Pimnara Hirankasi, Ph.D.
Punjaphut Prasitdechsakul
Pimnara.Hirankasi@krungsri.com
Punjaphut.Prasitdechsakul@krungsri.com
+662 296 6457

Banking for the elderly in the digital era

The aging of society is one of the most prominent megatrends unfolding globally, and Thailand is not exempt from either this process or its impacts. For the financial sector, this is important because as the proportion of elderly members of society rises, the patterns of demand for financial products and services are transformed, and the banking sector thus needs to adapt to this changing demographic environment. However, providing banking services to the elderly brings with it a number of challenges related to the physical infirmity of some of the aged, the wide range of incomes and property ownership among members of this consumer group, the problems some elderly members of society have in authentication with "Something-you-know", and the tendency of many older people to be uncomfortable with new technology. At the same time, the elderly will often want financial products that carry low risks, that are uncomplicated and easy to understand, and that offer monthly incomes but which are not age-restricted.

On the other side of the coin, the rapid growth of technology is another megatrend that has been evolving in parallel with the aging of society. Although quite by chance, the outbreak of Covid-19 has helped bring the two together. During the period of the lockdown, the populations of many countries were confined to their homes to control the spread of the virus, and by necessity the elderly began increasingly to experiment with using mobile and internet banking. Given this, the challenge now facing the Thai banking sector is to understand how best to adjust its financial services and products and in what ways its business model needs to be overhauled as Thai society becomes increasingly technological but increasingly grey.

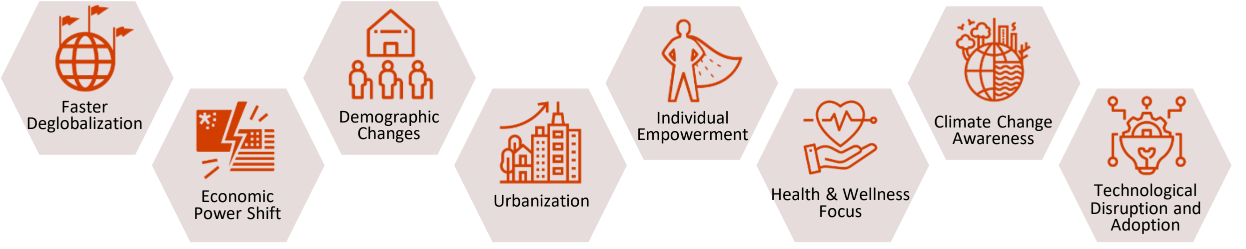
To better understand the needs of elderly Thai bank customers, in June and July 2020 following the outbreak of Covid-19, Krungsri Research carried out an online survey of 152 individuals aged over 50 years old. The majority of respondents still had their own income and expenditure that needed to be managed, while 96% used a mobile phone either often or very often. Although chat apps were the most popular, over 80% were already using some kind of mobile banking app, and it appears that older consumers who understood financial services and products are generally comfortable using technology. Factors that tended to encourage uptake of mobile banking services by the elderly included an app's ease of use and the impact of marketing campaigns, whereas factors that discouraged use included fears over security and safety, and hard to navigate user interfaces.

The most important result revealed by the Krungsri Research survey is, though, that to encourage more extensive use by the elderly of technological services such as mobile banking, banks should focus on building confidence and trust in modern digital devices such as smartphones, and on establishing systems that guarantee that personal information remains safe. Beyond this, banks should also work on developing UIs specifically targeted at elderly consumers, which could work as extensions to the main mobile banking app and which would then target the banking services that were used most often by the elderly. These age-friendly UIs would be user-friendly, easy to understand, and designed with larger type. It would also be possible to use gamification in this kind of mobile banking app, and this would have the advantage of both supporting the development of users' cognitive abilities and of increasing their engagement with the app itself.

The greying of global society

'Megatrends' are large-scale forces that are playing out at the world level and which are to all intents and purposes unstoppable. These are already having an effect but in the future, megatrends will fundamentally transform the economic, political and social landscape. In addition to having influences at the macro level, they will also have direct impacts on individuals, transforming our day-to-day lives. Whether one is considering rapid technological progress and the impact of digital technology on daily life, shifts in the distribution of political power internationally, or changes in how societies are structured, these megatrends are truly global forces.

Figure 1: Megatrends Currently Playing Out



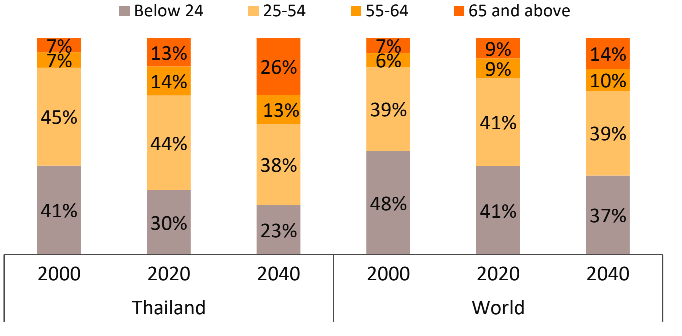
Source: Krungsri Research

Among the various megatrends buffeting Thailand, the aging of Thai society will have profound consequences for the country. The rapid demographic changes and the transition to an aging society that is now underway are being caused by a combination of a sharp decline in the birth rate and thanks to medical advances, longer lifespans. Over the coming years, these shifts will help to reconfigure the economy and the wider society. Because of the importance of these changes for nations worldwide, the United Nations (UN) has set out some common terms to describe the greying of society, defining an 'aging society' as one where over 7%[1/] of the population is over 65, an 'aged society' as one where this rises to 14%[2/] and a 'superaged society' as one where the proportion of those over 65 exceeds 20%. The discussion which follows adheres to these definitions.

Data from the UN indicates that in 2020, 13% of Thais are 65 or older, placing Thailand on the threshold of becoming an aged society, and that in another 20 years, this proportion will double to 26%. **These forecasts are in accord with those of the National Statistical Office of Thailand, which in 2018 forecast that Thailand would become an aged society in 2021 and that 10 years after this, the proportion of over-60s would rise to 28% of the population.**

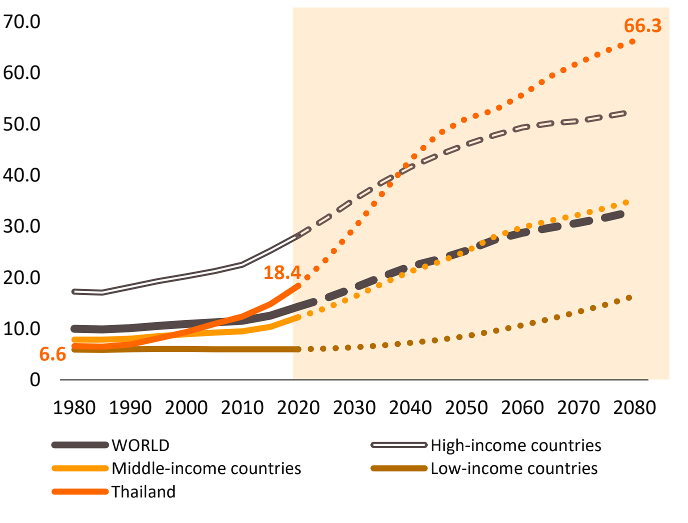
The increasingly large share of the population aged over 65 is naturally affecting the aged dependency ratio (defined as the ratio of the number of elderly to the number of working-age members of society.) Estimates by the UN show that in 2020, the total number of aged in Thailand represented 18.4% to the working-age population, or to put that another way, at present, every person in the country aged over 65 is dependent on 5.4 people in the working population, a figure that is higher than the world average and higher too than the average for other middle-income countries. This ratio has increased rapidly since 2010, and is now close to that of advanced economies, but if this rate of aging continues unchanged**, by 2050 every older member of society will depend on just 2 working-age individuals and by 2080, every 2 elderly individuals will depend on the labor of only 3 working-age members of society.**

Figure 2: Age Structure of Thai and Global Society



Source: UN World Population (2019), Krungsri Research

Figure 3: Aged Dependency Ratio (%)



Source: UN World Population (2019), Krungsri Research

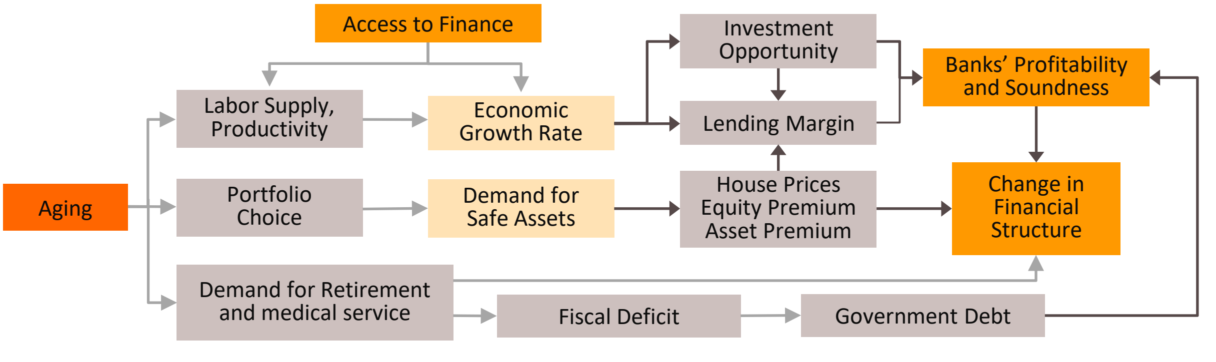
1/ Some countries define this as occurring when the number of individuals aged over 60 reaches 10% of the total population.
2/ Some countries define this as occurring when the number of individuals aged over 60 reaches 20% of the total population.

In addition to experiencing labor shortages, societies that have a large elderly population generally see consumption patterns change under the impact of the differences in consumer behavior and purchasing power of the young and the old. In developed countries, for example in Europe where some 20% of the population is over 65, the elderly have significant spending power and they represent a major driver of the economy, especially in areas such as healthcare, recreation, and some types of cultural activities, where their age and greater leisure time separates them from younger consumers. In these richer countries, spending by the elderly is funded both by their own savings and by government pensions and other welfare schemes[3/] but in developing or newly industrialized countries the situation is somewhat different, and figures from 2018 reveal that in Thailand, there are 3.9 million elderly (over a third of the entire elderly population) who are still working, either to supplement their income or because they are the main breadwinner in their family. **In other words, although many millions of Thais have now matured out of the working-age population, they lack the financial security to retire.**

In addition to changing the key drivers of the economy, the emergence of the aged society will also affect demand for goods and services, especially for those that help the elderly to live their lives with ease and convenience, that sustain their good health, and that increase their independence and self-reliance. Nowadays, one can see an increasing range of products that have been designed with these goals in mind, including robotic assistants for the old or smart wearables that, for example, monitor the wearer's heartrate and are able to call the emergency services automatically. **However, within the banking industry, there is only a limited number of financial goods and services that have been designed specifically for the elderly, while this group's relatively low level of technological adoption places a brake on extending the reach of tech-based financial services to older consumers.**

These demographic changes will naturally also affect banks' operations with regard to both the average age of their employees who will age with the aging of society generally, and the proportion of their customer base which is comprised of elderly customers, who in the near future will possibly become the largest single consumer group that they serve. These changes will have ramifications for banks' business model including their estimation of and exposure to risk. In 2017, the International Monetary Fund (IMF) carried out research into the effects on its banking sector of Japan's demographic changes, since the country became a superaged society in 2005 and as of 2020, 28% of the population are over 65. With such profound shifts in societal structures, demand for credit in Japan has fallen, while deposits have ballooned, cutting the loan-to-deposit ratio by an average of 1.0-1.5% per year and seriously affecting Japanese banks' traditional role as financial intermediaries. **These changes are also steadily eroding banks' net interest income, and the Japanese banking sector is therefore being forced to adapt its business model, focusing now on its remaining roles as a facilitator of financial transactions and a major holder of financial instruments , with banks charging fees in return for wealth management service (Figure 4).**

Figure 4: Impacts of the Aging of Society on the Japanese Banking Sector



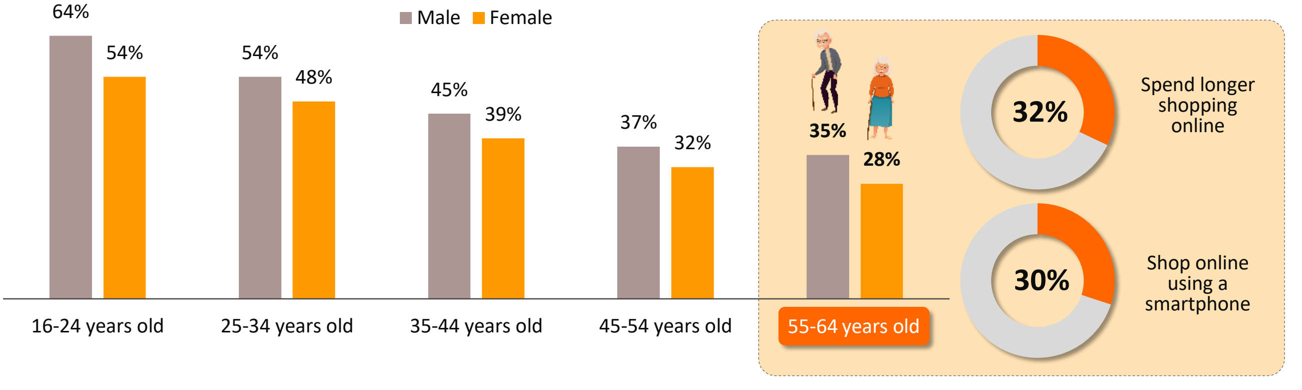
Source: IMF (2017), Krungsri Research

In the past, it was widely assumed that because the elderly tend not to be very open-minded about technological innovations, aged societies were sluggish and lacked dynamism. For example, Japan remains largely a cash-based society thanks to the extremely high proportion of the elderly within the general population. For these customers, adopting new payment methods is problematic, whether that is paying through QR codes or even simply using credit and debit cards that are ubiquitous in most western economies. **However, these views have undergone a sea-change in the last few months thanks to the spread of the SARS-CoV-2 virus and the need for people around the world to confine themselves to their**

3/ National Science and Technology Development Agency (2019) "The Silver Economy"

Homes as governments tried to slow the transmission of the pandemic. Because risks from infection escalate dramatically with age, this was particularly important for the elderly, who were then presented with a golden opportunity to become a little more open-minded and to experiment with new technologies that they may hitherto not have felt confident about using. Thus, the 'We Are Social' survey, which was carried out in April 2020 at the height of the first wave of Covid-19 infections among internet users aged 16-64 worldwide[4/], showed that in that month, internet usage increased among all age cohorts. The oldest age group surveyed were 55-64-year-olds, and around 30% of this group (35% of males and 28% of females) reported an increase in use of social media sites at this time. 32% of older internet users also reported spending longer on online shopping, while 30% used their mobile phones to make online purchases (Figure 5). The peculiar circumstances of the Covid-19 pandemic have thus encouraged older internet users to become more familiar with this technology, and this may open the way to much higher levels of technological adoption becoming the 'new normal'. In turn, this would help encourage bank customers to make more use of online services, and especially of internet and mobile banking, cutting costs for both banks and consumers.

Figure 5: Time Spent Using Social Media and Other Internet Services during the Covid-19 Pandemic, from the 'We Are Social' Survey, April 2020



Source: We Are Social (Apr 2020), Krungsri Research

It is clear that simultaneously transitioning to an aged and to a digital society presents both challenges and opportunities across many different parts of the economy, including the banking sector, but at this point in time, it is imperative that banks ask themselves how they should adjust their products and services to meet the demands of a new consumer environment that is greyer but more technologically rich.

Meeting the challenges of aging

In 2016, Age UK, the United Kingdom's leading charity for the elderly, produced a report on age-friendly banking that summarized relevant research from the UK and the US and outlined the problems typically encountered in providing services to the elderly. These included the following:

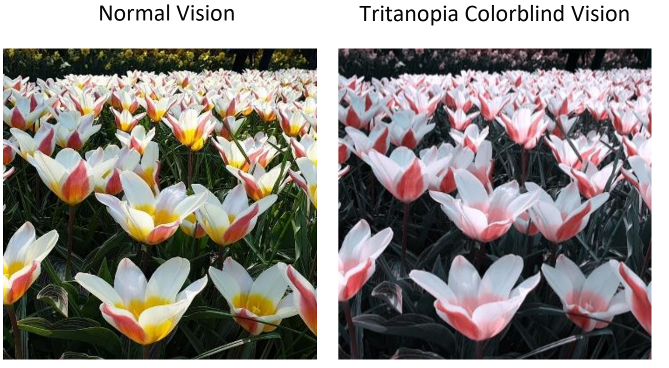
1) **The elderly may encounter physical problems as their bodies deteriorate, but 'the elderly' comprise a huge group that contains a correspondingly huge range of physical abilities.** In addition, because 'the elderly' may be defined as simply anyone over 60 or 65, this group covers a wide range of ages, from those in their early 60s, who may well be as fit and healthy as people decades younger, through to those approaching a century old, who may well have acute mobility problems or who may have lost the use of their senses, or have experienced cognitive decline and the loss of some memory functions. For example, it is often forgotten that the elderly have a greater tendency to experience colorblindness, especially from tritanopia (blue-yellow colorblindness) since this is more common in the over-75s[5/], and this then leads to many more problems for older bank customers when they attempt to navigate the customer journey. These types of problems underline the importance of adhering to the principles of universal design[6/].

2) **There is a great disparity in income and wealth among the elderly.** Research by Papusson Chaiwat and Sawarai Boonyamanond (2011) shows that in Thailand, the elderly are in fact the most unequal section of society and that this inequality is tending to increase over time. In addition, their research shows that the Thai elderly are also the worst educated group in the country and that most either have no or only low incomes, generally depending on support from the government or other family members.

4/ Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, New Zealand, the Philippines, Singapore, South Africa, Spain, the United Kingdom, and the United States.
5/ https://medium.com/@sarahalfiani204/ux-case-study-designing-mobile-banking-app-for-the-elderly-f51e25d0e4b3
6/ Universal design is concept that emphasizes the importance of designing (type, objects, the built environment, etc.) with the goal of allowing all members of society, including pregnant women, small children, people with disabilities, the elderly, etc. to enjoy the full use of designed objects and structures equally and without restriction, thus obviating the need to make any design changes or alterations for a particular person or group within society.

3) **The elderly may encounter problems with authentication.** Businesses that depend on access to sensitive information, including for example financial services, generally have strict measures that require individuals to confirm their identity before access is granted. This confirmation typically takes one or more of three different types; (i) knowledge, or ‘something you know’, such as a password, a date of birth, or an identity card number; (ii) a possession, or ‘something you have’, for example, an ID card or a driving license; and (iii) an inherence, or ‘something you are’ for example, biometric data such as fingerprints or face scans. For elderly bank consumers, confirming personal identity may be difficult when this depends on the first of these, that is ‘knowledge’, since it is relatively easy for older individuals to forget this type of information. This presents a problem in particular when accessing digital and financial services, when exactly this kind of data is often required.

Figure 6: Comparison of Normal and Tritanopia Colorblind Vision



Source: ColBlindor, Krungsri Research

4) **The elderly are often fearful of technology.** Research by Lancaster University (2018) that involved interviewing older consumers about their experience of using technology showed that the reason for this fear is that the elderly worry that when using technology, they will make mistakes and that this will have social consequences. Thus, instead of believing that technology will make their lives easier, older individuals often believe that technologies that make it simpler to find information in fact increase social pressure on the individual. For example, when buying an airline ticket, a website that compares ticket prices may make an older consumer feel pressured since she may feel that any purchase that she makes may be seen as a mistake and irrational with regard to the ticket price or the airline’s quality. Because of this, older consumers often feel more comfortable asking for the assistance of professionals, in this case going to a travel agent to buy an airline ticket instead of shopping online. In addition, though, older consumers are also more likely to have negative opinions of internet shopping and to feel that it takes income away from small businesses in the local community.

Figure 7: Challenges in Supplying Financial Services to the Elderly

Source: AgeUK (2016), Krungsri Research

Given the challenges outlined above, businesses across the economy will need to rethink how they offer goods and services that are targeted at the elderly, and this will include the financial services provided by banks. In establishing value propositions that are attractive to consumers, these problems will have to be considered and banks will need to develop products that provide gains to the elderly as well as relieving the pain-points that customers experience when navigating banking services.

In light of this, the next question to ask is ‘What benefits do the elderly look for when shopping for financial services?’

What are the elderly looking for in financial services? Expectations and reality overseas

Although as described above, within the elderly group, there is a wide range of differences with regard to individuals' physical abilities and the difficulties that they face in accessing banking services, the elderly still require financial services just as much as any other demographic group. Nevertheless, they do have requirements particular to the general circumstances of being retired or elderly.

Financial services for the elderly

Overseas, most elderly bank customers continue to use the financial services that they have used since they were much younger. A UK survey carried out in 2017 found that the majority of older consumers have maintained the life insurance policies that they had when they were working, that they still use the same bank accounts, **and that they use cash more than other types of payment.** The elderly are also generally able to manage their own finances and investments well, although most have not seriously compared the various financial services offered by different banks. However, when consumers age past 70, their ability to make sound financial decisions and to manage their money begins to become noticeably impaired.

Following on from this, financial services for the elderly should: (i) contain low risk; (ii) be transparent, simple, and easy to understand; (iii) establish a regular income for the elderly, providing in particular a steady monthly income (similar to a salary) to allow the elderly to manage their monthly expenditure in such a way that it has as little impact on their capital as possible; and (iv) not be age-limited, especially in the case of life and health insurance, which is often not available for the over-65s.

Moreover, many elderly fail to prepare detailed financial plans before they retire, and so offering advisory and consultation services to help with finances and investment portfolio management in advance of retirement will be very useful and will help to build financial security for individuals as they enter their retirement years.

Examples of financial products designed for the elderly that are available overseas:

1) **Low-risk saving and investment products**: These products should have both a low default risk (i.e. risk to capital) and a low liquidity risk because elderly investors/depositors may need access to a large amount of capital to pay for one-off expenses such as hospital care or to provide financial assistance to their relatives, and so long-term fixed deposits that impose a fee on savers who break the deposit conditions may not be particularly suitable for elderly consumers.

2) **Annuities:** These are a kind of long-term financial contract in the form of an insurance policy that holders pay into in regular installments and which then begins to pay out fixed installments when the policy holder reaches the certain age given in the original contract (most policies specify a minimum age of 55.) These are, therefore, really a means of buying a pension in advance of retirement. In some countries, including the US, policy holders can choose to make all their due payments in the form of a single lump-sum premium, which may be suitable for policy holders who, for example, receive a single payment from a provident fund or from a company pension fund on the day of their retirement. However, in Thailand, most annuities have to be paid in regular installments. It is interesting to note that annuities are an extremely old form of financial product, dating back at least until the third century of the common era[7/].

3) **Reverse mortgages**: These are seemingly a way of selling a house to a bank, while delaying the transfer of ownership. With a reverse mortgage, if an individual owns an unencumbered house, he or she may use this as security against a loan from a bank, which may be paid either in a lump sum or more often in regular monthly installments. When the owner of the house dies or when the period of the agreement terminates, ownership of the house will then transfer to the bank. This type of financial arrangement is therefore a way for those who own property but lack an income to generate one. However, to avoid legal problems with inheritances, the homeowner's family also need to sign a legal agreement consenting to the terms of the agreement.

Elderly consumers' customer experience

Elderly bank customers in other countries typically have a set of expectations relating to their experiences of using financial services that includes the following:

1) **The elderly like to use branch services**. Most elderly bank customers in Thailand and elsewhere prefer to visit a bricks-and-mortar bank branch when accessing financial services, and research by Jayachandran (2019) that looked at the experience of older bank customers in India showed that it was the interaction with bank staff that appealed to them, as well as the fact that in-branch services also allowed customers to benefit from personalized offerings. As a result, these customers exhibited a dis-preference for using online services, such as internet and mobile banking.

7/ Hald, Anders (2005). *A History of Probability and Statistics and Their Applications before 1750*. John Wiley & Sons. p. 608

2) **Branch design needs to be elder-friendly.** Because of the physical challenges that many older customers have, especially with mobility, banks need to assure elderly visitors to bank branches that their customer journey will face as few obstacles as possible. Thus, services should be accessible without customers having to ascend or descend stairs. There should be adequate wheelchair access, and sufficient comfortable and accessible seating should be available.

3) **Technology needs to be safe and easy to use** because, as described above, the elderly are often fairly reticent about using new technology. Indeed, research by Touchaie and Hashim (2018) into the attitudes of elderly Malaysians shows that they actively oppose the use of new innovations for making financial transactions, which then slows uptake of internet and mobile banking. However, if older consumers have to use these applications, important factors in their favor are ease of use and well-designed user interfaces (UIs) that take into account the impaired vision and problems with fine motor control that many older consumers have to contend with. Elderly users of internet and mobile banking are also often worried about the safety of carrying out financial transactions on these apps and so it is imperative that banks ensure that app UIs and customers' user experiences (UX) take account of these factors.

4) **Staff should be sympathetic to the needs of the elderly.** When they are interacting with older customers, bank staff should be calm and patient since physical and cognitive decline can make a trip to the bank a more prolonged, confusing and tiring affair. Meanwhile, communication, whether printed or spoken, should always be clear and succinct. Staff should also act with great care when discussing sensitive matters with aged customers, for example, when dealing with the accounts of a deceased partner.

Nevertheless, the experience in other countries of banking services for the elderly shows that these are generally still deficient in two regards.

1) **The range of financial products available is somewhat limited and lacks variety, and these thus fail to respond adequately to the wide range of needs that exist within the elderly market segment.** For example, deposit or investment facilities for older consumers tend to offer similar rates of interest and to impose similar conditions and so they fail to meet the demands of aged savers and investors who have different needs with regard to the balance between returns on investments, risk, and liquidity. In many countries, different types of savings accounts for the elderly also often specify a minimum balance that needs to be maintained if the account holder wishes to avoid bank charges, and this tends to limit the appeal of these products to only those savers who are relatively wealthy.

2) **In terms of both the number of products available and the built infrastructure of bank branches, supply has not responded fully to the needs of the market.** In many countries, only a few banks have released financial products that are designed specifically for the elderly and in many cases, these impose age limits that restrict their applicability, while with regard to the built environment, designing bank branches that are age-friendly has in many societies sadly yet to become the norm.

What are age-friendly bank branches like?

Both Age UK and the Annual Report on Financing Old Age Care in China (2017) have laid out the general characteristics of how financial services should best be supplied to the elderly.

1. **Banking services should be inclusive.** Banks should offer a full range of services to the elderly, without regard to their age, their income or their asset base. This is especially important in countries where social security payments for the aged are weak or inadequate, since in these countries, financial institutions may have a greater role to play in helping to improve the standard of living of older members of society. Banks should also provide high-quality services to elderly customers who are both new to the bank and long-term account holders, and they should develop their systems and services for customers of all ages so that they are able to plan their retirement investments in good time.

2. **Bank should have long-term stability.** Since it is often the case that investments made at banks by the elderly are long-term projects that will stretch over many decades, financial institutions should therefore treat the monies held in deposit or investment accounts appropriately, managing risk in a way that allows them to serve their clients and to meet their needs as fully as possible over these extended time horizons.

3. **Financial products should contain low risk.** This is because income from investments or savings may be an older individual's main source of income. These types of products should therefore carry a low risk of default, while also being reasonably liquid in case the account holder or investor wishes to withdraw a lump sum, for example to spend on medical care or to help another family member. Financial institutions should also ensure that the elderly are not exposed to the risk of fraud or to financial exploitation.

Table 1: Summary of Age-Friendly Banking

Product	Customer Touchpoint	System	Service
• Remove age limits on the purchase of financial products. • Design financial products that meet the needs of customers in each age cohort.	• Design bank branches so that elderly customers can access bank services without hinderance. • Prepare other channels through which services can be accessed in case an emergency arises and customers are unable to access branch services. • Establish customer touchpoints at ATM booths and through call center, internet and mobile banking, that are available to all customers, although their ability to access these services may vary. • Prepare staff as expert advisors who are able to help customers when the latter have problems accessing bank services. • Provide information to all customers about accessibility options and do not wait until asked about this by individuals.	• Increase data security wherever and whenever customers contact the bank. • Design systems to take account of the needs of the elderly. • Increase trust by developing a range of different channels through which financial transactions can be conducted and customers can contact bank staff.	• Train and educate bank staff so that they can respond to the needs of older customers. • Listen to elderly customers to understand their needs and respond to these in a timely fashion. • Build confidence that front-line staff have the support and are sufficiently empowered to respond to requests from elderly customers, even though these may differ significantly from those of younger individuals. Staff should also be able to deal with situations where there is some risk that a customer may be the victim of fraud or financial abuse, as well as being able to deal delicately and sympathetically with customers affected by cognitive decline.

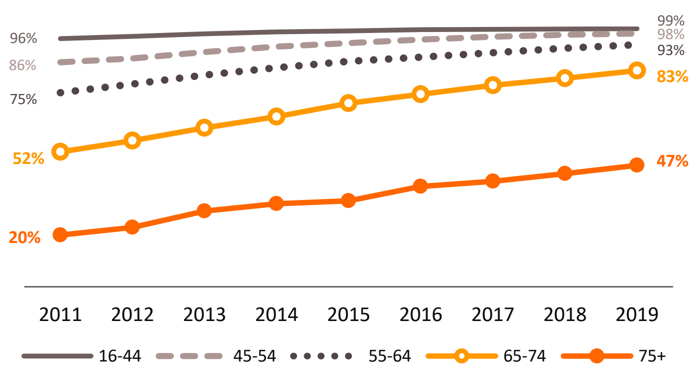
Source: AgeUK (2016), Dong, Keyong and Yudong Yao (2017), Krungsri Research

The elderly and banking technology post-Covid-19

As described above, older consumers are often less eager to take up new technology, and with regard to banking they still tend to rely on in-branch services. **However, older consumers worldwide are steadily increasing their consumption of internet services.** For example, in Britain, in 2011, only 52% of 65-74 year-olds and 20% of the over-75s used the internet, but by 2019, this had increased to around two-thirds. Meanwhile, in the United States the elderly represent an important market segment for the provision of internet and mobile banking, and banks should therefore devote their attention to this group as much as to younger bank customers. **Research by Javeline Strategy & Research (2019) shows that in fact, some two-thirds of US baby boomers[8/] use online banking services, which is close to the uptake rates of Gen Y[9/] customers.**

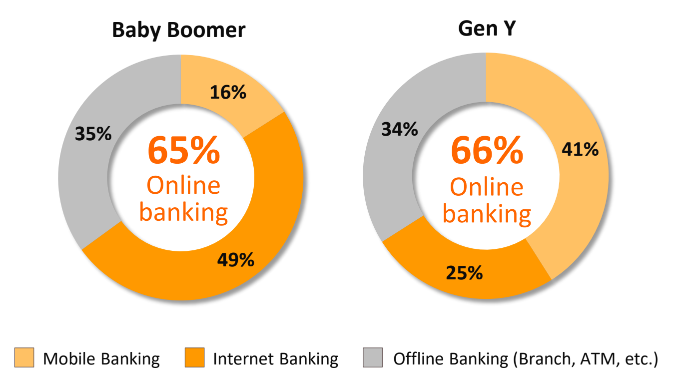
Beyond these general trends, uptake of internet-delivered services has been greatly accelerated by the outbreak of Covid-19 and the subsequent lockdowns that were enforced through the first and second quarters of 2020 in many countries, including in China, Italy, Spain, France, the UK and individual cities in the US. Because age is closely correlated with the risk of severe complications and death from Covid-19, it was particularly important that the elderly were confined to their homes during this period, and so millions of elderly citizens suddenly found it necessary to use new technologies to meet the challenges of living under lockdown. In China, 17% of the population are over 60, and in and around Hubei Province, the epicenter of the

Figure 8: Percentage of the UK Population who use the Internet, by Age Cohort (%)



Source: UK Office of National Statistics, Krungsri Research

Figure 9: Use of Electronic Banking Services by Baby Boomers and Gen Y in the US



Source: Javeline Strategy & Research, Krungsri Research

8/ Individuals born between 1946 and 1964, who are now aged 56-74 years old.
9/ Individuals born between 1980 and 1996, who are now aged 24-40 years old.

original outbreak, old citizens were under strict orders not to leave their homes for an extended period of time, forcing them to use new technology to carry on with normal day-to-day activities such as grocery shopping, paying bills, purchasing necessities and even communicating with friends and family. With the elderly having to become adept at using these products in just a few weeks, service providers saw a huge jump in usage rates. Thus, the Chinese tech giant Alibaba, which is also the owner of Taobao, China's leading e-marketplace platform, reports that **over the most recent Chinese New Year, when rates of infection with Covid-19 were rising sharply in China, sales of consumer goods to the elderly made through Alibaba exploded four-fold compared to a year earlier.** In a similar vein, Miss Fresh, another major Chinese online retailer of consumer goods, revealed that during the lockdown, the number of users of its app aged over 40 jumped by 237%, encouraging Miss Fresh to put in place plans to develop goods and services that are targeted at this group of older consumers. This is a route that Alibaba is also taking, having announced that the company will release a new version of the Taobao app that is more age-friendly.

The Covid-19 pandemic has had similar effects on the use of online banking services, which has increased dramatically in the disease's wake. The Bank of Thailand reports that use of the PromptPay e-payment system rose steeply in April 2020, hitting an average of 16 million transactions per day compared with 11 million in March. **Overseas, uptake of e-banking services by the elderly has also sped up this year, and the Bank of America states that in the US in April 2020, over 23% of new applications to use online banking services came from the elderly and Baby Boomers**, who also account for 20% of bank customers who tried out facilities to make deposits of checks through a smartphone app for the first time in this period. Meanwhile, in Singapore, where rates of technological uptake were already high prior to the Covid-19 pandemic, there was a 20% increase in the number of online financial transactions made by 60-80 year-olds in April 2020 compared to April 2019, and these developments prompted the Chair of Merrill Lynch Wealth Management Advisors to state that **use of consumer banking technology during a 6-week period when the spread of Covid-19 looked particularly dangerous was at a level that in normal times would have taken 6 years to achieve** [10/].

Nevertheless, despite these changes, older users often still remain somewhat resistant to technology, and this includes banking technology. Research by Arenas-Gaitán et al (2015) looked at how and why the elderly remain unwilling to use internet banking services, and their work shows that **older consumers may see the internet as unconnected to their normal daily activities, while the aged often also lack any stimulus in their immediate environment that encourages them to experiment more deeply with internet banking. However, the major factor determining use of internet banking by the elderly is simply habit, although also important are Performance Expectancy and Effort Expectancy.** In light of this, when trying to establish usage habits among the elderly, banks should attempt to reduce the perceived risks associated with the use of online financial applications, while also communicating to this group the advantages that accrue from carrying out financial transactions online. Banks could also experiment with marketing ploys that are often popular with older consumers, such as running competitions, offering prizes and discounts, and arranging free cultural trips as a way of raising performance expectations. In addition, financial institutions also need to ensure that the use of their technology is as simple and straightforward as possible, while Jayaratne et al (2017) have shown that there is a cross-influence between use of technology generally and use of mobile banking in particular, with individuals who are generally familiar with modern technology seeing mobile banking as being easier and more useful than do those who tend to shy away from technology.

There is a well-known saying that 'in the midst of every crisis, lies great opportunity' and despite the scars that the Covid-19 pandemic has left on the economy and the disruption that it has caused to daily life, it has also had the benefit of encouraging huge numbers of people to experiment with new technologies, with this especially true for the elderly. This juncture thus represents a golden opportunity for banks to further encourage older customers, who hitherto would have been much more hesitant and resistant to technology, to adopt mobile and internet banking more fully.

Older Thais and technology: The new normal

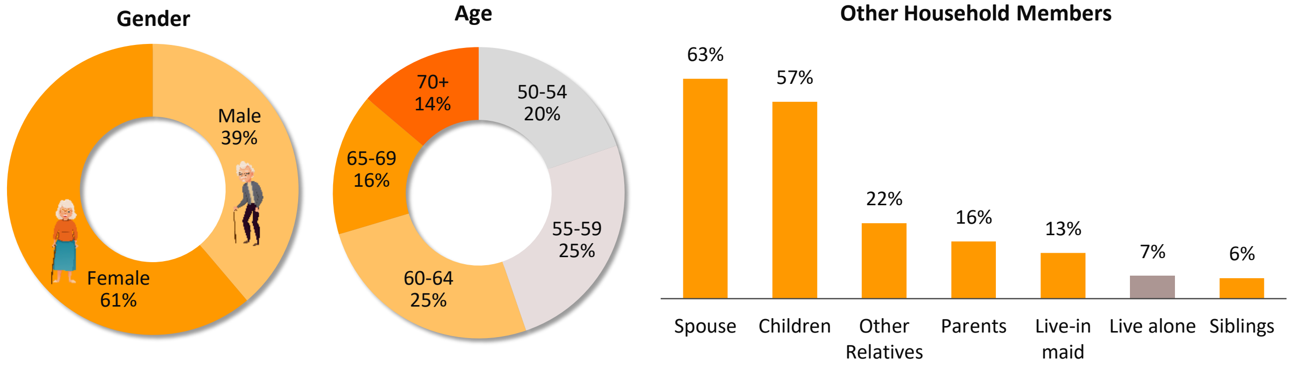
To better understand the needs of those approaching retirement age and those already retired, Krungsri Research carried out an internet survey of 152 individuals aged 50 or over between June 10 and July 16, 2020 (a period following the worst of the Covid-19 pandemic). The survey sought information in 3 different areas: (i) general information on the respondent's sex, age, sources of income, expenditure and household status; (ii) information on their use of technology and take up of mobile banking services; and (iii) the individual's self-assessed perception of their physical abilities and of other factors that promote or hinder use of mobile banking services, relative to others in their age cohort.

61% of respondents were female and almost half (45%) were in the 50-59 age bracket and were thus preparing for their retirement. Almost all of the remainder were in the 'young old' (or 'yold') category[11/], with only 4 respondents aged over 75 (3% of the total). Almost all (93%) lived with other family members, who were generally members of their immediate family; 63% lived with a partner and 57% lived with their children.

10/ https://www.bloomberg.com/news/articles/2020-05-31/older-crowd-embraces-online-banking-rewards-firms-digital-push

11/ The 'young old' (also called the 'yold') are those individuals who have recently entered the category of 'elderly' but who are still physically fit and have not suffered any cognitive decline. In Japan, the 'young old' are defined as those aged between 65, when most of the elderly begin to draw a pension, and 74. In Thailand, there is no such official definition. Here, Krungsri Research defines the young old as those aged 60-69, when Thais are first able to claim pensions and to receive old-age state payments.

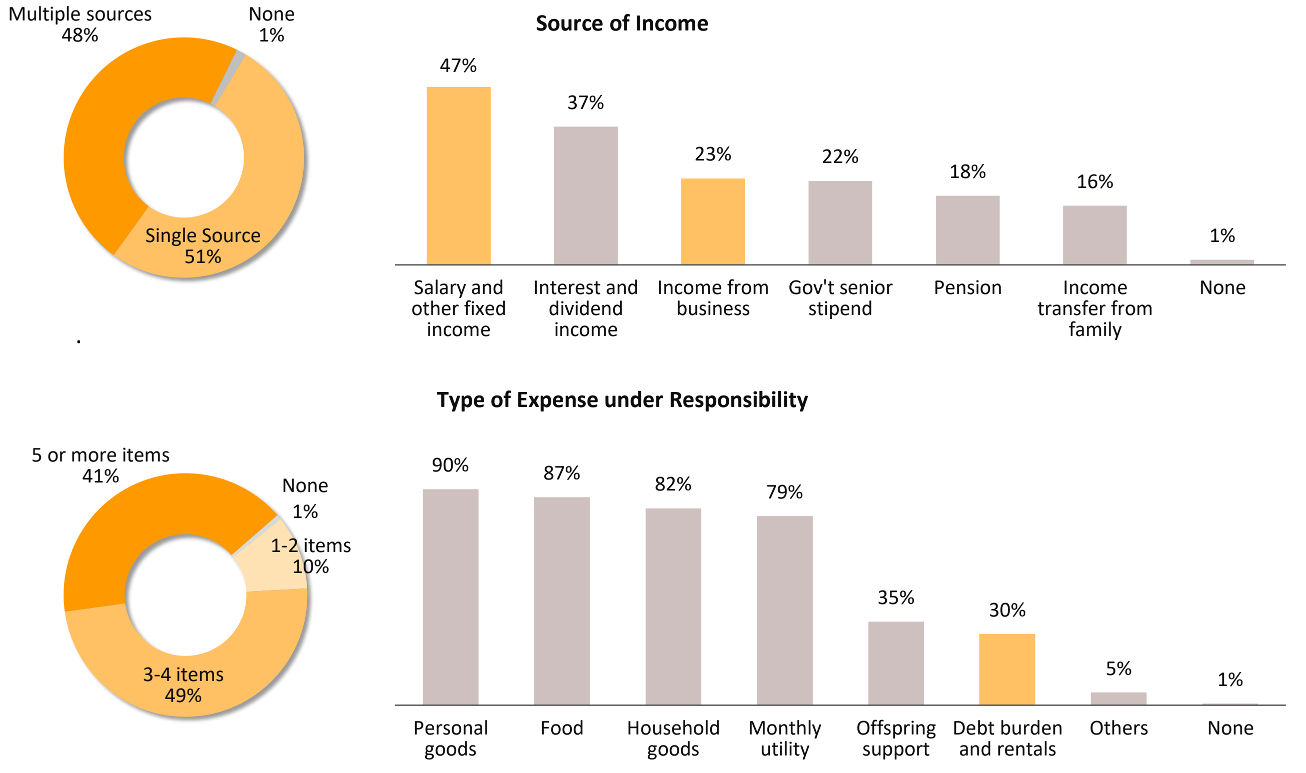
Figure 10: General Information Relating to Survey Respondents



Source: Krungsri Research

With regard to finances, 99% of respondents had an income but for over half, this came from a single source. For 70% this came from an active source, such as a salary, allowances for attending meetings or income from businesses, while 37% had a passive income, for example money from interest on savings, dividend payments or rental income. 41% received income from the state in the form of pensions or other old-age payments but only 16% received money from other family members, such as their children or partners. **Most respondents were also still responsible for a significant level of expenditure and 41% had more than 5 regular monthly expenses, while 35% still supported their children financially.**

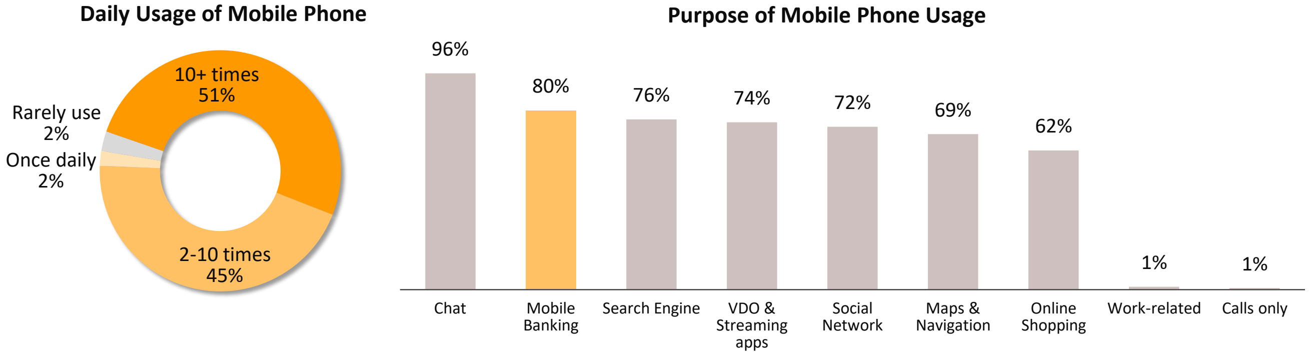
Figure 11: Respondents' Income and Expenditure



Source: Krungsri Research

Respondents reported relatively high levels of familiarity with technology and in particular with modern digital appliances such as mobile phones, though this might be because the survey was administered via the internet and this may have skewed the sample group towards those who have a higher than average degree of digital literacy. Nevertheless, 95% of respondents used their smartphones 'often' (2-10 times per day) or 'very often' (more than 10 times per day). These were most often used for communicating, for example through a messaging application such as Line (96%), or to use a social media network or follow the news (70%). Entertainment providers such as video and streaming services were also used often (74%), and these were closely followed in popularity by search engines and navigation services (73% and 66%, respectively). **It is interesting to note that over 80% of respondents also used mobile banking services.**

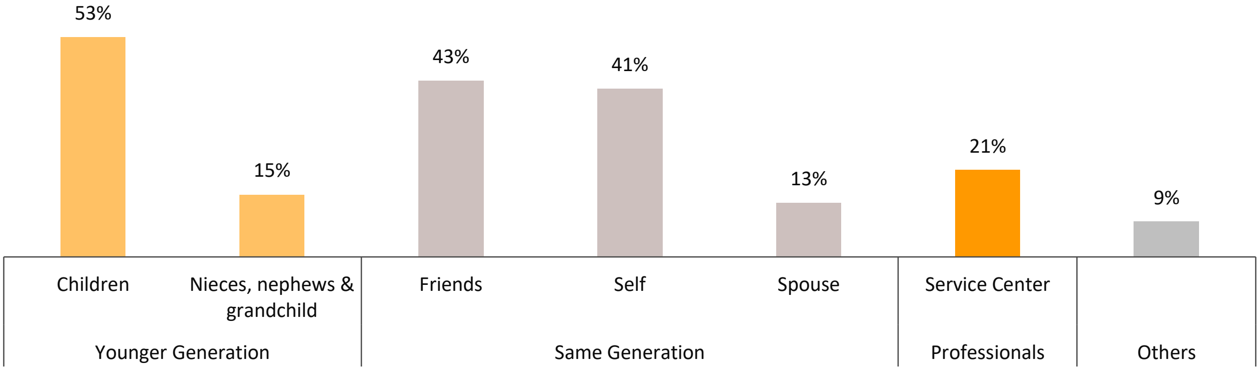
Figure 12: Respondents' Use of Mobile Technology



Source: Krungsri Research

When they encounter problems with their smartphones, over half of respondents said that they will look to their children and other younger relatives for help, since younger generations are generally more technologically competent. 'Helpers' in their own age group, such as friends and partners, were less commonly sought, and only 21% of those asked said that when experiencing a problem, they would seek the help of a professional, for example in a service center. **On the other hand, 41% said that when attempting to solve problems with technology, they will try to do so themselves by looking for information on the internet.**

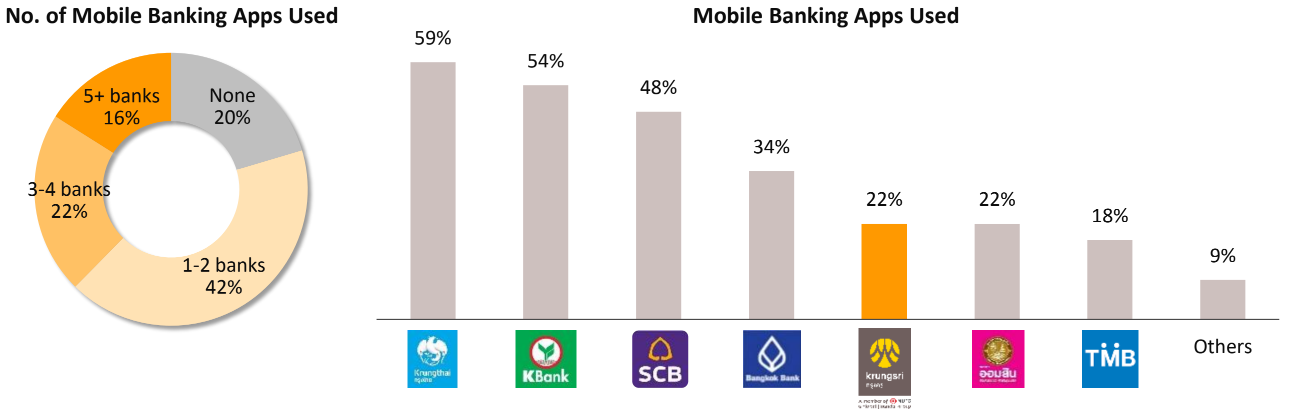
Figure 13: Sources of Help Sought by the Aged when Encountering Problems with Smartphones



Source: Krungsri Research

Most of those surveyed reported using the mobile banking apps of only a few banks, and so 42% used apps produced by only 1-2 banks and a further 22% used those of 3-4 banks. This might be explained by the fact that banks' mobile banking apps all differ from one another quite significantly and because each has a unique UI that users need to become familiar with, this presents something of a challenge to some older users, especially those affected by some kind of cognitive decline. Nevertheless, it is noteworthy that 16% of respondents used 5 or more different mobile banking apps, though this group is mostly in the pre-retirement and yold age bands, and these users reported being confident about using technology. **Of the 80% of respondents who used mobile banking apps, over half used Krung Thai Bank's Krungthai NEXT and/or Kasikorn Bank's K+ apps.** This was followed in popularity by Siam Commercial Bank's SCB Easy app (48%) and Bangkok Bank's Bualuang M app (34%), and only 22% used Krungsri's KMA app, close to the rate for the Government Savings Bank's MyMo app.

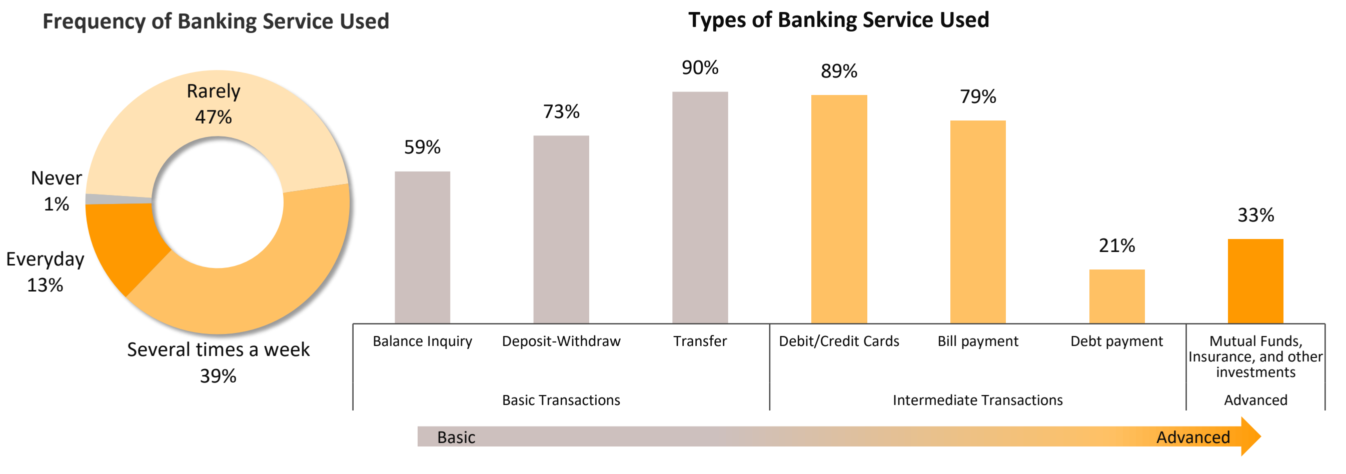
Figure 14: Usage of Mobile Banking Apps



Source: Krungsri Research

In terms of the types of services that older bank customers accessed, when making in-branch visits and using online apps, respondents tended to carry out only basic transactions (e.g. transferring money, making deposits and withdrawals, and checking balances) **or ones of mid-level complexity** (e.g. managing credit and debit cards and paying service fees). Only a third of respondents carried out more complex transactions, such as managing investments and buying insurance.

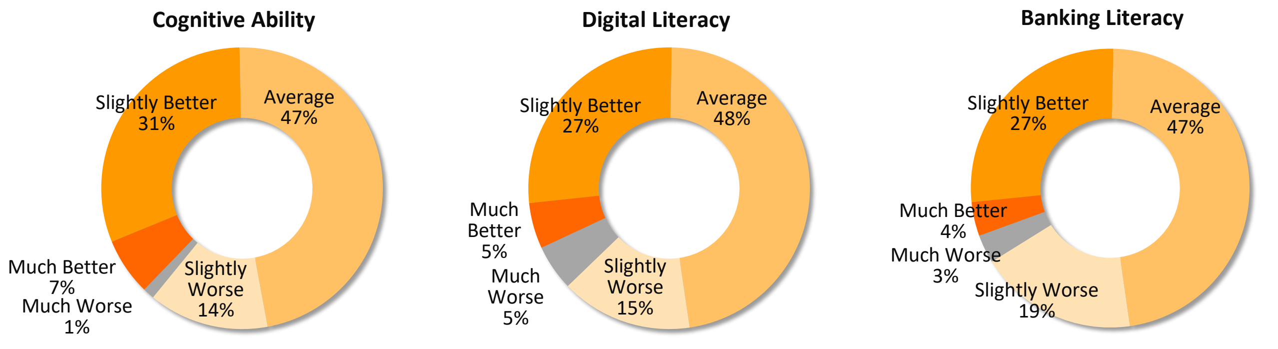
Figure 15: Types and Frequency of Banking Services Used



Source: Krungsri Research

When asked to make a judgement about their own cognitive abilities and their digital and banking literacy relative to their peers, respondents' answers tended to follow a similar pattern, and **almost half responded that for each of these three categories, their abilities/literacy were 'average' relative to others of the same age**, while around a third thought that they were better or much better and around a sixth believed that they were worse than their contemporaries. Answers for these three different questions were in fact correlated with each other: digital literacy and banking literacy had a correlation coefficient of 0.73; cognitive abilities and digital literacy had a correlation coefficient of 0.64; and cognitive abilities and banking literacy had a correlation coefficient of 0.49. **Thus, when older consumers have a high degree of understanding of banking services and products, there is a strong possibility that they will also have greater trust in technology, but the impact of higher cognitive abilities on other factors is less strong.**

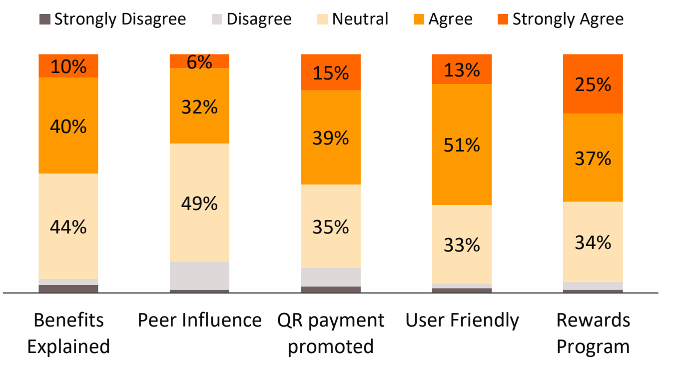
Figure 16: Self-Assessed Abilities of Survey Respondents Relative to same Age Cohort



Source: Krungsri Research

Among the factors likely to encourage elderly savers to use a mobile banking app, ease-of-use and the extent to which the app was user-friendly, for example in using straightforward language and in being designed with large, easy-to-read type, was cited as the most important. Indeed, 63% of respondents agreed with the statement that this would increase their interest in mobile banking. This was followed in importance by the possibility of collecting points for using a mobile banking app that could then be exchanged for prizes or gifts, much as happens with credit cards (62%) and being able to pay for shop purchases by scanning a QR code with a smartphone (55%). Only around half thought that having someone explain the benefits of mobile banking would act as a strong encouragement, whether that was a member of the bank's staff or a family member, and in fact, the influence of those in a person's immediate environment was judged to be the least important factor in encouraging the use of a mobile banking app, which is in keeping with the findings of Arenas-Gaitán et al (2015), as described above.

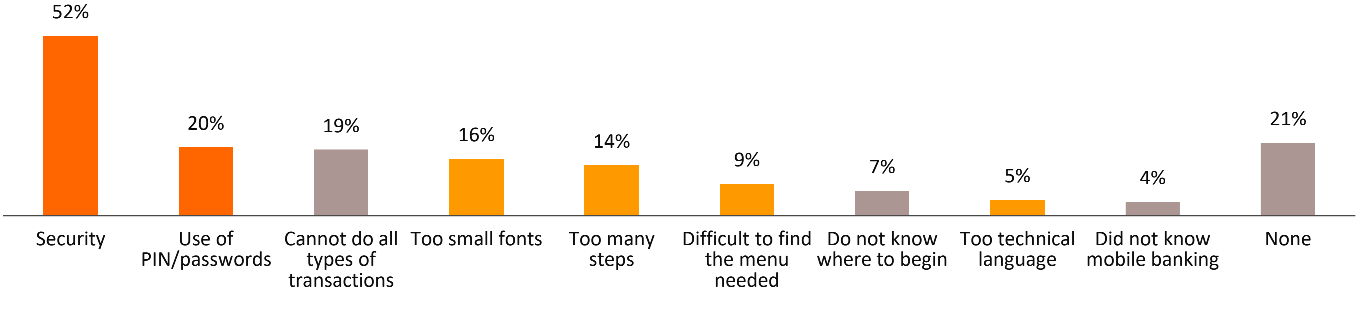
Figure 17: Factors Affecting Uptake of Mobile Banking Services



Source: Krungsri Research

On the other hand, the biggest factor discouraging the use of mobile banking by the elderly was the fears over security and safety. More than half of the survey respondents were concerned that mobile banking was not safe enough in terms of the system security and the risk of scams and frauds. In addition, about one-fifth of the elderly were not keen on using PIN or password, while other factors involved usability issue such as too small type (16%), too complicated and too many steps (14%) and complicated menus (9%). Personal factors such as not knowing how to begin (7%) and too technical language (5%) also played a discouraging role. Nonetheless, **it is worth noting that 19% of the survey respondents found that the limited range of financial transactions that were available through mobile banking was a big hindrance**. This group of elders uses more than one mobile banking apps, so they demonstrate a good level of banking and digital literacy, hence the relatively more complex needs.

Figure 18: Factors Tending to Reduce Uptake of Mobile Banking Services



Source: Krungsri Research

In conclusion, most of the respondents to the Krungsri Research survey lived with other family members, still had an income and were responsible for regular monthly expenditure. Technologies such as smartphones were not new to them, and in fact, mobile phones were routinely used by this group. As regards mobile banking, four-fifths of respondents already used one or more mobile banking apps but despite this, use of these was still somewhat problematic, and respondents said that they were worried about issues such as security and user interfaces that were not age-friendly. If these problems are to be overcome, they need to be tackled head on by increasing network security and redesigning UIs, as well as indirectly by having other agents encourage the elderly to increase their use of mobile banking services.

Krungsri Research view: Providing Banking Services to the Elderly in the Digital Era

Although global demographic changes are causing societies around the world to age, this process is particularly evident in Thailand, and in only a few years, the country will officially become an 'aged society'. Despite this, the elderly has often been left behind in the rush to adopt new technologies. **However, since the start of 2020 and as an unanticipated consequence of the Covid-19 pandemic, people across society, the old as much as the young, have had to become much more closely acquainted with technology as they sought to maintain some semblance of normality through the lockdown. Because of this, Krungsri Research believes that the current moment is a golden opportunity to encourage the elderly to ramp up their use of online banking services.**

The survey shows that the most significant hurdle in the way of persuading more elderly consumers to take up mobile banking apps is the need to build greater confidence and trust in digital devices such as smartphones and in the ability of IT systems to guarantee customers' data security. The latter is a particular problem since the aged often have different views about the safety of virtual, disembodied information, which is viewed with more suspicion than data arising from transactions carried out in person in a physical branch. In addition, other changes to security systems that are used to confirm user identities that do not require older users to remember a password or some other piece of information will help to make using mobile banking services easier and more convenient for older users. These changes might thus involve moving relying on 'knowledge' to using a combination of 'an inheritance' and 'a possession' to facilitate two-factor authentication.

Another important factor that makes many older users feel uncomfortable about using mobile banking apps are their complex, hard-to-use user interfaces, their small type and their complex language. This stands somewhat in contrast to the typical banking activities carried out by most older bank customers, who tend generally to be interested in using only basic banking services, such as transferring money, paying bills and depositing and withdrawing money. **Mobile banking apps should therefore address this pain-point by offering a stripped-down UI for the elderly alongside the standard UI. Beyond this, the app designed for older users might include a game, such as a puzzle that helped older players maintain their cognitive abilities, or some type of banking gamification that would encourage users to engage in activities that were related to the bank's financial products and services in return for prizes.** Including games such as this in the app would in addition to helping users build their cognitive abilities, also help to sustain the engagement rates of older customers.

However, this alone will not be sufficient for banks that wish to support greater use of technology by the elderly and banks will especially need to prepare staff who will be in the frontline of providing advice and support to older customers. To this end, banks might set up a 'virtual branch' that can be accessed through the mobile banking app's UI specifically designed for use by the elderly. This could then be used to provide help to older app users, connecting them to support staff through a video call and allowing bank staff to give advice or to allay users' fears, though in cases where the problem was too complex to be solved remotely, users would need to visit a branch and so staff there should be trained in how to give advice to the elderly, how to respond to their questions calmly and appropriately, and how to deal with the physical impairments that often affect older people.

If these goals are pursued wholeheartedly, banks will be able to use online channels to deliver financial services to customers in all demographic groups without regard to their age, and to do so efficiently and cost-effectively, while also ensuring that nobody is left behind in the rush to adopt new technology.

Reference

AgeUK (Apr 2016) *Age-friendly banking: What it is and how you do it* Web. Retrieved May 15, 2020 from https://www.ageuk.org.uk/

Beade, Anne (Aug 21, 2019) "In high-tech Japan, cash remains king, defying mobile payment" *Japan Times* Web. Retrieved May 20, 2020 from https://www.japantimes.co.jp/

Cocheo, Steve (May 20, 2020) "How to Keep Seniors Coming to Digital Banking After America Reopens" *The Financial Brand* Web. Retrieved July 22, 2020 from https://thefinancialbrand.com/

Dong, Keyong and Yudong Yao (2017) *Annual Report on Financing Old Age Care in China* Singapore: Springer

Donohue, Steven (2019) "Banking and The Impending Baby Boomer Crisis" *The Financial Brand* Web. Retrieved June 4, 2020 from https://thefinancialbrand.com/

Fan, Yiying (Mar 12, 2020) "How COVID-19 Sparked a Silver Tech Revolution in China" *Sixth Tone* Web. Retrieved May 2, 2020 from https://www.sixthtone.com/

Faridi, Omar (April 26, 2020) "Digital Banking: Senior Citizens in Singapore are Increasingly Using Online-only Banks Due to COVID-19 Outbreak" *Crowd Fund Insider* Web. Retrieved May 20, 2020 from https://www.crowdfundinsider.com/

Hald, Anders (2005). *A History of Probability and Statistics and Their Applications before 1750*. John Wiley & Sons. p. 608

Hattingh, Marié, Machdel Matthee, Hanlie Smuts, Ilias Pappas, Yogesh K. Dwivedi, and Matti Mäntymäki (Mar 10, 2020) "Enablers and Barriers for Mobile Commerce and Banking Services Among the Elderly in Developing Countries: A Systematic Review" *Responsible Design, Implementation and Use of Information and Communication Technology*; 12067: 319–330.

International Monetary Fund (July 2017) "Japan: Financial System Stability Assessment" *IMF Country Report* Web. Retrieved June 4, 2020 from https://www.imf.org/

Javeline Strategy & Research (Mar 14, 2019) *Baby Boomers are an Overlooked Opportunity for Digital Banking* [Press Release] Retrieved June 4, 2020 from https://www.javelinstrategy.com/

Jayaratne, M.G.S.D.N., Maria Ryan, and Helen Cripps (2017) "Mobile banking adoption by senior citizens in Perth" *The Proceedings of 2nd Business Doctoral and Emerging Scholars Conference* Web. Retrieved May 30, 2020 from https://www.ecu.edu.au/

Kapook.com (Aug 8, 2018) "คัด 4 บัญชีเงินฝากผู้สูงอายุ 2562 ธนาคารไหนให้ดอกเบี้ยสูงสุด" *Kapook Money* Web. Retrieved May 15, 2020 from https://money.kapook.com/

Klebnikov, Sergei (Apr 11, 2019) "This Is the Best Bank for Seniors — with Fraud Protection, Great Rates, and Tons of Branches" *Money.com* Retrieved May 15, 2020 from https://money.com/best-banks-for-seniors/

Lancaster University (Mar 12, 2018) "Why some older people are rejecting digital technologies" *ScienceDaily* Web. Retrieved May 22, 2020 from https://www.sciencedaily.com/

Marous, Jim (May 18, 2020) "COVID-19 Has Changed Banking and Payments Behavior Forever" *The Financial Brand* Web. Retrieved May 26, 2020 from https://thefinancialbrand.com

National Community Reinvestment Coalition (Nov 2017) "Guide to Age-Friendly Banking Products, Services, Protections, and Resources for Older Adults" *National Neighbors Silver* Web. Retrieved May 27, 2020 from https://ncrc.org/

Nguyen, Lananh (May 31, 2020) "Older Crowd Embraces Online Banking, Rewards Firms' Digital Push" *Bloomberg* Web. Retrieved June 1, 2020 from https://www.bloomberg.com

Sirintip (May 3, 2011) "เรื่องน่ารู้ Universal Design: การออกแบบเพื่อคนทั้งมวล" *เพื่อนสร้างสุขภาวะ: เรื่องเล่าภาคี* Web. Retrieved May 25, 2020 from https://www.thaihealth.or.th

SME Development Bank (Jan 9, 2018) "โดนใจวัยเก๋า ธพว. คลอดสินเชื่อเพื่อผู้สูงอายุ เปิดโอกาสสร้างอาชีพก่อประโยชน์เศรษฐกิจคู่สังคม" *ข่าวสารธนาคาร* Web. Retreived June 15, 2020 from https://www.smebank.co.th/

Srividya P N (May 3, 2018) "Making banking a delight for the elderly" *EdgeVerve* [Blog Post] Retrieved May 25, 2020 from https://www.edgeverve.com/

Thanawala, Hiral (Aug 21, 2019) "How the elderly can bank smoothly without visiting a branch" *Money Control* Web. Retrieved May 25, 2020 from https://www.moneycontrol.com/

Tynan, Kevin (May 2, 2016) "Banks' Neglect of Seniors in Digital Push is Shortsighted" American Banker Web. Retrieved June 8, 2020 from https://www.americanbanker.com

Zhang, Liping (Jan 31, 2018) "Taobao Hopes to Charm Seniors With Large Print" Sixth Tone Web. Retrieved May 2, 2020 from https://www.sixthtone.com/

กรมกิจการผู้สูงอายุ (2015) สถานการณ์และแนวโน้มสังคมผู้สูงอายุไทย พ.ศ. 2556 – 2573 Web. Retrieved May 20, 2020 from http://www.dop.go.th

จารีย์ ปิ่นทอง, ธนภรณ์ จิตตินันทน์, ปภัสสร แสวงสุขสันต์, และ ณัคนางค์ กุลนาถศิริ (July 2018) "สังคมสูงวัยกับความท้าทายของตลาดแรงงานไทย" โครงการศึกษาด้านโครงสร้างเศรษฐกิจไทยที่มีนัยต่อการดำเนินนโยบาย สายนโยบายการเงิน ธนาคารแห่งประเทศไทย Web. Retrieved May 15, 2020 from https://www.bot.or.th

ดร.ศิริศักดิ์ เชยคำแหง (2017) "ธนาคารเพื่อคนสูงวัยในอนาคตจะหน้าตาเป็นอย่างไร?" SCB X The Creators Web. Web. Retrieved May 15, 2020 from https://www.scb.co.th/

ผู้จัดการออนไลน์ (May 29, 2020) โควิด หนุน e-payment พุ่ง "พร้อมเพย์" ฮอทสุด Web. Retrieved June 2, 2020 from https://mgronline.com/

ศูนย์ข้อมูลอสังหาริมทรัพย์ (June 4, 2019) "ธอส. ปล่อยสินเชื่อผู้สูงอายุ" ข่าวนโยบายการเงิน-การคลัง Web. Retrieved June 15, 2020 from https://www.reic.or.th/

สวรัย บุณยมานนท์ และ ปภัศร ชัยวัฒน์ (2010) "การวิเคราะห์ความสัมพันธ์ระหว่างการเปลี่ยนแปลงโครงสร้างประชากรกับความเหลื่อมล้ำทางรายได้ในประเทศ" สำนักงานกองทุนสนับสนุนการวิจัย Web. Retrieved May 22, 2020 from https://elibrary.trf.or.th/

สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ กระทรวงวิทยาศาสตร์และเทคโนโลยี (Mar 18, 2019) "Silver Economy เศรษฐกิจผู้สูงวัย" Science & Technology Book Series Web. Retrieved May 20, 2020 from https://waa.inter.nstda.or.th/

KRUNGSRI RESEARCH

Somprawin Manprasert, Ph.D.	**Head of Research Division and Chief Economist**
Phornphan Phoksuphat	Head of Macroeconomic and Industry Research

Macroeconomic Team

• Sujit Chaivichayachat	Head of Macroeconomic Research
• Chamadanai Marknual, Ph.D.	Senior Economist
• Churailuk Pholsri	Senior Economist (Forecasting)
• Soison Lohsuwannakul	Senior Economist (Regional Economy)
• Sathit Talaengsatya	Senior Economist (Regional Economy)

Industry Team

• Sarun Sunansathaporn	Head of Industry Research
• Taned Mahattanalai	Senior Analyst (Construction Contractors)
• Poonsuk Ninkitsaranont	Senior Analyst (Healthcare, Mobile Operators)
• Piyanuch Sathapongpakdee	Senior Analyst (Transport & Logistics)
• Narin Tunpaiboon	Senior Analyst (Power Generation, Modern Trade, Chemicals, Medical Devices)
• Puttachard Lunkam	Analyst (Hotels, Construction Materials, Industrial Estate)
• Wanna Yongpisanphob	Analyst (Automobile, Electronics & Electrical Appliances, Food & Beverages)
• Patchara Klinchuanchun	Analyst (Real Estate)
• Chaiwat Sowcharoensuk	Analyst (Agriculture)
• Aphinya Khanunthong	Analyst (Energy, Petrochemicals)

Intelligence Team

• Pimnara Hirankasi, Ph.D.	Senior Analyst
• Talublugkhana Thanadhidhasuwanna	Senior Analyst (Financial Sectors)
• Punjaphut Prasitdechsakul	Senior Analyst
• Rachot Leingchan	Analyst
• Arpakorn Nopparattayaporn	Analyst
• Chutipha Klungjaturavet	Analyst

MIS and Reporting Team

• Suratchanee Somprasong	Administrator
• Thamon Sernsuksakul	Administrator
• Chirdsak Srichaiton	MIS Officer
• Wongsagon Keawuttung	MIS Officer

For research subscription, contact ***krungsri.research@krungsri.com***