SAVING THE NEXT BILLION FROM OLD AGE POVERTY

global lessons for local action

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15
PENSION INCLUSION AND **DIGITAL PAYMENTS**

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Disclaimer: "The views and conclusions expressed in this chapter are strictly personal and do not necessarily coincide with those of Mastercard."

BACKGROUND

The ability to secure for seniors enough resources with which they can enjoy a dignified retirement, after a life spent at hard work, caring for their family, is a litmus for measuring the moral quality of any human society. This is the purpose of pensions. And when pensions are not restricted only to a handful of rich people but are truly inclusive, including the poorest, then it measures also the quality of a country's governance.

Until very recently, world leaders and UN policy-makers regarded this prospect of universal access to pension ("pension inclusion") as completely commendable, though unachievable. It was not included in the Millennium Declaration listing the eight Millennium Development Goals (MDG)[1] and was not mentioned in the knowledge platform of "sustainable development goals".[2] Why? This is because the world leaders weren't aware enough of the extraordinary potential of Information and Communication Technologies (ICTs) as tools for global development. This awareness came with the *World Summit for the Information Society* (WSIS, Geneva December 2003), when the world's leaders adopted a Declaration of Principles that states.[3]

> *" 8. We (the representatives of the peoples of the world, assembled in Geneva from 10-12 December 2003 for the first phase of the World Summit on the Information Society), recognize that education, knowledge, information and communication are at the core of human progress, endeavour and well-being. Further, Information and Communication Technologies (ICTs) have an immense impact on virtually all aspects of our lives. The rapid progress of these technologies opens completely new opportunities to attain higher levels of development. The capacity of these technologies to reduce many traditional obstacles, especially those of time and distance, for the first time in history makes it possible to use the potential of these technologies for the benefit of millions of people in all corners of the world.*
>
> *9. We are aware that ICTs should be regarded as tools and not as an end in themselves. Under favourable conditions, these technologies can be a powerful instrument, increasing productivity, generating economic growth, job creation and employability and improving the quality of life of all. They can also promote dialogue among people, nations and civilizations."*

As a result of the WSIS, several global multilateral initiatives were launched to achieve universal connectivity (access for all to telecommunication networks and to the Internet), by leveraging the progress of the so-called "digital revolution".[4] Today, thirteen years

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[1] c/f: resolution 55/2 adopted on September 18, 2000 by the United-Nations General Assembly. The word "pension" is mentioned not once in this resolution, not even in section III "Development and Poverty Eradication" (www.undocs.org/A/RES/55/2). Even the July 1, 2015 UN-MDGreport does not mention the word 'pension'.

[2] c/f knowledge platform of "sustainable development goals" (www.sustainabledevelopment.un.org).

[3] Declaration of Principles of the World Summit for the Information Society (www.wsis.org).

[4] The essential initiative was ITU-led "Connect-the-World".

after WSIS, 7.2 billion users across the world are connected to a mobile network (2G, 3G and 4-5G) and among them, 4.8 billion use personal smartphones allowing high-speed connection to the Internet. Within just ten years, digital illiteracy has been almost fully overcome, quite easily, including in places and among communities where traditional illiteracy has been a standard for over fifteen centuries and continues to be so. The lesson drawn from this situation as far as pension inclusion is concerned is that if universal connectivity has been achieved in 13 years using digital technologies, universal access to pension can be achieved in 10 to 15 years using the same technologies. Hence, universal access to pension is no more to be considered a dream, but instead, a truly attainable objective that can be achieved even in the least-developed countries.

As set out in the other chapters of this book, this critical advancement in inclusion can be allied to the evidence on how best to deliver administration and investment in the interests of members, thus bringing together best practice in achieving historic levels of financial inclusion with the knowledge to maximize pension outcomes for some of the most vulnerable segments in the world.

USING DIGITAL TECHNOLOGIES FOR PENSION INCLUSION

DIGITAL TECHNOLOGIES AS ENABLER

Extending pension coverage to non-salaried informal sector workers, inclusion, in every country, is but one dimension of the country's national pension policy. Several countries still do not have such a program under actual implementation. Even among those countries where such a program exists, where a pension system is already established and receives contributions, not all countries are determined to achieve comprehensive pension inclusion, leave alone giving it a 'national priority' status.

Contributors to pension schemes are typically found among higher income 'formal sector' salaried employees from both private and public sectors. In many countries, there is usually a second, much larger group of workers who are non-salaried or 'informal sector' workers. They face precarious incomes from odd jobs (as domestic workers, small shopkeepers, street vendors, warehousemen, agricultural workers) and experience frequent migration across jobs, occupations and locations. Many informal sector workers spend their entire life having low and intermittent incomes and sometimes no income at all. As pension benefits are usually provided through employers, non-salaried informal sector workers are often excluded from access to formal social security, pensions, healthcare, insurance and housing benefits, putting immense pressure on the government, or on their children and families, to take up the slack, especially as these workers age. In more than 100 countries across the world, statistics available about workforce show that workers belonging to the informal sector represent well over 50% of the country's total labour force.

Table 15.1
Distribution of Labour Force between Formal Sector Employees and Jobless or Workers in the Informal Sector

Country	Population	Labour Force (Active population)	Formal (%)	Informal (%)
India	Labour Force	838,703,739	37	63
Nigeria	Formal	100,637,413	27	73
Egypt	Informal	142,340,602	49	51
Brazil	94,666,993	56,734,504	41	59
Congo (D.R.)	81,331,050	44,852,336	21	79

Source: www.indexmundi.com and www.data.worldbank.org

The Table 15.1 focuses on five large countries from three continents (Africa, Latin-America and Asia), comparing each country's labour force[5] with the total population and shows how the labour force is distributed between salaried employees working in the formal sector (public and private) and non-salaried, self-employed, informal sector individuals. As highlighted in the last column, the second group is the most significant. In Brazil, the distribution between the two groups appears to be equal. In India and Egypt on the other hand, around two in every three workers are employed in the informal sector while their proportion is even higher in Democratic Republic of Congo and Nigeria.

This calculation, when conducted at a global level by aggregating the same data for all the countries in the world, would show that workers belonging to the informal sector total 3.2 billion individuals – a significant figure that measures the extent of how the world's global economy is affected by non-formal employment and exclusion. Data provided by the World Bank or by research centers conducting studies about poverty, shows that a very large proportion (87% or 2.88 billion individuals) of these informal and oftentimes unpaid workers live in developing countries. Among them, around 2.57 billion individuals are unbanked and have never been part of the formal financial sector. The use of digital technologies can help change this situation, dramatically and rapidly.

Like many OECD countries, several developing economies too are experiencing a sharp demographic shift where a combination of declining fertility rates and rapid progress in medical research and healthcare is leading to increased life expectancy and an ageing society. In such a context, there is a serious risk of an increasing population of unemployed and financially excluded elderly. With limited fiscal resources, a large pension coverage gap and a rapidly growing population of dependent elderly, most developing nations therefore have no option but to encourage thrift and self-help for retirement by their economically active young informal sector excluded workers.

[5] Labour Force means all potential workers, women and men aged between 15 and 65. Source: Index Mundi (www.indexmundi.com) + WB (www.data.worldbank.org)

This chapter examines the critical role for mobile technology and digital payments in providing low income excluded citizens with a convenient, simple, secure and affordable mechanism to transmit periodic retirement savings to contributory micro-pension programs. It also presents some real life examples to demonstrate how digital payments have effectively addressed traditional governance and logistical challenges with targeted delivery of government benefits without the risk of leakages or errors.

With a rapid growth in telecom and mobile penetration (both in absolute terms and in relation to the pace of bank penetration) and increasingly lower costs of handsets and mobile transactions, an incredibly large number of people, including those with modest literacy and income levels in remote rural locations, are already using mobile phones for communication, information and financial transactions. Awareness of the transformative power of mobile transactions is becoming universal.

In view of this reality, it appears very reasonable for a country's leaders, lawmakers, and pension program managers to expect a significant number among the unbanked to open and operate their personal pension accounts and thus secure their old age after they take the critical first step of obtaining a payment instrument. This may occur very rapidly as the power of ICTs translates into greater trust in the pension system. Excluded citizens may be more easily convinced that joining the pension program is indeed in their own interest as they understand that they will be able to use their personal digital devices to interact with their pension account and with digital payment platforms whenever they want to. A fully ICT-based digital pension model can therefore alter public perception of a complex pension system. In other words, people need to understand, see and verify by themselves that the system is simple, precisely because it is completely digital.

As highlighted in other chapters, part of the trust in the system is also due to the existence of well-designed products and funds that are run with strong member-focused governance under effective regulation and supervision. These necessary features for good pension outcomes are far easier to demonstrate to everyday citizens if the process for putting savings into their pension accounts, or for receiving claims and benefits, is both transparent and easy.

For the majority of pension subscribers therefore, a simple, automated mechanism for making periodic pension contributions, without any risk of fraud or reconciliation errors, is perhaps the most essential aspect of a pension system. This is particularly important as the majority of pension scheme subscribers (90% or more in most countries) simply choose the 'default' product option offered to them once they join. Thus, the majority of pension subscribers, and especially non-salaried informal sector workers, would greatly value a mechanism for automated, digital contributions but may prefer to have little other day to day interaction with their pension accounts in practice.

Targets for Pension Inclusion: The '25-35-25' Formula and the "Culture-of-Thrift"

Salaried employees in the formal sector who receive a regular income, are often bound by law and regulations to contribute to a pension or provident fund and typically their savings

are protected. If the country has mandatory contribution requirements, then in theory, these workers do not need to be targeted by pension inclusion programs. However, in many countries, even formal sector workers are not always covered because there are no mandatory requirements, or quasi mandatory requirements. Chapter 3 on the U.K. shows that this can lead to declining coverage that is only reversed when coverage becomes at least quasi-mandatory through auto-enrolment.

However, informal sector workers are clearly the more challenging group to cover and hence are targeted by pension inclusion programs. Among them, the youth (those under 25) are the main target. The 'culture-of-thrift' should spread among the youth and that is a difficult task. But in reality, even in developed countries with long histories of broad coverage, it was not some innate notion of thrift that led to high coverage. It was the existence of mandatory requirements and a strong role for (large) employers as a channel into pensions.

Table 15.2 keeps the focus on India, Nigeria, Brazil, Egypt and Democratic Republic of Congo. While Table 15.1 highlighted the fact that the informal sector forms the largest proportion of the country's labour force, Table 15.2 also shows that in those same countries, the youth (under 25 years of age) forms the largest proportion of the population:

Table 15.2
Youth Demographics 2016 in Five Countries

Country	Population	25+ (%)	0-25+ (%)	Pension Inclusion Priority Target Population
India	1,266,883,598	54.30	45.70	595,435,291
Nigeria	186,053,386	37.73	62.27	115,855,444
Brazil	205,823,665	60.78	39.22	80,724,042
Egypt	94,666,993	47.55	52.45	49,652,838
Democratic Republic of Congo	81,331,050	36.56	63.44	51,596,418

Source: Index Mundi / www.indexmundi.com

As the youth forms the largest proportion of the population in most developing countries, it is desirable for authorities in such countries to specifically focus pension inclusion efforts on the younger segments who clearly have several decades to retirement and may thus be able to achieve meaningful pension accumulations even with modest contributions.

This is not an easy objective to achieve nor is it an easy task to conduct. By themselves, the young may prefer current consumption to retirement savings simply because old age poverty is not a clearly visible risk. It is too far into the future. The '25-35-25' formula seeks to address such lack of foresight through the following strategy:

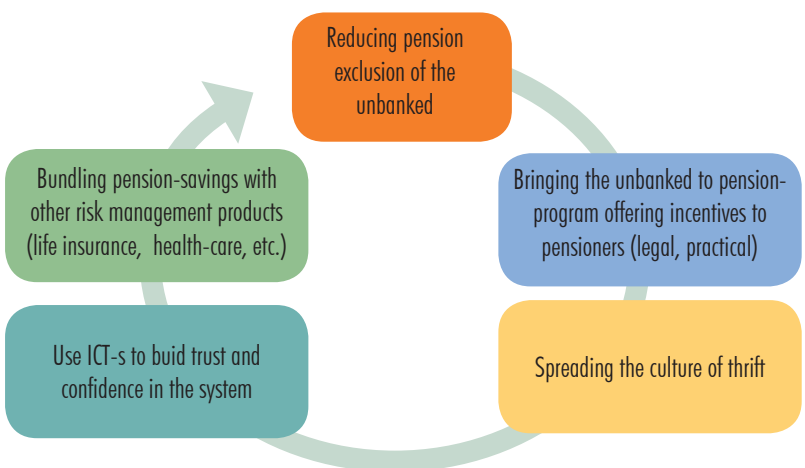
- Every youth should join a pension scheme before the age of 25;

- The person will regularly save money during the following 35;
- When the person is 60 years old, and exits from active work, or is unable to work, her savings would pay her a monthly pension for the next 25.

Incentives. Fiscal incentives guaranteed by law and regulations can play a powerful role in making the '25-35-25' formula successful. Young people who first join the formal financial system, by opening a bank or digital payment account, must be recognized by the pension system (multi-stakeholder management) as part of the 'circle-of-trust'[6] and immediately encouraged to simultaneously subscribe to the pension inclusion program and start a virtuous saving cycle to last till their old age. Those incentives must be determined in a way that the earlier the youth joins the pension program and the longer they last there, the greater the rewards will be.

Awareness. In addition to incentives, the matter is also about building greater awareness. Such awareness should be built up through education and promotion, activities into which partners, sponsors and enablers of the pension inclusion program together must get involved, conducting workshops, explaining the benefits attached to thrift, and conducting follow-up surveys. All players involved in such thrift awareness-building programs will spread, promote and advocate the "thrift" message amongst the youth, not by distributing brochures but by using interactive digital portals and cloud-based digital platforms empowered by telecom operators or by social media channels to which the young are often connected permanently. They may engage in thousands of opportunities to interact with the youth in a manner that rewards those who participate actively in the thrift awareness-building program (a free ticket to a movie, a password for free downloading of a song, etc.). Some innovative ideas for doing this are presented also in Chapter 16 and Chapter 22 on financial inclusion and communication initiatives.

Figure 15.1
The '25-40-20' Formula: Circle-of-Trust + Cycle-of-Virtue



[6] c/f Robert de Niro in "Meet The Parents"

Figure 15.1 suggests the following:

- Unbanked youth should be convinced of the personal benefits of joining the formal financial system by opening a banking or digital payments (example mobile wallet) account;
- Thereafter, the youth should envision that this banking or digital payment account will empower them to manage their pension savings account, and should understand that being a client of a pension system comes with attractive incentives and benefits (legal and practical);
- The new pension scheme subscriber with a bank and/or digital payment account receives information and awareness about the benefits and virtues of long-term "thrift" (circle-of-virtue);
- The subscriber should understand how a secure digital process for making pension contributions protects her against errors and fraud and thus increase trust in the overall pension system (circle-of-trust); and
- The subscriber should then be offered other virtuous life, health and non-life insurance products that address various lifecycle risks and emergencies including health shocks, death and income interruptions.

Remaining on the existing path of financial and pension exclusion, without remedy, would be no less than cataclysmic. Let us give one example about India, a country that is in all respects one of the most advanced countries in the developing world and yet: *"In 2014, about 6.2 million people have 'retired' in India, and around 88% of them were lacking formal pension provisions. The same year, 16.1 million entered the country's labour force while the economy created only 4.7 million new jobs."* (Source: The World Bank).

Financial exclusion of the unbanked must be reduced and as a follow-up, pension exclusion of the poorest must be reduced, in every country, despite the ageing trend observed almost everywhere across the world. To do so, there is no other way than to target the youth, to encourage them and educate them. The youth have to be the main target. They also need to be convinced that they have ground to trust the pension system and that they will be empowered, using ICTs, to securely manage their retirement savings. Last, youth will understand that whatever one's income is, there is always a way and profit in saving a part of it, even a small part. This 'culture of thrift' needs to be spread and encouraged, advocated and promoted by the country's lawmakers, pension fund managers and last, by financial and pension inclusion program partners, sponsors, and enablers.

Figure 15.2
The '25-40-20' Formula: Circle-of-Trust + Cycle-of-Virtue

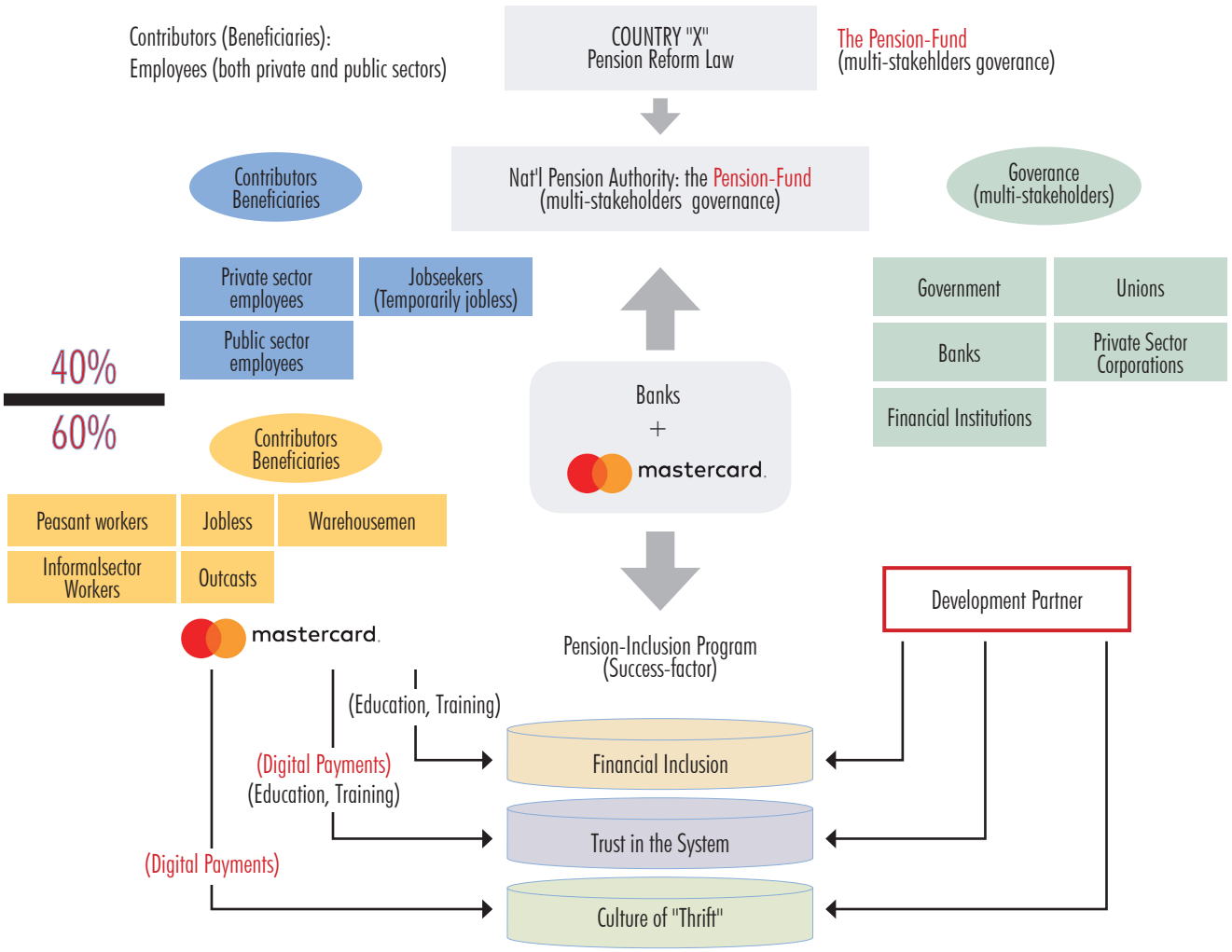


Figure 15.2 shows how a pension inclusion program can be structured within the implementation of a country's national pension system. It highlights the fact that pension fund core clients (contributors/ beneficiaries), meaning employees (both public and private formal sectors) and job-seekers, represent 40% of the country's labour force while those targeted by the pension inclusion program typically represent 60 percent. The figure suggests how critically important the use of digital payments and the conduct of education and training programs is to achieve the following objectives: financial inclusion of the unbanked; increased trust in the pension system; the spread of the culture of thrift.

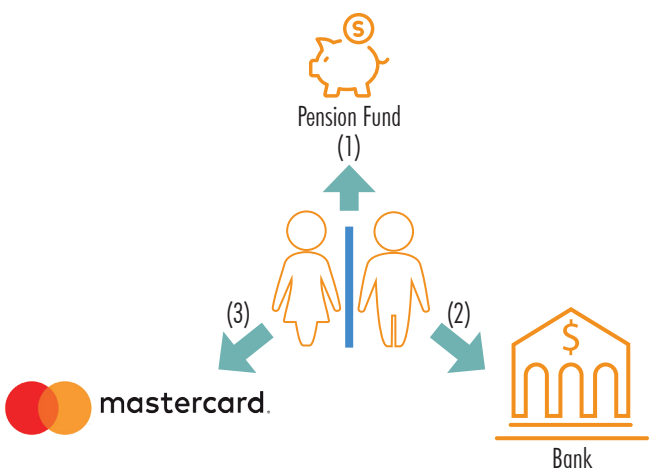
To achieve all these objectives, no tools are more powerful than ICTs, provided they are properly used, within an effective legal framework and for the right purposes. Young people

have a natural inclination towards innovation and have natural connection with smart digital personal devices. Young people are like that: they may forget to have breakfast prior to leaving the house in the morning; they may also leave improperly dressed; they may leave without money in their pocket, and yet, life for them would go on for the day. However, a young person who leaves the house having forgotten the smartphone would probably go back home to pick it up whatever the consequences may be.

A key objective for any country's leaders, lawmakers and pension fund managers is to therefore reduce financial exclusion by encouraging and enabling the youth to save a part of their incomes for their old age while they are still young. The next section of this chapter shows how this approach could work between 2020 and 2050, in every country, and shows the potential effects of this approach on the global financial system and macroeconomics.

A pension system subscriber can interact with three different interconnected interoperable parties using a personal smart digital device (or through a third-party service outlet). She could interact with the pension fund, of which she is a subscriber; the bank where she has opened a banking account; and the payment platform that the bank is bundled with to operate the subscriber's financial transactions.

Figure 15.3
Pensioner Interaction Model



Interaction (1) is operated via a digital connection established between the personal device used by the subscriber and the pension system e-portal.[7] The connection is active on a login basis and the subscriber would need to go through an e-identification procedure and follow security instructions (c/f below). Subscribers with feature phones could interact with the pension system through a secure, OTP-based interface through a third-party service outlet or agent.

[7] In time, every country shall operate its own cloud marketplace. Huge amount of data will be hosted at very little cost and will be accessible from personal smart device also at no cost. A significant improvement is to be expected as far as managing private data, in real time, without delay

Interaction (2) is operated via a digital connection established between the personal device used by the subscriber and the bank's e-portal. The connection to be active will require the use of an e-identifier device supplied by the bank and the use of a so-called 'payment-card', also supplied by the bank on behalf of the digital payment platform. The connection is active on a login basis and for security purposes, the subscriber will need to go through the e-identification procedure and follow safety instructions (c/f below). Depending on whether the subscriber only desires to check his/her account or if he/she needs to execute a payment operation, these instructions will bear different levels of severity and may require the use of an additional device supplied by the payment platform or by the bank on behalf of the payment platform.

Interaction (3) shall only serve, for the near future at least, as the data collection interface and not for executing financial transactions.

Some more options for digital pension contributions are described in the case-studies in Chapter 16.

FINANCIAL INCLUSION AND **PENSION ENROLMENT**

PROCEDURE FOR ENROLMENT IN A PENSION PROGRAM

1. **Awareness about the importance of saving for old age.** Let us take the case of a young, unbanked 23-year-old woman,[8] with a modest income and no formal education, who works on a farm (or perhaps as a housemaid). This young woman has participated in sessions of a national thrift awareness-building campaign focusing on pension inclusion, conducted across the country by pension program stakeholders, and targeting primarily workers from the informal sector. She is unsure of her future and wants to feel secure during her old age. As a result of her participation in the sensitization campaign, she eventually decides to join the pension program. She already has been informed about the details of the pension scheme and knows that the procedure for enrolment in the pension program is fully digitized and hence simple, and would be completed within a very short period.

2. **Opening a bank account.** Her first step is to open a bank account, which in her case, would be the first bank account she has ever operated.[9] She visits the branch (or agent) of a bank she has chosen and carries her national ID card (and other necessary

[8] For simplification purposes, this paragraph (and subsequent paragraphs) assumes that the candidate is a female, knowing however that the procedure works exactly same as described if the candidate is a male, not a female.

[9] Note that it is not necessary for the banks to be the sole providers of a pension product. Indeed, as highlighted in the examples related to digital micro-pension solutions in Chapter 16, Chapter 17 on Governance and Investment and the introductory chapter of this book, a critical feature for success will be having scale providers of investment management with strong member-focused governance. Moreover, the enrolment and payment aspects have to work over a lifetime with multiple job and location changes. Therefore, separating out the different elements of the value chain can prevent the creation of multiple small accounts with many different providers which can be a consequence of the 'vertically integrated' provider model where the access point to the pension system also tries to deliver the account management, payments and investment services.

documents, if any, prescribed by the banking regulator) for opening a bank account. The bank employee or agent would simply use the young woman's fingerprint for biometric-based authentication of her identity. Alternatively, the agent could use a one-time-password (OTP) based process for authentication of her identity. Her national ID would serve as her KYC (Know-Your-Customer) and her personal information residing with the national ID authority would be used for digitally completing her bank account application form.

3. **Opening a pension account:** Immediately after this key first step of opening a bank account based on her national ID as her digital or electronic KYC, she would have an option to open her individual pension account without being required to visit any pension fund premises. Her national ID would again serve as a valid KYC for her new pension account. She would understand that most of the operations she may need to conduct, including the overall monitoring of her pension account, involve essentially the use of her personal device (smartphone), and that such operations are discrete, safe and secure. Therefore, once she is a member of the pension system, she would have secure access to information on her pension account and savings data through her smartphone or through a designated third-party service or agent outlet.

4. **Automating digital pension contributions:** She would submit a standing payment instruction to her bank for periodically debiting a specified amount from her bank account and transferring the same on her behalf to a pension fund manager. Once her standing instruction (or auto-debit) mandate has been registered on her bank's CBS (core banking system), she would not need to make any further visits to the branch or indulge in any further paperwork for effecting periodic pension contributions. Instead, she would simply need to deposit money into her bank account, on the basis of her own cash-flow, and her bank would automatically debit her account and transfer her contribution, as per her standing payment instruction, to the pension fund manager.

5. **Depositing money into her bank account:** As she could move across jobs or locations over the years, she would be able to use a variety of outlets and digital mechanisms to securely deposit money into her bank account. This could include a Mastercard prepaid card issued by her bank. Since her bank account, her pension account and her Mastercard digital payment instrument are all linked to her unique national ID, her contributions would be easy to reconcile. The bank and the pension fund would thus be able to ensure that her future pension contributions are always accurately reconciled, transferred and invested on her behalf. This mirrors the examples set out in Chapter 9 for Mexico where many points of sale are now feasible as payment channels into the pension as long as the person has a bank account, a payment method and a unique ID.

6. **Digital process for direct delivery of pension benefits:** When she is old and her pension benefits become due to her, her national ID would again serve as a unique identifier for digital verification of her identity as the rightful owner of the pension

benefits and for linking her identity also to her bank account and with her digital payment instrument. The pension fund would therefore simply transfer her retirement corpus and her periodic pension benefits directly into her own national ID- linked bank account. She would not need to visit her bank to withdraw her pension benefits. She would simply use her Mastercard payment instrument to withdraw money from any ATM or bank agent location, or use the same card for making purchases towards her consumption expenses in old age.

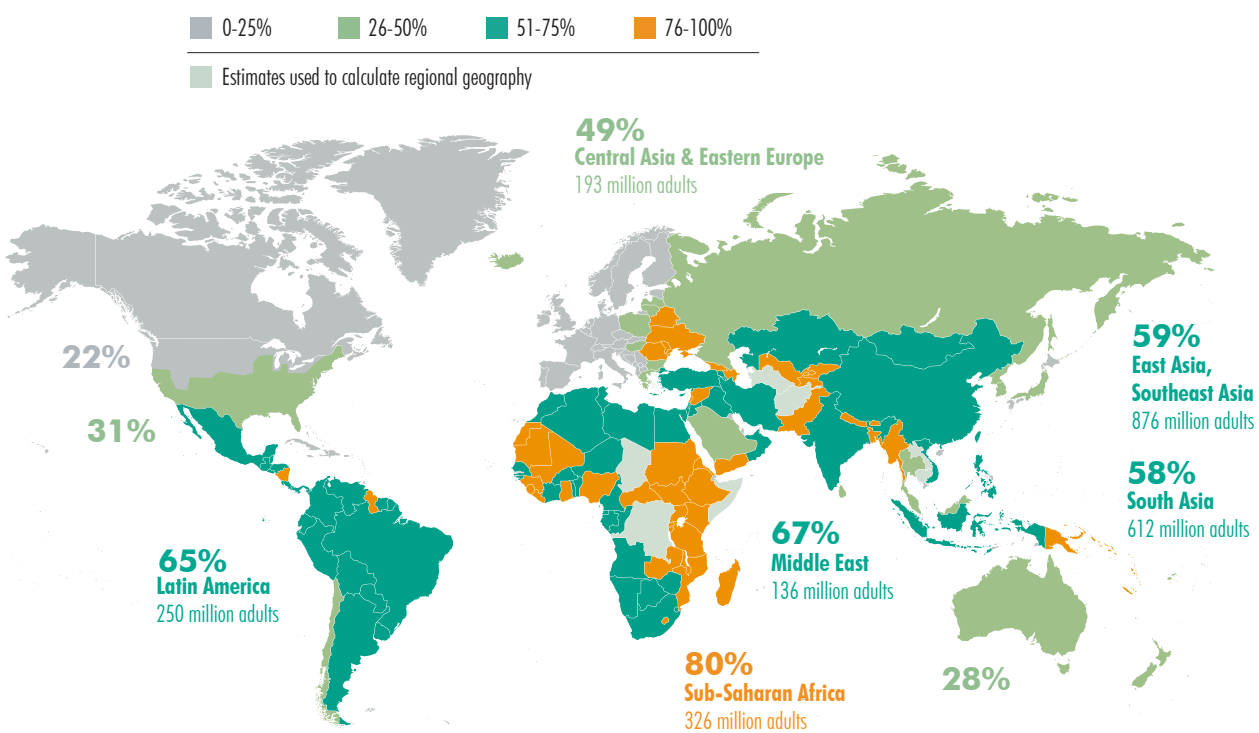
The entire process of putting an end to the candidate's financial exclusion - transforming an unbanked, illiterate, fragile person, working in the informal sector, with low and intermittent income, into an active banking client and a pension subscriber - has been completed within a few minutes, at a very modest cost. This is possible only because of the use of ICTs all along the process at every step. This inspires the pensioner to trust the system, and to take active part in it.

By adopting fully digitized procedures, the pension funds and the banks partnering in the pension program could reach out to 3 billion low-income unbanked people who prior to joining the pension inclusion program were excluded from the formal financial system.

Figure 15.4

The Substantial Growth of the Unbanked and Underbanked

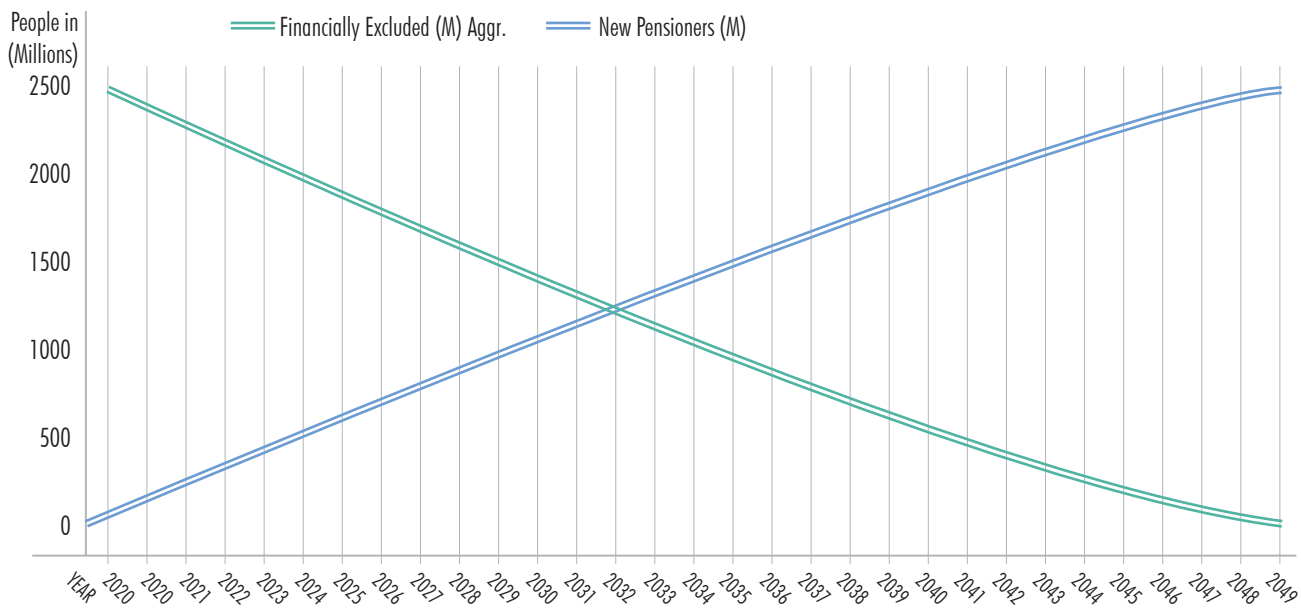
Nearly 2.2 billion financially unserved adults live in Africa, Asia, Latin America and the Middle East



It is generally estimated that around 2.5 billion adults do not have a formal banking account. Among those unbanked, it is estimated that 82% live in developing countries (Africa, South-East Asia, Central Asia, Latin-America) where the number of banked adults is around 40-41% of the total adult population (compared to 89% in OECD countries). This divide affects women twice more than it affects men.

Financial exclusion might be reduced in 2050 down to a level of 255.02 million unbanked people across the world versus 2,350 million in 2020. Such a result can be achieved through pension inclusion programs as shown in Figure 15.5.[10]

Figure 15.5
Pension Inclusion Reduces Financial Exclusion
Evolution Correlation Between Pensions and Diminution of Financial Exclusion



When the number of new subscribers to a pension system grows, the number of unbanked excluded from the financial system goes down mechanically because the new pensioners are now operating and managing a personal banking account.

A second and equally major effect of the growth in the number of new pension subscribers is the corresponding potential growth of stable, long-term retirement savings. As we see in Table 15.3, pension contributions by new pension subscribers could grow from USD 10 billion per year in 2020 to USD 257 billion per year by 2050 (assuming a monthly contribution of just USD 10 per subscriber) resulting in an aggregate pension contribution of over USD 4.5 trillion by 2050.

[10] Doc 7255 World Bank Global Findex: "The Global Findex Database 2014 Measuring Financial Inclusion around the World World Bank Policy Research Working Paper 7255" a report authored by: Asli Demirguc-Kunt, Leora Klapper, Dorothe Singer, and Peter Van Oudheusden.

Table 15.3
Reduction of Financial Exclusion through Pension Inclusion (World)

Year	Financially Excluded (M)	New Pension Subscribers (M)	Aggregate New Pension Subscribers (M)	Aggregate Annual Retirement Contributions ($Bn)	Aggregate Cumulative Retirement Corpus ($Bn)
2020	2350	80	80	10	10
2021	2270	81	161	19	29
2022	2189	81	242	29	58
2023	2108	82	324	39	97
2024	2026	82	407	49	146
2025	1943	83	489	59	204
2026	1861	83	573	69	273
2027	1777	83	656	79	352
2028	1694	84	740	89	441
2029	1610	84	823	99	539
2030	1527	83	906	109	648
2031	1444	81	987	118	766
2032	1363	79	1066	128	894
2033	1284	76	1142	137	1031
2034	1208	74	1216	146	1177
2035	1134	72	1288	155	1332
2036	1062	70	1358	163	1495
2037	992	68	1426	171	1666
2038	924	66	1491	179	1845
2039	859	64	1555	187	2032
2040	795	62	1617	194	2226
2041	733	60	1676	201	2427
2042	674	58	1734	208	2635
2043	616	56	1791	215	2850
2044	559	55	1845	221	3071
2045	505	53	1898	228	3299
2046	452	51	1950	234	3533
2047	400	50	2000	240	3773
2048	350	48	2048	246	4019
2049	302	47	2095	251	4270
2050	255	46	2140	257	4527

The numbers in Table 15.3 are global, describing the situation for the entire world and are based on the following assumptions:

1. Eighty million presently excluded informal sector individuals across the world open a pension account in 2020 as a result of an intensive global awareness campaign which would start in 2017 (supported by multilateral multi-stakeholder initiatives such as the pinBox Book Project). This would be supplemented by national awareness campaigns and policy roadshows conducted in countries showing a greater commitment to establish inclusive pension programs and extending pension coverage to the majority of excluded informal sector non-salaried workers.
2. The program starts slowly and in 2021, the number of new pensioners is only 1% higher than it was in 2020. In 2022, we assume a 7% growth in coverage relative to the number of new subscribers in the previous year. Coverage continues to grow till 2029, although the pace of growth is slower (down from 7% in 2022 to 1% in 2029), and
3. Between 2030 and 2050, while new subscribers continue to open pension accounts, the number of new subscribers per year progressively declines.
4. It is presumed that each pension subscriber saves on average USD 10 per month over the entire period (2020 to 2050). For some countries, this may be an extremely conservative contribution assumption, while for others, the likely monthly contribution levels could be less. In almost all cases however, an assumption of regular pension contributions over multiple decades may be highly ambitious. Hence, on balance, an average contribution of USD 10 per month may be an appropriate assumption.

Importantly, the simulation in Table 15.3 above does not assume any corpus growth on account of investment returns. Also, it is very likely that subscribers will tend to increase their contributions in step with inflation and wage growth over time. However, no such increase is assumed in the above projections and we assume that all subscribers continue to contribute only USD 10 per month in nominal terms.

If we assume that individual subscribers increase their contributions by only 3% per year on account of wage increase, the potential aggregate contributions by 2050 would be USD 623 billion per year (compared to USD 257 billion per year without any indexation).

Similarly, if the pension contributions earn a nominal investment return of even 7% per year, the cumulative aggregate value of the retirement savings corpus would be USD 17.6 trillion by 2050 (compared to the aggregate cumulative contributions of USD 4.5 trillion by 2050).

Such monthly savings not only are life-changing for subscribers, but also a blessing for the global financial system per se, which goes through, from time to time, periods of volatility

and turmoil. Reducing financial exclusion through pension savings would positively impact a country's macroeconomic environment – it could generate a large pool of long-term retirement savings that could fuel economic development and investments in infrastructure, and in turn spur entrepreneurial engagement and employment growth.

DIGITAL FINANCIAL TRANSACTIONS BENEFITS AND CHALLENGES

1. **Deposits.** Clearly, there is a strong case for cashless, digital payment solutions – both for collecting pension contributions and for delivering pension benefits (see 2. below). For some years to come however, and while the world continues its march ahead towards becoming completely cashless, a pension subscriber/pensioner would need to continue making pension contributions by periodically depositing cash into her bank account. In the immediate to short term, and in a situation where many citizens in developing countries may not have a bank account or a digital payment instrument, it may be necessary to establish secure mechanisms for collecting pension contributions in cash. This could be achieved by using a digital (prepaid) card or a mobile wallet.
2. **Benefits.** With digital payments, a subscriber is not required to depend on an intermediary to carry out transactions and would rarely need to make a trip to the bank. All transactions are processed online, following a procedure that is 100% digitized. Transactions are processed at no cost, with no delay (extremely important in an emergency situation, i.e. natural or human catastrophe or a disaster). Physical distances pose no barriers and small or large (debit or credit) transactions can easily reach the entire world within seconds.
3. **Accounting of contributions** for bundled products: A subscriber of a pension system may be offered other risk management financial products such as life, health or disability insurance. A digital payment mechanism would easily allow aggregated collection of pension contributions along with multiple insurance premiums as a single amount at the front-end with the facility to accurately account the precise payment for each underlying product in the basket and effect disaggregated transfer of reconciled payments to the relevant financial institutions – pension funds and insurers.
4. **Security:** Pension contributions using digital payment mechanisms are 100% secure from the risk of theft or reconciliation errors, thanks to the combination of security features any user is required to go through before making a payment. A bank e-identifier requires a PIN; payment requires a PIN + biometric identification (fingerprint). Soon, smartphones will come equipped with a "push-to-sign" touch, allowing users to apply a digital signature procedure for special transactions such as transfer orders (e-signature is digitally stored on the device). A member of a pension system may use her Mastercard payment card, and the payment devices provided by the bank and her personal smartphone, to access both her bank and pension accounts, check her financial activity and personal data. The same operation is feasible from a connected personal computer.

BIOMETRIC IDENTIFICATION MANAGEMENT SYSTEMS (BIMS): ADVANTAGES

The reference to the use of biometric technology tools for identification and authentication purposes in the context of a pension system is focusing mainly on how such technology would protect and benefit a subscriber of a pension system. However, it is worth noting that the advantages of biometric technology go far beyond the subscriber, as it benefits the entire pension system; and beyond even the pension system, reaches across the whole board of the national economy. For example, both the public sector (ministries, public agencies) and the private sector (banks, financial institutions, large industries, large business corporations) will potentially save billions of dollars when they rely on the operation of Biometric Identification Management Systems (BIMS) for their global security strategy, instead of traditional security systems. Security issues which today are very complex to solve and very costly, such as undocumented access to secured building (or to a secured office inside a building), unauthorized access to secured computer files, to a computed system (bank account, pension account, etc.), ID swapping (for instance when ID documents are stolen), manual badge check, credential replacement and several other issues falling within security system requirements, would be easily solved through biometric feature-based solutions like iris scanning, fingerprint identification, voice identification (or hybrid mechanisms combining those features). Large-scale hacking will become more difficult and when occurring, would be circumvented to parts of the attacked system but not harming the entire system. Such biometric features (iris scanning, fingerprint identification, voice identification) are unique and cannot be copied, which means that only the authorized person can access an account associated with these features. For banks and platform payments associated with this pension system, this represents a tremendous comfort in terms of operational security and has potential for saving a great deal of money.

It may also ease accountability and audit processes. Any security breach occurring in the system will be identified and the person responsible for this breach will also be identified. Assuming that sooner than later, all pension systems in the world would be hosted on a dedicated cloud marketplace, it will be possible, easy and very cheap to have the corresponding BIMS associating a pension account to biometric features, and allowing the system to (a) regroup all files involving this account (including every single financial transaction, or complaint files; or special request files) or any related accounts (relatives, family members) around one single access-channel; (b) allow the pensioner, for their lifetime, to access any of their files and to be the only individual able to do so; (c) empower the system to track any activity on any pension account and connect any event to a date, a place, number, figure, nature of a transaction etc. BIMS will contribute in making the pension system user-friendly. It is quick and easy to activate and operate. It is convenient to use. It is easy to manage, easy to scale and easy to upgrade. It is cheap while having the potential for saving a lot of money. Last, but the least, it is secure, and for that, contributes in increasing public confidence in the pension system.

In conclusion, digitizing pension contributions and benefit payments makes the pension system safer, and allows subscribers and pensioners to feel more in control of their own savings and consequently, of their retirement outcomes. Digital payments also ease the entire process, at various levels of the chain. But they do more.

- Digital payments when used in the context of pension inclusion, coupled with efforts that help put an end to exclusion from the formal financial system more generally, can hugely empower informal sector workers and especially women. The benefits of digital payments go well beyond greater pension account ownership – they enable personal asset accumulation, mitigation of a range of lifecycle risks and instill greater inclination for entrepreneurship.
- Digital payments are more transparent for users and yet help maintain confidentiality – a feature that many women in developing counties may find valuable. Equally, a digital payment infrastructure can be leveraged by governments, public agencies, businesses, employers and NGOs for direct transfer of benefits and payments to beneficiaries without any risk of leakages or errors and at a fraction of the cost of cash transfers.
- For citizens more generally, digital payments serve as a powerful incentive for increased thrift and savings and boost trust and confidence in the overall economic system.

ROADMAP FOR PENSION INCLUSION AND **REDUCING FINANCIAL EXCLUSION**

Every country in the world is ready to engage in programs aimed at reducing financial exclusion in the homeland, and at expanding pension coverage. Many OECD countries have already walked a long way on that path. During the past decade, several developing countries have also started contemplating or implementing inclusive pension programs while several others are now looking forward to do so in the nearest possible future. For developing countries, achieving such objectives is essential to maintaining (or gaining) stability at home, protecting their people's safety, enforcing civil peace and fostering a society that is harmonious when it is inclusive.

Through the G20 summit framework, richer countries have expressed the will to cooperate with developing nations, offering them support and resources to help them overcome their pension exclusion challenge. A framework of solidarity has been set out in this respect to govern the modalities for such cooperation. The international community, all UN institutions starting with the World Bank and members of the NGO community involved in fighting exclusion and poverty, are partners in this cooperative framework. It is also very well understood that pension inclusion cannot be achieved unless financial exclusion is reduced.

The global financial community is committed to fighting financial exclusion across the world. Yet, as this chapter illustrates, technology companies operating payment platforms, such as Mastercard, see that a bond exists between achieving pension inclusion and fighting financial exclusion simply because the population targeted in both tracks are the same. Achieving pension inclusion will lead to reducing financial exclusion and to rechannelling huge amounts of money coming for savings into the global economy through the global formal financial and banking systems. This pool of long-term retirement savings in turn, could be used for new investments which will end up creating dozens of millions of new jobs, raising the global amount of salaries employees are receiving, and thus, pouring more money into the consumption market and in the household market which will contribute to reducing global poverty. Lastly, when poverty is reduced, part of the surplus generated by this virtuous economic and financial cycle, will go back to the pension program, reinforcing it and bringing the entire program to an even higher level.

Such virtuous process, when engaged would probably, if not certainly, guide payment platforms to partner in every country, with local or global banks that are already involved with the government for the implementation of their national pension program, and to increase their global commitment for the cause of pension inclusion. Because it will be economically profitable, and easy to put in place, such global partnerships would then appear eminently desirable and would have greater chance to become reality, with potentially immediate benefits, advantages and results for the pension system. From there, payment platforms associated with pension system, could start planning for more strategic long-term viability commitment.

Achieving, at minima, the results indicated in Table 15.3 of the previous section, requires the adoption of a clear roadmap centered around one goal: Optimize the use of digital ICTs in every country where a pension program is under implementation, by all stakeholders and players involved in such implementation. For all players involved in this action aimed at enabling pension inclusion and reducing financial exclusion, the importance of using digital ICTs to that effect is no more disputed. However, the question "what is to be done to optimize such use?" remains a valid one, and still requires answers.

It is certainly possible to rely on the ability of people to use their personal digital devices as tools for their personal development, and to conduct activities they would not be able to conduct without using those devices. Today, in 2017, universal connectivity is a reality. Digital illiteracy has largely been overcome and when it comes to use of such advanced digital devices, neither education nor age nor social stature nor gender really matters. It is therefore natural and necessary, in the context of pension inclusion, to rely upon such awareness.

The global financial community needs to follow a strong roadmap, first at the global level, to properly organize the multilateral action aimed at vanquishing exclusion and to distribute with clarity the roles of global players and stakeholders involved in the global

action. Such a roadmap could be, in every country, enforced with a strong plan of action that leverages the results achieved at the global level. It could be extremely useful, for instance, for the global multilateral, multi-stakeholder forum involved worldwide in the support of pension inclusion, to ally with the International Telecommunication Union (ITU) and leverage ITU's experience in achieving universal connectivity. Regarding African countries, pension inclusion global partners would find great benefit in allying with "Smart Africa", in particular for a better and more precise definition of the member countries' plans of action for pension inclusion.

In very large countries like India and China, as well as in developing countries with large populations, such as Pakistan, Indonesia, Nigeria, Brazil, Ethiopia, Democratic Republic of Congo, Bangladesh, Egypt, Iran or Turkey, pension inclusion 'national plans of action' will probably include hundreds of new ventures that may be brought to life, as a result of the new entrepreneurship spirit induced by the implementation of the national pension program. A typical partnership that may take place everywhere, and a very relevant one indeed, would be a partnership between stakeholders involved in the country's pension program and all telecom operators (telcos) operating a mobile network in the same country. Through such partnerships, telcos can make their cloud platforms available for hosting pension program data, facilitate bank-to-bank interoperability by allocating required space within their own data centers to provide banks with enough resources that can cover their data storage needs. Also, considering that citizens who have subscribed into the pension program are also systematically subscribing to mobile services, telcos' involvement as a partner of the pension program will enforce the inter-operability between banks and their client-pensioners by facilitating the transfer and use of data between a bank's computer and a pension subscriber's smart-phone and vice versa.

Moreover, telcos often have a mandatory obligation to ensure nation-wide coverage; they usually have, in many ways, direct or indirect presence (base-station locations, commercial officers, retail shops) in almost every neighborhood of each country and they could easily leverage such universal coverage to the benefit of the pension program. Last, telcos could leverage their expertise and their wide commercial presence across the country to assign qualified experts to attend the sessions of the awareness-building program and contribute with great efficiency to educate the candidates about pension programs and how to optimize the use of their smart device to that effect.

Another example of a relevant partnership would be the one involving telecom vendors, meaning corporations which fabricate the devices and more specifically "glo-cal" [11] vendors who could also dispatch some of their experts to get involved in the multilateral awareness-building program for pension.

[11] "glo-cal" stands for global-local referring to corporations such as Microsoft, Samsung, Cisco, Apple with presence in almost all the world's countries

CONCLUSION

The pension inclusion objective, associated with reducing financial exclusion, is an objective with several virtues, benefits and advantages for everyone starting with those most-in-need people. Also, in our converging world, achieving this objective will provide stakeholders with a seamless consumer experience. The pension inclusion objective needs to be strongly supported by the international community, at a global level. United Nations institutions and bodies, with the World Bank at the top, should extending their full support and provide resources on the ground to achieve these objectives. The global financial inclusion community stakeholders (NGOs and businesses), should show strong commitment towards building a truly inclusive world, through their participation in pension inclusion programs.

Several multilateral initiatives targeting pension inclusion are presently ongoing, across the five continents. This Book Project, aims to get country leaders, and national and international policymakers, to better understand that most of the factors and inputs that are required to make any 'universal pension program' successful, anywhere across the world, are almost already there. The hope is that they will be convinced that the ground is slipping in the face of a rapid global demographic shift and that no country can today afford the cost of further delays or failure to implement universal pension programs.

Now that the objective of granting universal access to telecommunications has been achieved, and since digital illiteracy is being vanquished, there is no technical ground for any country across the world to delay any further, the implementation of an inclusive, national pension program. It is also vital that leaders, lawmakers, and executive managers of pension funds in low or medium income countries understand that pension inclusion is a top priority in the context of fiscal and social policy. It is essential to understand that achieving pension inclusion will mechanically lead to a drastic reduction in the financial exclusion of the unbanked. The effects on global economics will be immense and the entry into the global formal financial system of those who had always been excluded will make this system stronger and safer.

A strong commitment towards continuous action in favor of pension inclusion is required at the global level, based on a clear roadmap centered on the optimization of the use of digital ICTs across the line. ICT-type alliances are required at a global level. At a country level, ICT-based opportunities must be encouraged, leveraging on the fact that the use of digital personal devices is increasingly universal – and that smartphones are not required for the core transactions that are necessary to engage in pension saving.