentions.

**Table 2: Purpose of using the Internet among 502 Internet users (respondents)**

Purpose of using Internet	+	%	60-64	65-69	70-79	80+
Calling/messaging applications	449	89,44	226	99	106	18
Entertainment content	413	82,27	217	82	99	15
Searching information	395	78,69	206	83	88	18
Using social networks	355	70,72	196	85	64	10
Installing online disease tracking and healthcare apps	376	74,90	197	74	90	15
Using public and communal services apps	194	38,65	113	43	35	3
Online banking	172	34,26	112	27	31	2
E-commerce	137	27,29	86	30	21	0

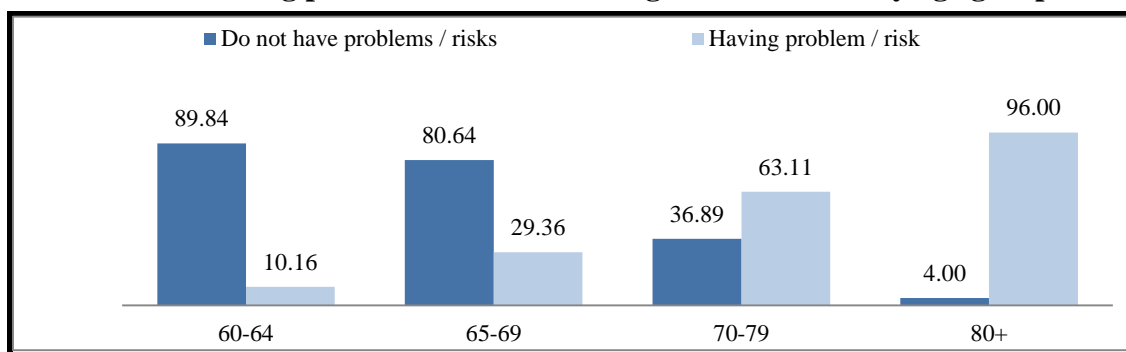
*Source:* The survey's results of the research team.

Data in Table 2 shows that simple applications such as calling or messaging have the highest number of users with 449 responses, accounting for 89.44%; entertainment followed with 413 responses (82.27%); the rates of people participating in Internet banking and e-commerce that requires higher digital literacy and skills were lower, with 34.26% (172 respondents) and 27.29% (137 respondents) respectively. Comparative analysis of data confirms that: (i) lower age groups (60 - 64 years old and 65 - 69 years old) participate more actively than higher age groups (70-79 years old and 80 years old and older) for all purposes; (ii) the number of respondents using applications and utilities that require high digital skills such as online banking, e-commerce, public services... is still low.

In particular, the elderly are often at risk in using online applications: 158 people (51.13%) out of 309 respondents who use digital banking and e-commerce services said that they often face risks such as transferring money to the wrong address, losing accounts, incorrect manipulation, *etc.* The proportion of people who faced or did not face the risks when using online applications is shown in Figure 5.

According to the figure the risk rate when using online applications and utilities increases with age. It emphasizes that age-related issues (ability of hearing, vision, writing in devices, *etc.*) negatively affect motivation, Internet access, skills, and usage. Analysis of data in Table 1 and Figures 3, 4, 5 shows that the digital skills (the second – level digital divide) of older persons in Vietnam are still low and deeply influenced by socio-demographic factors.

**Figure 5: Digital skills: percentage (%) of Internet users having and not having problems or risks in using online services by age group**

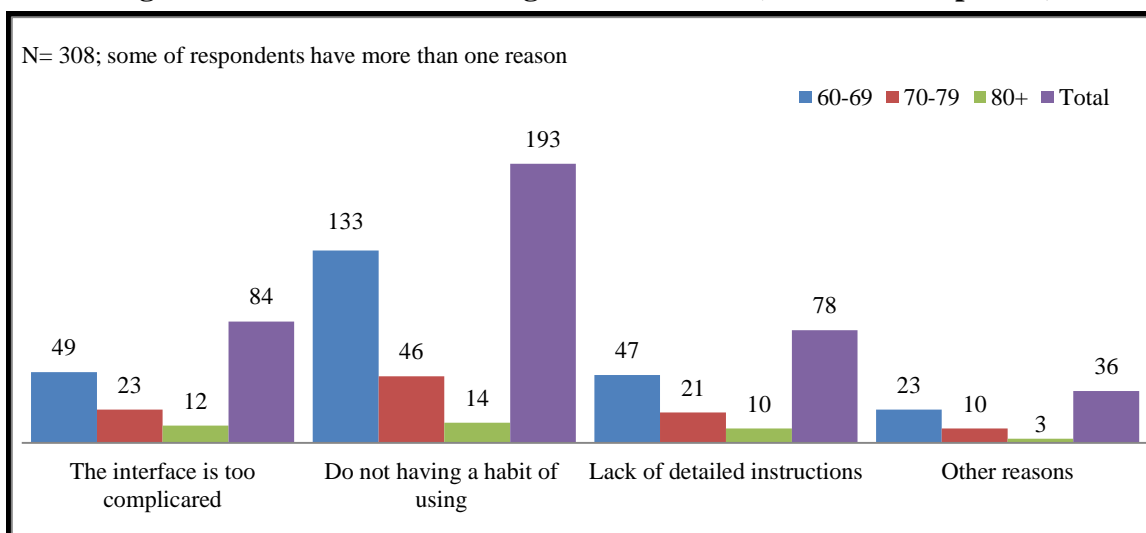


Source: The survey’s results of the research team.

**3.3. Attitudes of the government agencies, ICT companies and online service providers toward bridging the digital divide among the elderly**

The National Digital Transformation Program to 2025, with a vision to 2030, has introduced urgent measures to promote DX process in all social and economic sectors, encouraging people to improve their digital competence and digital skills to keep up with the evolving digital society so that no one left behind. However, the survey results show the conspicuous fact that the requirements of the Program for disseminating digital literacy and upskilling older adults have not yet been put on the agenda of the relevant organizations. This is shown by the responses of 308 out of 502 respondents who use the Internet, that they do not use online services such as public services, digital banking or e-commerce for different reasons (Figure 6).

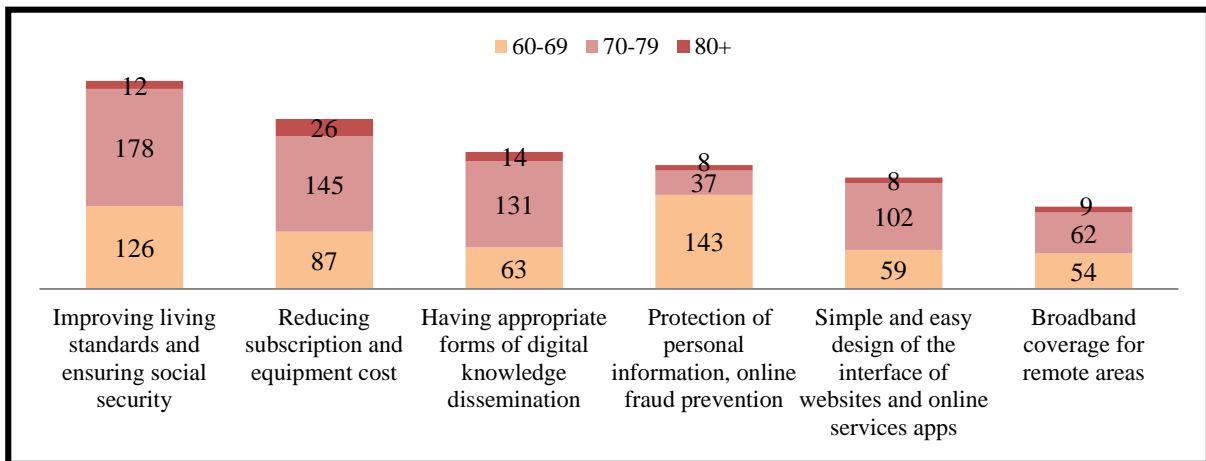
**Figure 6: Reasons for not using online services (number of responses)**



Source: The survey’s results of the research team.

Answering the question “what policies/measures do you most expect from the government agencies, business and social organizations to support you to integrate into the digital society?”, both Internet users and non-Internet users have given 1,264 different answers, expressing different desires that mainly focused on the 5 aspects shown in Figure 7.

**Figure 7: Expectations of both Internet users and non-Internet users by age (number of responses)**



Source: The survey’s results of the research team.

Satisfying the legitimate expectations of the older people summarized in Figure 7 requires appropriate policies from government agencies at all levels and relevant action and reasonable approach from ICT companies as well as online service providers. Answering the question “Where did you gain your digital literacy and skills?”, 21.4% of respondents learned from short-term ICT courses at work; 52.8% got them from friends and relatives, 18.6% skilled up with the others’ help and 7.3% self-study. This fact shows a lack of necessary attention to elderly customers from the government agencies and social organizations, as well as ICT companies and online service providers.

**4. Discussion**

The deep digital divide that exists among the elderly in Vietnam is influenced by socio-demographic characteristics (age, gender, place of residence, education level, income, etc.) and age-related issues (physical and mental health and habits, etc.) This hypothesis is consolidated based on the above mentioned analysis on the difference in Internet access among respondents by age, gender, place of residence and education level, socioeconomic status. This means that the demographic characteristics, socioeconomic conditions of the elderly dominate both first - level and second-level digital divide, causing inequalities in

materials access. It is reinforced by differences found such as the percentage of the urban network users is 61.55%, higher than that of 38.45% of rural users; in terms of education, the proportion of Internet users who have primary and lower secondary education is 68.07%, while this rate among those with higher education is 96.0%; the difference is wider in term of age while the ratio of Internet users to the total number of respondents by age groups decreased from 90.11% in the 60-64 age group to 67.78% in the 70-79 age group and to 47.17% in the age group of 80 and older.

The argument that inequalities in material access cause differences in skills, usage and outcomes is also evidenced by the low percentage of people using more difficult online services such as Internet banking (34.26%), e-commerce (27.29%), and online public and communal services (38.65%), while the proportion of respondents using multimedia calling and messaging applications, which do not require high skills, accounts for 89.44% out of 502 respondents. These findings are completely consistent with digital divide theory and related arguments in previous studies (van Dijk, 2003, 2005; Hargittai, 2002; Abad L., 2016).

Digital inclusion of the elderly in Vietnam decrease gradually with age and occur due to the impact of the aforementioned demographic factors, socio-economic conditions of the elderly as well as age-related problems. Over time, the dominance of these factors tends to be more obvious, reducing motivation and causing differences in digital skills, usage and outcomes. This assumption is confirmed by the age-related decline in the number and proportion of Internet users by age in Table 1, daily Internet use (Figure 4), number of respondents using online applications and utilities Table 2), the percentage of respondents having/do not having the problems and risks when using online applications and utilities (Figure 5), *etc.*, and is completely similar to the findings made by previous researchers (DiMaggio *et al.*, 2001; Davis *et al.*, 2016; Neves and Vetere, 2019).

In Vietnam, there is no relevant research on elderly consumers or policy to support or encourage elderly users in areas where services gradually are moving online, including in the public sector so far. The lack of necessary attention can be assessed by the following relevant indicators: 61.36% respondents do not use online; 51.13% of responds using digital banking and e-commerce services have ever encountered at list one type of risks in manipulation. The expectations of the elderly such as ensuring social security, acquiring digital literacy and skills, reducing subscription fees and digital device prices as shown in Figure 7 seem so simple, but satisfying them require the regular and proper attention from government agencies at all levels and ICT companies and online services providers.

## 5. Policy implications

According to a Causal Model of Resources and Appropriation Theory of the Digital Divide (Figure 2), personal and positional categories and resources, known as socio-demographic factors, have a direct impact on physical and material access. Inequalities in material access cause differences in Internet skills, usage and outcomes. Therefore, policy implications should focus on improving the factors that cause inequalities in the first and second level of digital divide as below.

- Government agencies, civil society and business organizations, especially ICT companies and online service providers, should have to change their attitudes and views towards old population. This is also consistent with the cultural tradition imbued with the national identity of humanistic spirit, respect and care for the elderly. On the other hand, with an increasing number, the elderly in society need to be recognized as potential customers of organizations and businesses in both the public and private sectors that provide all types of online services.

- Improving living standards, health care and education levels of people in general and the elderly in particular; reducing poverty and social inequality in remote rural areas to improve access to digital technologies and Internet. Bridging the digital divide among elderly should be included to national and local socio-economic development plans.

- Currently, there is no national database on the digital divide among population groups in the country at a national scale, so it is necessary to assign a specific state organization responsible for collecting and updating statistics on the digital divide among the people from 5 years old and older by demographic indicators and socio-economic status to adjust appropriate policies on enhancing people's digital literacy and skills at their young age that contribute to closing the digital divide within among the population in the long term (Tran Thi Bich Ngoc and Nguyen Xuan Hoa, 2022).

- The government agencies at all levels and social organizations, including the Vietnam Elderly Association, need to coordinate with the mass media, ICT and online service providers to organize different forms of spreading digital literacy and enhancing digital skills for older people. As the elderly mainly gain digital competence with the support of friends and relatives (52.8%) and the help of others (18.6%), the model "Community Digital Technology Group" disseminated by the Ministry of Information and Communications (MIC) should be continued to be replicated (MIC, 2022). In addition, the Family Intergenerational Learning (FIL) Model implemented in rural China (Cheng et al., 2022) can be suitable for disseminating digital literacy and enhancing digital skills of the elderly in rural Vietnam.

- Organizations and businesses, providing online services need to pay attention to the follows: (i) designing website with a friendly, easy-to-use interface; (ii) implementing measures to ensure network security and prevent fraud in cyberspace; (iii) improving ICT infrastructure; ensuring broadband coverage in remote areas and supporting the elderly with digital devices at preferential prices, and reduce service fees; and (iv) encouraging in-depth research on the digital divide, characteristics and consumption habits of the elderly to make product and customer care policy adjustments suitable for them.

## 6. Conclusion

Vietnam is entering a period of population aging in the context of DX taking place in all fields. With the increase in number, Vietnamese elderly people need to be respected even more as the digital society and digital economy develop rapidly. However, a large proportion of elderly people do not have basic digital skills to proficiently use online services and utilities while more and more services are moving online in the digital society. The recommendations proposed by the authors can be useful for government agencies at all levels, ICT enterprises and online service providers to change their attitudes towards older customers, thereby offering products, policies, and solutions suitable for the elderly and increasing their digital inclusion. In the near future, as physical access becomes universal for citizens of all ages, there will still be a digital divide in Internet skills and outcomes, especially among the elderly. Therefore, more in-depth research on the digital inequality within older people is needed to offer practical and effective solutions to narrow the digital divide for them in evolving digital society.

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