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SILVER HUES

BUILDING AGE-READY CITIES

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Abbreviations

AI	Artificial intelligence
ASEAN	Association of Southeast Asian Nations
BRT	Bus rapid transit
COVID	Coronavirus disease
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EU	European Union
GCC	Gulf Cooperation Council
GROWS	Grass Roots Organization for the Well-being of Seniors
ICT	Information and communications technology
LAC	Latin America and the Caribbean
MENA	Middle East and North Africa
OECD	Organisation for Economic Co-operation and Development
OPG	Older People's Group (India)
PWDs	People with disabilities
SAR	South Asia Region
SDGs	Sustainable Development Goals
SE	Social enterprise
SSA	Sub-Saharan Africa
TOD	Transit-oriented development
UAE	United Arab Emirates
UD	Universal design
UK	United Kingdom
UKAID	United Kingdom Aid Direct
UN/DESA	United Nations Department of Economic and Social Affairs
VWO	Voluntary welfare organization
WHO	World Health Organization

Foreword

Cities across the world are growing older. Individuals aged 65 years or over are expected by mid-century to outnumber children under five by a ratio of two to one, and they will be living in an increasingly urbanized world, with 80 percent residing in low- and middle- income countries. These countries will also likely experience aging at a faster pace than has occurred in developed countries, and they will do so against a backdrop of underdeveloped infrastructure, lower levels of national income, and weaker social protection systems. But despite these challenges, aging is a predictable reality, so planning and the implementation of actions toward age-readiness are possible.

“Silver Hues: Building Age-Ready Cities” is intended as a roadmap for cities and towns as they prepare for an older urban age. It comes at a time of increasing attention to age-readiness in cities, especially in light of the global pandemic and the particular vulnerability that older persons have faced. But it is not just older persons that benefit from age-readiness. Rather, this report illustrates that an age-ready city is a city for all—that it has universal benefits and is conducive to better living for groups besides older persons. Therefore, we invite countries across the world—those aging and those not yet aging—to think about how the cities and towns can be planned and designed for an age-ready future.

We hope this report will spur discussions across countries and serve as a useful reference for policymakers, city leaders, and implementing agencies in all World Bank regions, as well as to researchers, nongovernmental organizations, the private sector, and communities.

Sameh Wahba

Global Director for the World Bank’s Urban,
Disaster Risk Management, Resilience and Land Global Practice

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Executive Summary

Main messages

- 1.** The world is becoming increasingly urban and older. This growing confluence of urbanization and aging is uneven, and cities and countries are at different points on the two trajectories.
- 2.** Since aging is a dynamic yet linear and relatively predictable process, age-readiness can, with the requisite political will, technical expertise, and creative use of resources, be planned for and implemented.
- 3.** Older persons constitute a growing market for goods and services related to health care, leisure, and information and communications technology (ICT). But they are a diverse group, differing not only by the countries and cities in which they live, but by income, wealth, gender, age, ethnicity, and disability status, among other attributes. The profile of older persons in a city or neighborhood affects the demand for city infrastructure and services and the manner in and extent to which they contribute to the economy and society.
- 4.** Cities and towns are enablers that provide opportunities for older persons to lead full, productive, and dignified lives, but they also present insurmountable barriers unless their leaders make intentional investments in age-readiness.
- 5.** Actions that lead to age-readiness are not just good for older persons; they create public goods with wide-ranging social and economic advantages that benefit, for instance, persons with disabilities, persons carrying heavy loads, or those who may be temporarily disabled by illness.
- 6.** Cities can make progress toward age-readiness, especially in the built environment, with the help of actions in six areas: universal design, housing solutions, multigenerational spaces, physical mobility, technology, and efficient spatial forms.

Introduction

Cities and countries the world over are at the cusp of epochal global trends whose impacts are likely to be more intense and more far-reaching than those of similar trends in the past. The simultaneity of the demographic transition, deepening urbanization, a technological revolution, frequent shocks brought on by health and climate emergencies, mean that we will need to plan for an older and more urban future.

Cities are often identified by their age profiles: they are reified as “young cities” or “old cities.” This is because city leaders are cognizant of the profiles of their constituencies, and the demographic profile of a city has a bearing on the demands on its leaders and on the policies and programs they put into place. Awareness of the demographic profile is not enough to spur action in response to demographic change, though. That awareness needs to be accompanied by concrete steps taken through policies and programs.

Silver Hues: Building Age-Ready Cities is intended as a policy document that helps articulate the idea of “age-readiness” while building on the idea of “age-friendliness.” It highlights the varied trajectories of aging and urbanization and draws on the experiences of older and more urban countries to show how others can become “age-ready.” It is intended for cities and towns as they prepare for an older urban age, offering examples and options to help younger cities visualize age-readiness while focusing primarily on the built urban environment. Its main audience is intended to be policymakers, city leaders, and implementing agencies, but it is also expected to be useful to researchers, nongovernmental organizations, the private sector, and communities.

This report fills four gaps in the policy literature on aging:

- The literature so far has focused on the dependency ratio and its impact on the economic growth of aging economies, on social protection, especially in terms of pensions and the health and care needs of aging countries. It has not paid attention to urban planning and governance in the wake of demographic changes.
- The policy literature has focused on the implications of aging at the national, subnational, and regional levels but not at the city level.
- Even such literature as exists on aging in urban areas comes mainly from countries in the Organisation for Economic Co-operation and Development (OECD) because rates of both aging and urbanization are high in these countries. There is little evidence from, or guidance for, cities that may be young currently but will see their populations aging in the coming decades.
- Finally, the policy literature has not addressed the issue of the built urban environment and the ways in which it needs to adapt to be ready for an aging city.

While envisioned for cities that will see varying degrees of aging in the next few decades, this report is also grounded in the ambition of the Sustainable Development Goals to “leave no one behind,” and especially in SDG 11: “Make cities and human settlements inclusive, safe, resilient and sustainable” (UN/DESA, n.d.c). Furthermore, its publication coincides with the United Nations Decade of Healthy Aging (2021–2030) and is anchored in the World Bank’s overarching program on inclusive cities.

Why Focus on “Age-Ready” Cities?

The trajectory of aging varies by city and country. Some cities are old, others are getting older, and still others are young. Cities that are already aged have likely put in place infrastructure and services to cater to their populations. Those that are aging or can envision an older resident profile in their futures are often putting in place mechanisms to deal with the new profile; the benefits of an age-ready city are clear to them. But why should the younger cities and countries care about aging that will occur several decades later when they have other pressing problems to deal with today? We offer six reasons in this report.

- 1. The age-readiness of a city has universal benefits.** Investments in age-readiness have universal and wide-ranging benefits that go beyond older age groups. This assertion does not detract from the fact that older persons may have distinct needs and can make unique contributions, but it maintains that accessible infrastructure, for instance, benefits diverse groups of individuals—caregivers pushing strollers, travelers wheeling heavy luggage, or persons who may be convalescing and need extra help in getting around.
- 2. A strong overlap exists between aging and disability.** An estimated 15 percent of the population worldwide have disabilities, and over 46 percent of persons aged 60 years and over have one or more. Just as the gains of the disability rights movement have benefited older persons disproportionately, so too will investments that help older persons benefit persons with disabilities. This includes investments in accessible signage in public places and in better acoustics in public buildings, among other improvements.
- 3. There is some evidence that the benefits of accessibility to society outweigh the costs.** While robust cost-benefit analyses are hard to come by, a study commissioned by the U.S. Department of Justice to assess economic effects of changes to the Americans with Disabilities Act (U.S. Department of Justice, n.d.) is instructive. It found that the changes were “expected to generate total benefits to society that are greater than their measurable costs under all studied scenarios” (ibid.). Furthermore, putting accessibility features in place during construction often has economic and social advantages over retrofitting. This is especially important in resource-poor environments less likely to have the wherewithal to retrofit expensive infrastructure once it is in place.

FIGURE E.1. WHY FOCUS ON AGE-READY CITIES?

1 The benefits of age-readiness are universal.

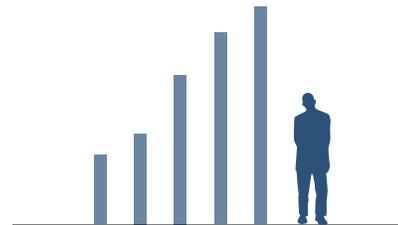


2 Overlap between disability and aging needs to be especially underscored.

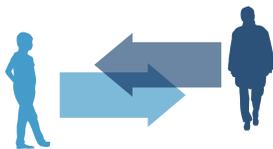
3 There are economic and social benefits of “building better before” over retrofitting or adding accessibility features afterwards.



4 Older persons constitute a large and growing market for goods and services.



5 Intergenerational transfer of resources occurs in both directions—young to old and old to young.



6 Many cities pride themselves on their vision of being “cities for all.”



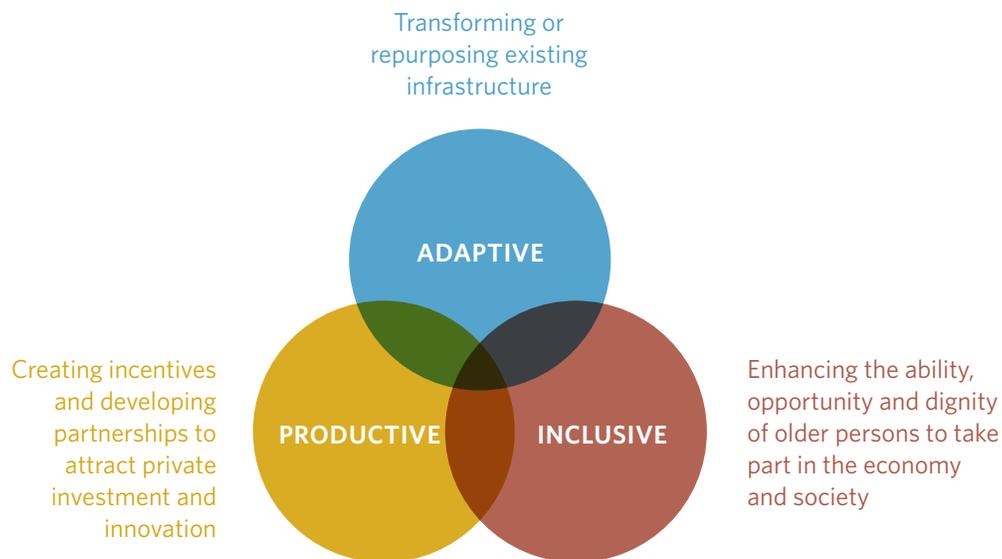
- 4. Older persons constitute a large and growing market for goods and services.** The existing literature associates a likely slowdown in economic growth with aging, but there is also increasing evidence that the impact of aging is contingent upon myriad factors, and generalized statements about its negative economic impacts do not always hold. Economies with high proportions of older persons are untapped and growing markets for such areas as health care, housing, ICT solutions, and leisure, and they present a huge opportunity for entrepreneurship and innovation. The terms “silver economy” and “longevity economy” signal the market potential of goods and services targeted to aging populations (Donovan 2020; Coughlin 2019; Coughlin and Lau 2006).
- 5. Intergenerational transfer of resources occurs in both directions—young to old and old to young.** Older persons are portrayed in the policy and popular literature primarily as recipients of fiscal and social transfers, with their role within families highlighted in terms of their care needs. In fact, transfers occur in both directions, in economies with strong systems of social pensions, older persons who have accumulated assets over their lifetimes transfer both income and wealth to the next generation. The nonmonetary role of older persons is equally salient. Not only are they the providers of child care in many societies, enabling younger generations—especially women—to stay in the labor market; they are also a source of cohesion and cultural continuity in families and the society.
- 6. Many cities pride themselves on a vision of being “cities for all.”** Vision statements of cities across the world emphasize the ideal of an “inclusive city.” Most countries and cities are cognizant of their age structures and are committed to catering to diverse age groups. In rapidly aging cities, older persons and their families can form a strong constituency that demands more policies and programs that benefit them. In societies with strong norms of filial piety and reverence for elders, governments are under additional pressure to address the needs of older persons. Both the ideal of caring for diverse population groups and the political imperative of inclusion make age-readiness a priority for most cities. They may, however, need to make tradeoffs between competing priorities, and political will and a robust social contract will determine success.

This report argues that the age-readiness of cities is contingent upon the extent to which they are **adaptive**, **productive**, and **inclusive**.

- In being **adaptive**, a city transforms or repurposes some of its existing infrastructure and services to respond to the new challenge of aging.
- In being **productive**, the city sharpens its competitive edge through incentives for innovation that will drive the development of new products and services catering to the growing demands of and for an aging population.
- In being **inclusive**, the city “enhance[s] the ability, opportunity and dignity of individuals and groups disadvantaged on the basis of their identity, to take part in society” (World Bank 2013) by working toward inclusion in the spatial, social, and economic realms (World Bank 2015).

The attributes of being adaptive, productive and inclusive however, are interdependent (as figure E.2 shows) and interventions that advance one aspect often have implications for the other two.

FIGURE E.2. ATTRIBUTES OF AGE-READY CITIES



Building Age-Ready Cities

Why not begin with an activity as old as the human race: asking the advice of the oldest people you know? Because older people have one thing that the rest of us do not: they have lived their lives.

—Karl Pillemer
“Ask the Aged”

This report argues that an adaptive, productive, and inclusive city can transform itself to become age-ready. One of the overarching messages is that actions taken toward age-readiness are not just good for older persons; they have wide-ranging benefits that can lead to a better city for all. The report highlights six thematic areas relating to age-readiness that draw from the WHO Age-Friendly Cities framework (WHO 2007, 9) but focus

FIGURE E.3. SIX ACTION AREAS TO ENHANCE AGE-READINESS IN CITIES



primarily on the built environment. They include, as figure E.3 shows, universal design, housing solutions, creating multigenerational spaces, enhancing the physical mobility of older persons, use of technology, and the possibility of efficient spatial forms.

- 1. Universal design toward age-readiness:** The idea of universal design was first articulated by Ron Mace in 1997 (Mace 1998) and is upheld by seven principles: equitable use, flexibility in use, simple and intuitive design, perceptible information, tolerance for error, low physical effort, and size and space for approach and use (Connell et al. 1997). The experience of the user is central to good design. Entry points for universal design include, among others, the preparation of building codes and regulations and the encouragement of their application not only to the creation of new buildings and public spaces but also to the reconstruction and retrofitting of existing ones.
- 2. Housing solutions for age-readiness:** Living arrangements of older persons vary across different circumstances, cities, and countries, ranging from independent living to living in institutional settings to co-residing with families. Some older persons have the means and the ability to choose between aging in place and moving to an institutional care setting. Others do not, or they may live in cities with limited options and have to deal with basic, affordable housing (Molinsky and Airgood-Obyrcki 2018). These older persons often live in areas that present greater barriers to aging in place comfortably and safely because of poor-quality habitations and unsafe conditions and in areas that are prone to environmental and other hazards. Such areas may also lack services (Rodwin and Gusmano 2006; Smith 2009). Regardless, for cities to cater to their older residents, homes and other spaces need to be adapted to their physical and cognitive needs so they can lead independent, safe, and dignified lives.
- 3. Creating multigenerational “spaces”:** Decision makers in families, neighborhoods, and societies often believe older persons are best kept safe by confining them rather than integrating them (Papke 2020). Not only do older persons prefer “multigenerational spaces,” however, but evidence increasingly indicates that segregation is deleterious to their well-being and to society as a whole. The loneliness and isolation experienced by older persons living in segregated facilities, for example, can be attenuated by providing mixed-generation spaces (see Kang 2021 for Korea). Opportunities exist to provide multigenerational spaces in housing and community facilities, and the city has a preeminent role in offering incentives for the creation of such spaces, as well as in directly supporting them.
- 4. Age-readiness through improved transportation:** Being able to get around to meet basic needs, engage in employment and recreation, and obtain services is essential for the well-being of all individuals. Older persons, however, have different patterns of mobility from younger ones in terms of where they go, how far they travel, at what times, how frequently, for what purposes, and using which mode of transport (Loukaitou-Sideris and Wachs 2018). Understanding these patterns and behaviors is very important to predict the use of transportation, as well as for devising policies



Sunil Iyengar / Shutterstock

for fare setting and transportation vouchers, among others. It is also important for the design of, for example, public spaces like waiting areas, walking paths, accessible entrances, and signage.

5. **Making technology work for age-readiness:** Technology is a boon, as has been amply demonstrated during the pandemic; it can ease the lives of everyone, and older persons are no exception. It also supports their caregivers and service providers, enables them to live independently longer, and enhances social connections and access to services, with huge impacts on their overall well-being. Yet technology can also be a bane, intensifying gaps in access between those who are conversant with and can afford it and those who are not and cannot. In addition, older persons tend to be less digitally literate than their younger counterparts, which makes them more susceptible to cybercrime.
6. **Efficient spatial forms:** Spatially concentrating resources and services can facilitate accessibility (particularly for those with limited mobility) and reduce the environmental footprint, and it is often cost effective, particularly in aging and shrinking cities. Transit-oriented development is one approach to achieving such efficient spatial forms. Even in the context of the pandemic, where city planners are revisiting the idea of compact cities, the benefits of urban forms that promote walkability, accessibility, and mixed land use spaces can be wide ranging.

An age-ready city is, at its core, an inclusive city. In taking action towards age-readiness, cities move closer towards a goal that most of them espouse—building a city for all. Yet, older persons, like others, are not identified only by their age. They also have other characteristics—gender, disability status, location, income, marital status, and living arrangements, to name a few. As mentioned earlier, they contribute to society and the economy and often have political and social influence on the manner and extent to which city politicians deploy policies. All these possibilities can become reality only if cities take intentional action to ensure that older persons have the ability, opportunity and dignity to lead fulfilling lives. The issue of violence against, and ill-treatment of, older persons

deserves special mention because evidence indicates that such violence and victimization is pervasive and likely increasing, especially in light of the restrictions and vulnerabilities imposed by COVID-19 (Elman et al. 2020; Pillemer et al. 2016; WHO 2020b).

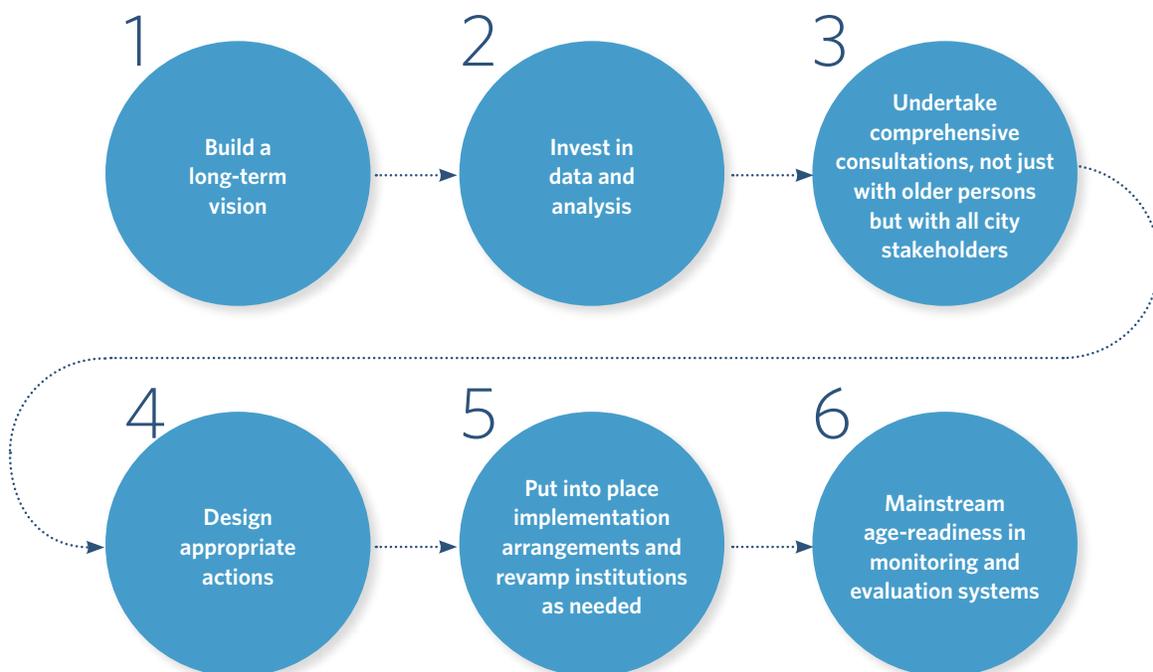
Citizen voice and participation are essential to building age-ready cities. This includes the participation of not just older persons but anyone who is invested in the age-readiness of the city. Such participation is essential for a city to secure public support for investments in age-readiness, which has universal benefits. It is part of building a wider social contract and consensus around the idea of an age-ready city.

How Can Cities Advance toward Age-Readiness?

It is relatively easy to point to areas in which cities and other tiers of governments can intervene to bring about age-readiness. It is more difficult to suggest how this can be done. This report proposes six stylized steps to that end as figure E.4 illustrates.

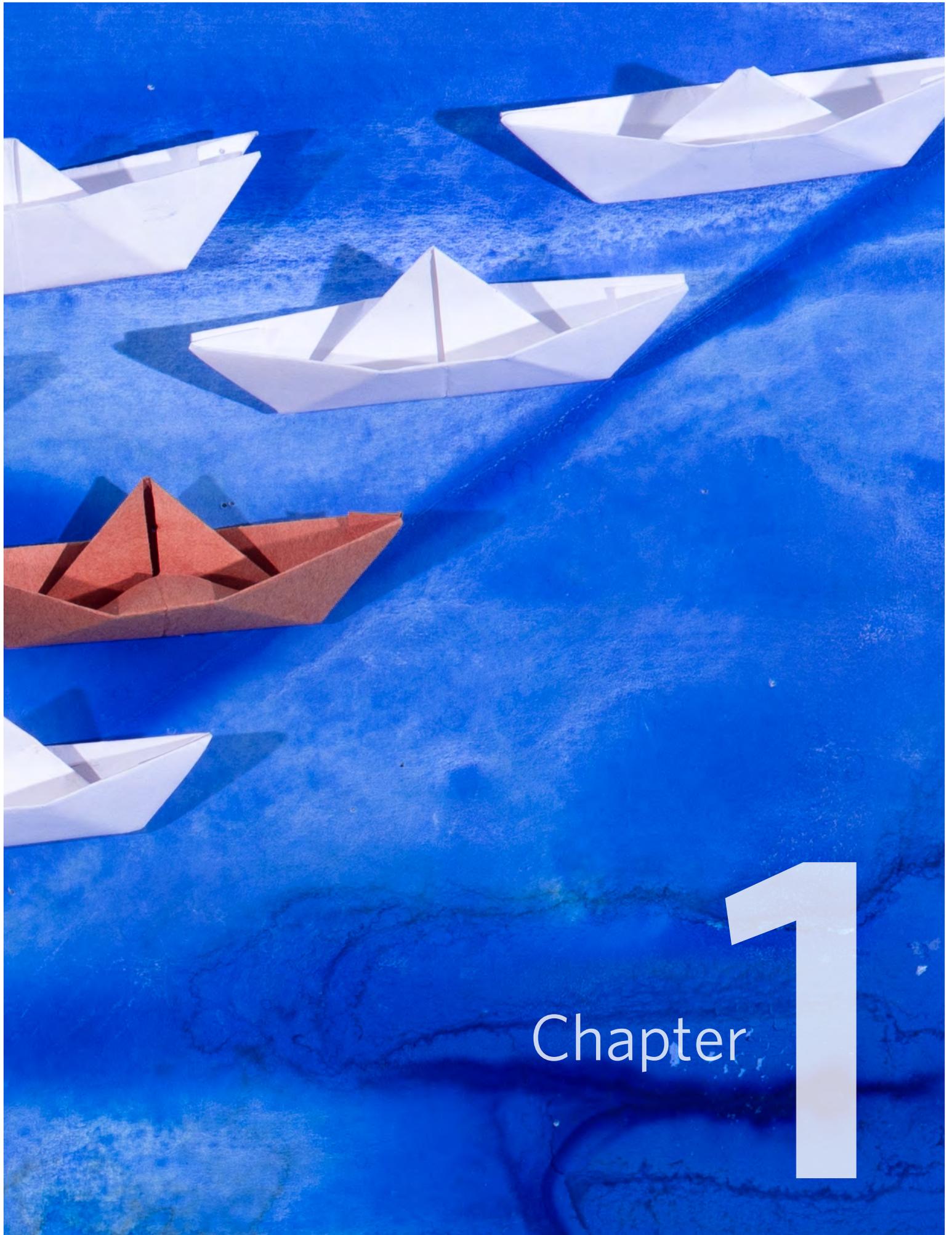
- **First, build a long-term vision.** Often, building age-readiness is a matter not of making large financial investments but of recognizing its importance and centrality to future actions. Vision statements are statements of intent and ambition on the part of the government.
- **Second, invest in data and analysis.** Overall, city-level data are scarce, especially in non-OECD countries. An essential condition for evidence-based policy action, then, is the production of robust data and upstream analysis that identify city-level demographic trends and define the issues at hand, as well as the core needs of an age-ready city.

FIGURE E.4. SIX STEPS TOWARD AGE-READINESS



- **Third, undertake comprehensive consultations, not just with older persons but with all stakeholders in the city.** Such consultations are important in devising a social contract that ensures all residents are invested in the vision of an age-ready city. Consultations are also important to detect any resistance and understand its source. Consultations would benefit the design, sequencing, and implementation of any reform actions.
- **Fourth, design actions toward age-readiness.** How will a city mainstream aging issues into its overall policy framework? Will it design special programs? Will it focus on mainstreaming aging issues into existing programs? How will it adapt buildings and other infrastructure for universal accessibility? Will it need to retrofit infrastructure? What will be the role of the public and private sectors, of communities, academia, civil society, and external bilateral or multilateral institutions? These are questions the city will need to consider as it designs the actions it will take.
- **Fifth, put into place implementation arrangements and revamp municipal-level institutions to respond to the need for age-readiness, because the proof of policy actions is in their effective implementation.** Such implementation takes place through existing systems, augmented systems, or reformed systems. It includes provision of services, contracting, management, and quality control and enforcement mechanisms. Overall, gearing institutions toward changing populations makes the institutions more responsive to their needs but can be politically, bureaucratically, and financially challenging.
- **Sixth, mainstream age-readiness in monitoring and evaluation systems.** This is best achieved when cities are at early stages of aging, so that monitoring systems can be built into investments that seek to build age-readiness. Cities can also make use of community monitoring mechanisms that engage older persons to buttress the top-down monitoring systems.

To summarize, *Silver Hues: Building Age-Ready Cities* illustrates the rationale for, and chalks out the contours of, age-readiness. It argues that planning for an aging city makes both economic and social sense. It profiles older persons as a diverse, growing cohort whose members are active agents in their social and political environments. It also shows that the availability, affordability, and accessibility of infrastructure and services can aid its transformation toward age-readiness. As more of its residents become aged, the city will, inexorably, have to address the challenges of an altered demographic reality, which makes early planning and implementation essential. In this context, COVID-19 presents an opportunity and an imperative to reimagine the city. Concomitantly, it presents a unique chance to integrate age-readiness into the new imagination. This may include expanding walkable spaces, improving street accessibility features, rethinking the design and layout of nursing homes, devising intergenerational housing solutions that benefit both older persons and young, integrating older persons into built and social environments, making greater investments in the care sector, addressing the gender dimensions of caregiving for older persons, and investing in technology solutions, among others. It is important, however, as cities pivot to a new reality after the pandemic that they keep age-readiness in mind.



Chapter

1

Introduction

Four inexorable global trends are shaping our world today: a demographic transition, an expansion of urban space, a technological boom, and frequent shocks brought on by health and climate emergencies. Within the demographic trend, aging is perhaps the most salient; global decline in fertility as life expectancy rises are both testaments to progress. The expansion of urban space testifies to an urban future, with two-thirds of the world’s population living in and near cities by 2050—an increase of more than 10 percentage points from 2018. It is the overlap between these two trends—the rising share of older persons who will live in an increasingly urbanized world by 2050—that is of relevance to this report (UN/DESA 2016). The third trend—the technological boom—places our times firmly within the “Fourth Industrial Revolution” (Schwab 2016) and makes information, communication, and technology an inalienable part of our lives. The importance of technology to the design of city infrastructure and services is well known, but its role in the creation of age-ready cities needs to be emphasized. Finally, as we reel from the onslaught of the COVID-19 pandemic, compounded by the growing incidence of natural disasters, we sit squarely within the ambit of multiple emergencies. Each of these four trends alone is defining for our times, but their simultaneity multiplies the impact they have on cities and towns and, indeed, on countries and regions.

The Sustainable Development Goals (SDGs; UN/DESA, n.d.c) exhort us to “leave no one behind” (UN 2021), including older persons, and to stay cognizant of changes in population structure. This report, “Silver Hues: Building Age-Ready Cities,” which maps global trends and their implications for urban areas, is anchored within SDG Goal 11: “Make cities and human settlements inclusive, safe, resilient and sustainable.” It is also a timely reckoning, as the “UN Decade of Healthy Ageing (2021-2030)”¹ has just begun. The decade itself is a call to action in four areas: age-friendly environments; the combating of ageism; integrated care; and long-term care. For the World Bank, this report is anchored within an overarching program on inclusive cities, even as it has implications for housing, transportation, technology, fiscal transfers, and public spaces, among other sectors. It lays out questions cities need to consider as they advance toward a scenario where their residents are getting older, and as they reimagine a post-COVID world.

This report highlights the critical role of city governments in the progress toward age-readiness. In doing so, it fills a gap in the policy research on aging in urban areas. Thus far, both research and policy on aging have focused on the dependency ratio and its implications for the labor market, social protection (especially with regard to pensions), health, and the fiscal challenges of an aging population (see, for instance, Bussolo et al. 2015; World Bank 2016). The literature on aging also focuses on the national level, with inadequate attention to cities and towns. Moreover, even the existing policy research pertains mainly to member countries of the Organisation for Economic Co-operation and Development (OECD). The paucity of policy literature relevant to developing countries is due to two interrelated reasons: first, aging is a more urgent policy issue in OECD countries, where levels of urbanization are also high; and, second, city-level data in non-OECD countries are scarce.

In 2007, the World Health Organization (WHO) articulated the idea of “age-friendly” cities and became an exception to the general tendency of policy research on aging to focus primarily on the national level. Two and a half decades later, WHO’s guide to cities oriented toward older populations is still relevant as a “how to” for practitioners and for its contribution in laying out the key issues involved (WHO 2007).² Our use of the term “age-ready” complements WHO’s formulation of “age-friendly cities.” The WHO Global Network for Age-friendly Communities and Cities consists primarily of cities located in high- and middle-income countries. As of 2018, Africa was not represented (WHO 2018). What can we say to those cities that have smaller proportions of older persons currently but whose trajectories of aging will accelerate in the coming decade? To them, we present here the idea of “age-readiness,” using evidence and examples from aging and aged economies to help them visualize an aging future and address the question: What makes a city “age-ready”?

Why focus on age-ready cities?

Cities are diverse entities, and the trajectories of their aging are equally diverse, ranging from the paths of currently young countries to those whose populations are shrinking. The benefits of an age-ready city to the latter are clear, but why should the younger countries care about aging that will not occur for several decades when they have other pressing problems to deal with today? It is because aging of the population is inevitable, and planning for it is good strategy; and, second, age-ready cities have universal benefits that make for “good cities” for all. In other words, designing age-ready cities has intrinsic as well as instrumental value. As illustrated by figure 1.1, we highlight here six reasons that investments in age-readiness are important.

First, an age-ready city has wide-ranging benefits. Wide sidewalks, for instance, are helpful not only for people in wheelchairs (who may have temporary or permanent limitations to mobility) but for caregivers of children who have to push strollers. They are similarly advantageous for travelers who wheel luggage to and from public transportation nodes and for manual workers, such as porters or loading personnel, who transport large items on wheels. In other examples, autonomous cars, which were originally conceived of for persons with mobility limitations, and Siri, which was designed for the blind, have both become universally useful innovations. The usefulness of universal design and other aspects of age-readiness to several different groups does not detract from the fact that older persons have special needs and can make specific contributions—quite the contrary. But many actions taken to improve city infrastructure and services for older persons have universal benefits.

Second, there is a strong overlap between aging and disability. While an estimated 15 percent of the population worldwide has disabilities, more than 46 percent of persons aged 60 years and over do. Older persons, then, are significantly overrepresented among persons with disabilities, and over 250 million among them experience moderate to severe disability (UN/DESA, n.d.a). Cities that are designed for older persons, therefore, will also benefit persons with disabilities. But the reverse is true as well; the installation of accessibility features for persons with disabilities, irrespective of age, has benefited older persons.

Third, there is some evidence that the benefits of accessibility to society outweigh the costs. The most robust evidence comes from implementation of the Americans with Disabilities Act (U.S. Department of Justice, n.d.), landmark legislation whose success has been underpinned by several tweaks and adjustments. In 2010, revised regulations to implement titles II and III of the act were adopted. The Department of Justice also commissioned a regulatory impact analysis (RIA) to assess the economic effects of the changes (U.S. Department of Justice 2010). Based on a cost-benefit analysis, the RIA found that “nearly one-half of the requirements [were] expected to have no capital costs or to incur a cost savings as compared to the [previous] Standards for newly constructed facilities, as architects can ‘design around’ many requirement[s] in the planning stages with minimal cost impacts and some requirements are less stringent and, therefore, less costly.” It also found that the Department of Justice’s final rules were “expected to generate total benefits to society that are greater than their measurable costs under all studied

FIGURE 1.1. WHY FOCUS ON AGE-READY CITIES?



scenarios” (ibid.). Furthermore, putting accessibility features in place during construction often has economic and social advantages over retrofitting. This is especially important in resource-poor environments less likely to have the wherewithal to retrofit expensive infrastructure once it is in place.

The aging agenda may, understandably, not have policy resonance with countries with limited fiscal capacity that are tackling more immediate policy priorities, such as basic health care, jobs, or the upgrading of informal settlements. Yet the marginal costs of achieving age-readiness *ex ante* may not be large, and some empirical studies on universal accessibility demonstrate that the early incorporation of such principles incurs limited costs while yielding significant benefits (Rick Hansen Foundation 2020; Rohwerder 2015; UNICEF 2013; WHO and World Bank 2011). These findings have important implications for developing economies that are experiencing the dual trends of urbanization and aging.

Fourth, older persons constitute a large and growing market for goods and services.

Literature on the “demographic dividend” warns us that economic growth may suffer as the proportion of the older population rises (World Bank 2016). In other words, higher levels of old age dependency in a country can have negative impacts on economic growth. However, the impact of aging is contingent upon several factors, and general statements about the negative economic impact of an aging population need qualification. Consider, for example, that the spending power of older persons and those who make decisions for them is growing apace. Fengler (2021) estimates that the representation of persons over age 65 in the “consumer class” (defined as those who spend at least one U.S. dollar per day) will grow by 66 percent from 459 million to 760 million by 2030. Another estimate indicates that in Latin America and the Caribbean (LAC), 30 percent of the growth in consumption in cities between 2015 and 2030 will be driven by the 60+ population (Okumura et al. 2020). Economies with high proportions of older persons are variously called “silver economies” or “longevity economies,” and products targeted to older persons range from health care to housing to information and communications technology (ICT) solutions to leisure. This presents a huge opportunity for entrepreneurship and innovation, and putting into place regulatory mechanisms and incentives for such undertakings to be located in cities could have significant impacts on their local economies and improve their overall productivity (Coughlin 2019; Coughlin and Lau 2006; Donovan 2020).

Fifth, and in keeping with the idea of a productive role for older persons, we emphasize that intergenerational transfer of resources occurs in both directions—young to old and old to young.

While the popular perception of older persons is that they are dependent and need care, and that resources mainly flow from younger to older generations, in fact, such transfers occur in both directions. This is especially true for older persons who benefit from pensions and/or have significant savings. They are more likely to provide support to younger generations, especially during periods of shocks, such as the COVID-19 pandemic. Since poverty rates decline with age (Munoz Boudet et al. 2018), older adults are more likely to own assets and to be financially more self-sufficient than anecdotal evidence would suggest. Older adults today also have higher human capital endowments than previous generations of similar ages did a decade or more ago, with higher earnings (Burtless 2013). They also contribute through labor that is often unpaid when they take care of younger generations and as grandparents, and they serve as the

holders of cultural heritage. In short, they are both more independent than is generally believed and agents of change in societies. Cities are well advised to take advantage of their potential to contribute to the economy and society.

Sixth, many cities pride themselves on a vision of being “cities for all.” This imperative to be a “city for all” is both political and altruistic. In cities whose populations are rapidly aging, older persons, and their families, by their sheer numbers can form a strong constituency that demands greater inclusion, voice, and accessibility for aging adults. By the same token, most countries and cities are cognizant of their demographic makeups and their perceived democratic duty to cater to diverse population groups. In cultures where norms of filial piety and veneration of elders are strong, governments are under additional pressure to address the needs of older persons. Pensions for public servants in countries such as India, for example, continue to increase as the recipients reach and exceed the age of 80.

There is a caveat, however. Despite the universal benefits of age-readiness, an assumption that cities have the fiscal and technical wherewithal to invest in policies and programs to further it would be naïve. Too often, cities have to make tradeoffs among several difficult options. This is where political will, long-term vision, and a social contract all come into play. Creating enabling conditions for nongovernmental and private sectors, as well as associations of older persons, to engage and invest in such ventures is likely to attract both the financial and technical resources that will be needed.

We owe each other more. A more generous and inclusive social contract would recognise our interdependencies, provide minimum protections to all, share some risks collectively and ask everyone to contribute as much as they can for as long as they can. This is not about increasing the welfare state, but about investing in people and building a new system of risk sharing to increase overall well-being.

Change will come inevitably because the forces of technology, demography and environmental pressures will drive it. The question is whether we prepare for that change or continue to allow our societies to be buffeted by these powerful forces, as we have in recent decades.

—Minouche Shafik

What We Owe Each Other: A New Social Contract for a Better Society

COVID-19 and the heightened case for age-readiness

The COVID-19 pandemic has had a devastating impact on communities around the world. It has also put a spotlight on older persons in general and, especially, on those who live in urban areas (Buffel 2021), as it was primarily an urban contagion in its first phase. Overall, the pandemic has put older persons in the spotlight and has challenged societies to ensure that the next crisis does not lead to the same disproportionately negative effects on them. Lessons from the pandemic are, therefore, almost sure to lead to changes in the way we look at aging populations, for four reasons.

First, the higher likelihood of older persons to be hospitalized with COVID-19 and to die from complications has drawn attention to, among other things, their living arrangements (CDC 2021). Although only a small percentage of older persons live in nursing homes globally, those who do have been disproportionately affected by the virus because of both their greater susceptibility to it and the contagion risks associated with sharing communal spaces (*New York Times* 2021). Research on confirmed COVID-19 deaths among residents of care homes³ in ten countries has shown this proportion may be as high as 81 percent (in Slovenia); in the United States, it is 45 percent (Comas-Herrera et al. 2021). Because residents in care homes for older persons frequently share rooms, maintaining social distancing practices and isolating sick patients present significant difficulties. Frequent transfers of residents between hospitals and residential settings and a lack of personal protective equipment also put these older persons at an increased risk of infection (AARP 2021). The design and layout of nursing homes is likely to be modified as we learn more about how the disease has spread within these areas (Eaton 2020).

Second, social distancing has compounded the isolation many older persons already face (Montgomery et al. 2020; Simard and Volicer 2020).⁴ While issues of mental health, loneliness, and isolation were present before COVID-19, especially among older populations, the pandemic has illuminated these issues and highlighted the urgency of addressing them. As cities re-envision the future, innovations to integrate older persons better into the built and social environments are likely.

Third, the pandemic has dealt an economic and a health shock to care workers and emphasized the shortage of eldercare (Liu, Goryakin, et al. 2017). This has gender implications, as caregiving is predominantly a female occupation, with women comprising 57 to 81 percent of all caregivers for older persons (Sharma et al. 2016). Across the board, greater investments in the care economy are likely. Already, startups have emerged to cater to the needs of older persons during the pandemic; some of these are discussed in chapter 3.

Finally, as the pandemic recedes, and even where it is ongoing, cities are adapting to the new imperative. COVID-19 has brought substantial adaptations to cities that have needed to adjust to life in the pandemic, including changes to the use of space and the promotion of enhanced technological solutions. Business and leisure activities more often take place in public spaces, for example, and technological solutions now include increased use of telehealth, artificial intelligence, and robotics for services such as health and education. Home ownership has gone up in many cities in OECD countries, with residents preferring independent homes to apartment living, if they can afford it. Furthermore, cities have been forced to address the issue of density and its management. The pandemic, has, therefore exposed the cracks in urban management, and we can expect significant reforms in urban infrastructure and service delivery. Many of these will have different implications for different age groups, including older persons.

Audience, methodology, and roadmap

“Silver Hues: Building Age-Ready Cities” is intended for cities and towns as they prepare for an older urban age. It offers examples and options to help cities visualize age-readiness, focusing primarily on the built urban environment.

Audience

While the main audience of “Silver Hues” is policymakers, city leaders, and implementing agencies, the report is also expected to be useful to researchers, nongovernmental organizations, the private sector, and communities. In part, this is because age-readiness cannot be achieved by the state alone; partnership with other entities, such as the private sector, civil society, and communities, is vital to success.

Methodology

The report is based on a review of the evidence on myriad aspects of the age-readiness of cities. It is replete with examples of adaptive, productive, and inclusive actions taken by cities around the world, drawn from background papers that were commissioned to provide an understanding of how some cities have made progress toward becoming age-ready. Additional examples represent cities and countries at different stages of aging and urbanization and different income levels. The report does not, however, dwell on social programs in areas such as health, jobs, social security, or care services.

Roadmap

The report comprises four chapters. Following this introduction, chapter 2 presents a discussion of the trajectory of the aging trend and its relevance to cities. Chapter 3 identifies actions that cities can take to achieve age-readiness. The concluding chapter summarizes the main messages of the report and gives pointers on how cities can move toward age-readiness.

The report suggests that the age-readiness of cities is contingent upon the extent to which they are **adaptive, productive, and inclusive**, with the understanding that these aspects are interconnected, and that interventions that advance one often have implications for the others.

In being **adaptive**, a city transforms or repurposes existing infrastructure to respond to the new challenge of aging. Making small changes to buildings, for instance, can make them accessible. Allowing the use of some public offices after hours for older persons to congregate or using old warehouses as spaces for training and other activities are examples of adaptation. Adding sidewalks to streets to make them walkable or elevators to old buildings are also ways in which a city can be adaptive toward age-readiness.

In being **productive**, a city creates incentives and develops partnerships to attract private investment in new products and services targeted to the “silver economy.” (EC 2018). It visualizes aging as the basis for a market that fuels the private sector and creates enabling conditions that attract investment to complement the public sector. Cities themselves are beneficiaries of the innovation and entrepreneurship that go with such development. In being productive, a city also focuses on the capabilities of its aging population and provides opportunities for older persons to be economically active.

In being **inclusive**, a city “enhances the ability, opportunity and dignity of individuals and groups disadvantaged on the basis of their identity to take part in society” (World Bank 2013) by focusing on inclusion in the spatial, social, and economic realms (World Bank 2015). Such a city also amplifies the voices of older residents, buttresses their agency, and encourages innovation at the community level. It creates mechanisms to ensure older persons have opportunities to participate and exercise leadership in their communities and in their cities.

The nuts and bolts of this report are **six areas** for actions toward age-readiness: universal design, housing solutions, multigenerational spaces, physical mobility, technology and efficient spatial forms.



Chapter

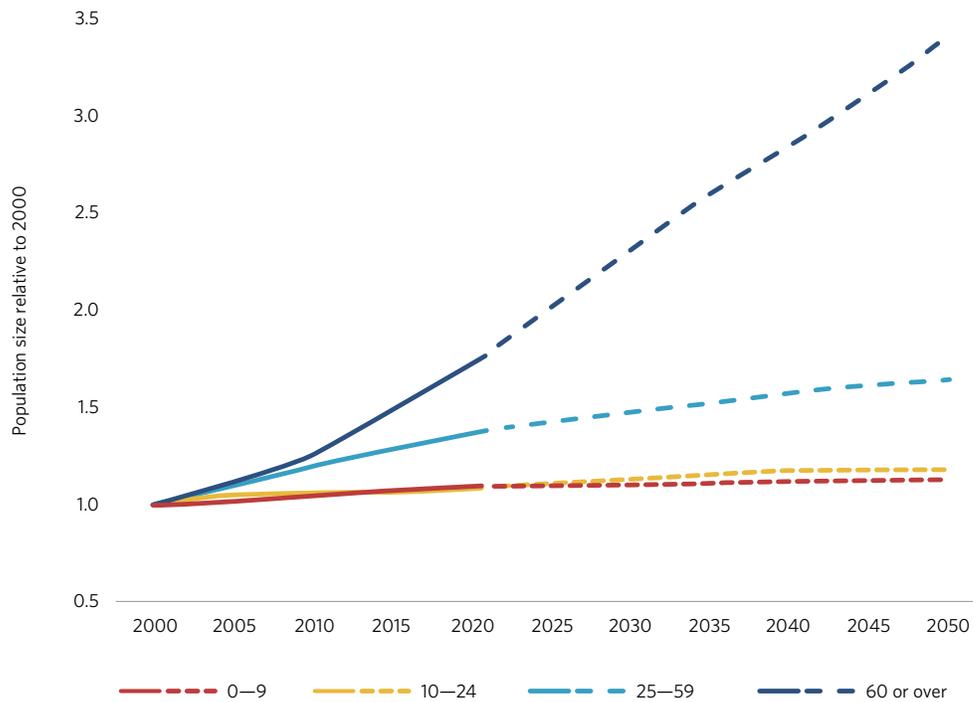
2

Global Trends in Aging: Why They Matter for Cities

Longer lives are one of our most remarkable collective achievements. They reflect advances in social and economic development as well as in health, specifically our success in dealing with fatal childhood illness, maternal mortality and, more recently, mortality at older ages. A longer life is an incredibly valuable resource. It provides the opportunity for rethinking not just what older age is but also how our whole lives might unfold.

—United Nations
“Decade of Healthy Ageing: Plan of Action”

Aging is inevitable. Some countries are aging faster than others, but they will all get there sooner or later. In the aggregate, the number of people aged 65 years and over is expected to rise from 901 million in 2015 to 2.1 billion in 2050. Given that fertility is declining across the board and life expectancy is increasing, the share of the older population is also going up (UN/DESA 2016, 2, 24; see figure 2.1). In 1990, older persons comprised 6 percent of the global population; by 2050 they will make up 16 percent. That means one in six people in the world will be 65 or over, and 20 percent of them will be over 80 (UN/DESA 2019a). The implication that larger proportions of the population will live to ages 80, 90, and beyond is a significant departure from even a decade ago and leads to two further implications: first, we need to design cities for much older ages; and, second, older persons are likely to be productive for longer than was previously conceived.

FIGURE 2.1. AGING OF THE WORLD POPULATION, 2000-2050

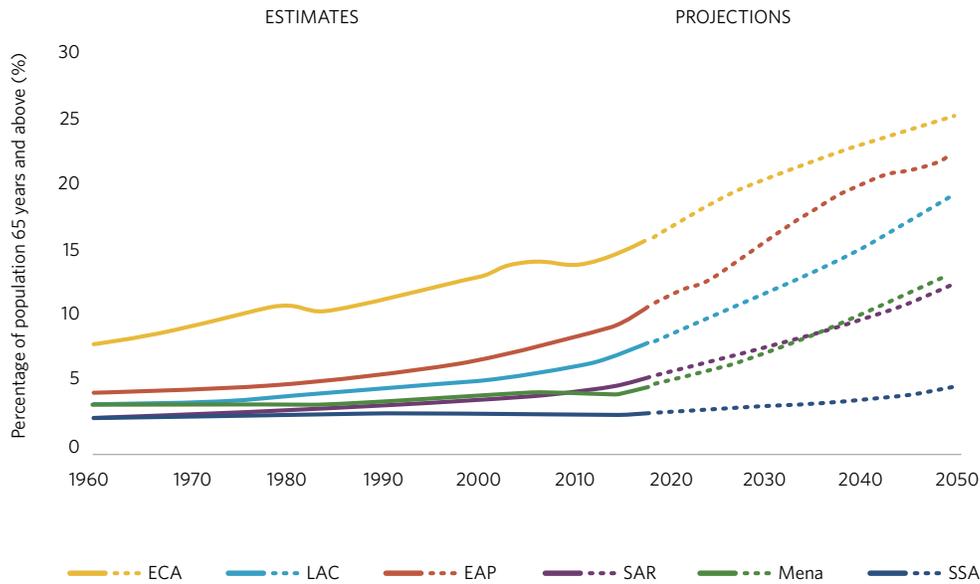
Source: Adapted from UN/DESA 2015, 5.

Note: Data for 2000-2015 are from standard estimates; data for 2020-2100 are from median variant probabilistic projections.

This chapter outlines some aggregate global trends and their disaggregation by region and country income level. Perhaps more important, it profiles older persons as a very diverse group, as characterized by socioeconomic status, gender, age, disability status, residence, and living arrangements, among other attributes. It builds the case for obtaining a good ex ante understanding of older persons and their needs as cities move forward in their quest for age-readiness. Many of the data on which this chapter draws exist only at the national level. While subnational and even city-level datasets are available in some data-rich environments, this is not the case for the vast majority of cities, which makes policy and programmatic interventions, benchmarking, and comparisons at the city level within and across countries very difficult. This data scarcity is not confined to matters relating to older persons but transposes into an overall paucity of data on city infrastructure and services. One consequence, as mentioned in the previous chapter, is that the literature on the age-readiness of cities and the needs of older populations tends to be limited to more affluent countries and cities. Some cities have taken proactive measures and commissioned detailed studies that identify older persons and their characteristics in an effort to design better services. The City of Los Angeles, California, for instance, commissioned a study on the mobility patterns of older persons (Loukaitou-Sideris and Wachs 2018), focusing on the travel behaviors of low-income and minority residents of the inner city, as well as older residents of outer-city areas.

In terms of the regions that will house the world's oldest residents in 2050, East and Southeast Asia are poised to continue leading with the largest proportion, at 37 percent; but Central and South Asia, with 21 percent, will replace North America and Europe in second place, with North America and Europe declining from 29 percent to 19 percent. The most rapid aging transformation between now and 2050 is expected to take place in LAC, where nearly 20 percent of the population will be aged by 2050 (see figure 2.2). East Asia and the Pacific countries are already facing the challenges of aging. Central Asia and Europe, too, are already grappling with these challenges and can expect to be superaged (with persons over 65 years old surpassing 20 percent of the population) by 2050. Finally, although the Middle East and North Africa (MENA) is yet another young region, birthrates have declined drastically in recent decades. Aging is in progress there, as well.

FIGURE 2.2. REGIONAL VARIATION IN AGING, 1969-2050

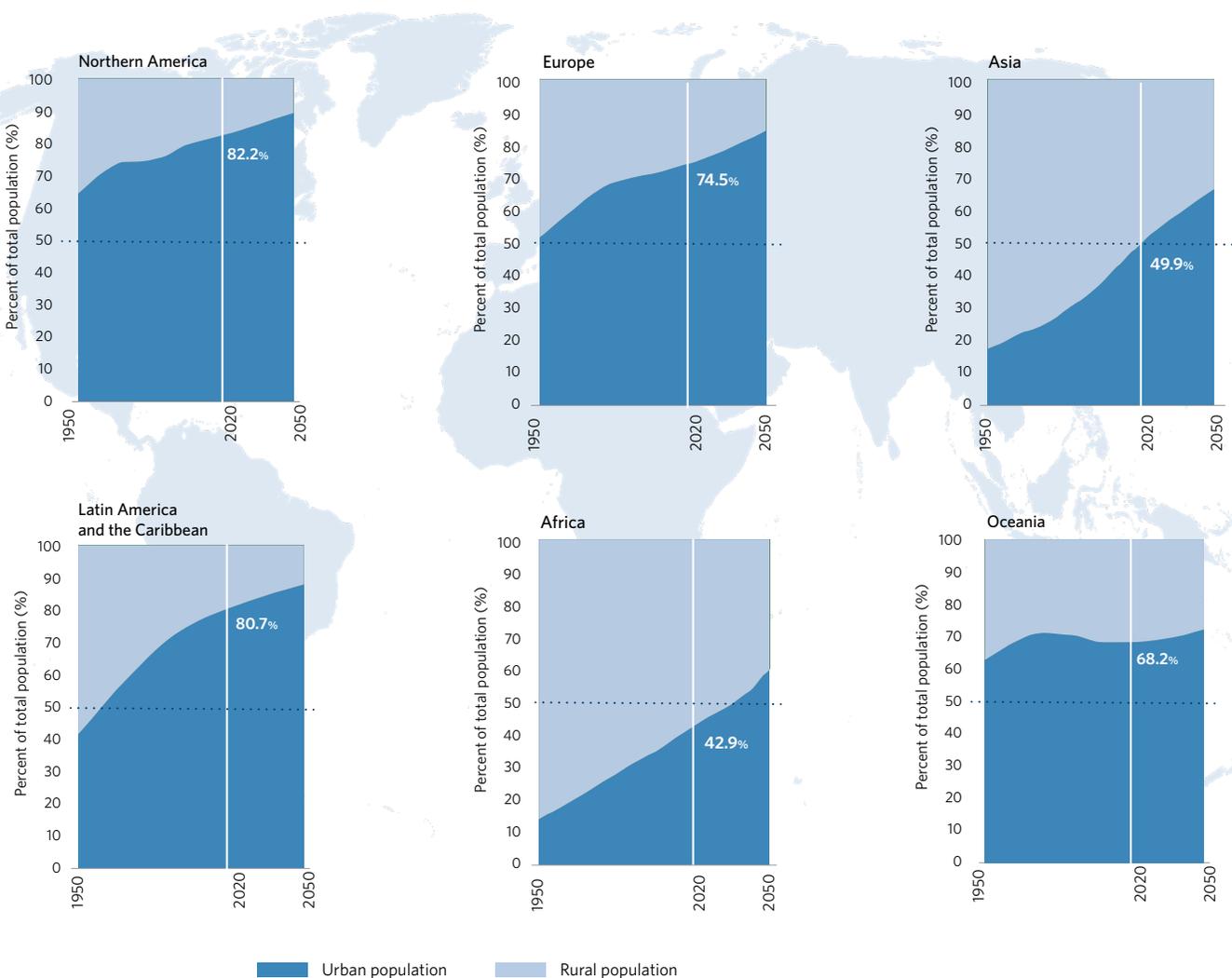


Source: Based on World Bank 2021a, <https://data.worldbank.org/indicator/SP.POP.65UPTO?view=chart>.

Aging and urbanization

Not only is the world population growing older, but more of it is living in cities and towns. The United Nations identifies urbanization and aging as two of four demographic “megatrends,” the other two being international migration and population growth (UN/DESA 2019b). All four of these trends have important implications for the world’s cities. Not only are cities and countries growing older, but they are also becoming more populous due to natural increase of their populations as well as to migration, with individuals from outside the city limits typically coming to settle in areas where jobs and services are located. Figure 2.3 shows the growth in urban population for the century spanning 1950 to 2050. While it clearly illustrates the fact of growth, it also draws attention to the differences in pace of urbanization, with Africa starting from the lowest base but urbanizing very fast and Europe starting from a much higher base but not urbanizing as rapidly as in the past.

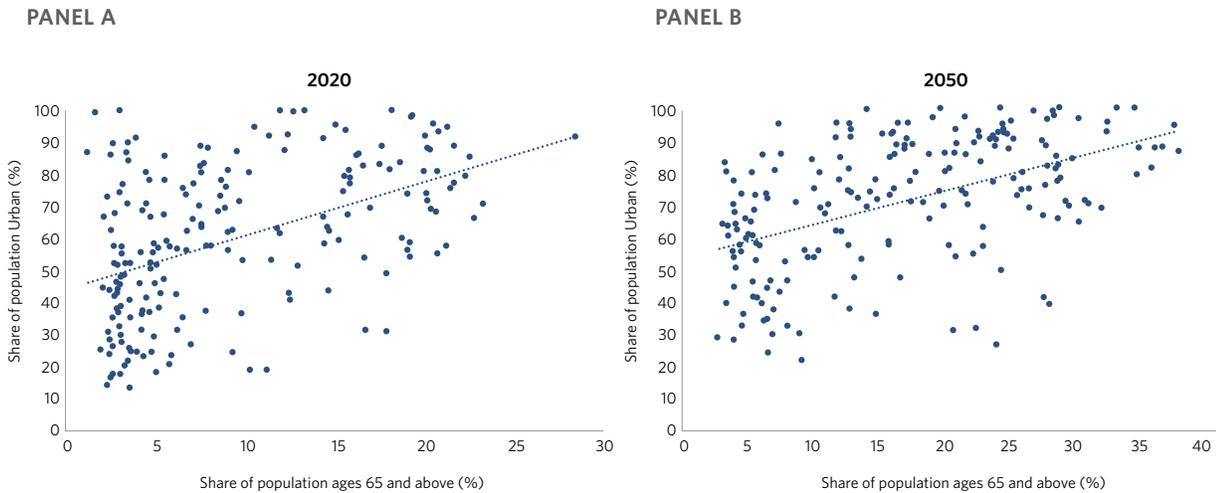
FIGURE 2.3. GLOBAL GROWTH IN URBANIZATION, 1950-2050



Source: Das and Espinoza 2020, based on UN/DESA 2018.

In terms of the relationship between urbanization and aging, larger proportions of older persons globally reside in cities than in rural areas. In 2015, 58 percent of the global population above the age of 60 lived in urban areas, an increase of seven percentage points from 2000. Among persons aged 80 and older, 63 percent were living in cities in 2015 (UN/DESA 2016). Panel a in figures 2.4 and 2.5, respectively, shows the relationship between aging and urban population, while panel b in both figures shows the projection of the relationship to 2050. Overall, there is a strong positive correlation between the age of a population and the share that resides in urban areas. This relationship is somewhat confounded, however, by some countries that do not conform to the basic linearity. In fact, by 2050, the relationship will become flatter as more countries urbanize and age, lending potentially greater homogeneity to the overall trends we witness today. Moreover, the type of urban area—suburban or urban, primary or secondary city—matters for the trajectory of aging and the well-being of older persons, as well as for the types of services and infrastructure that are needed (Joint Center for Housing Studies at Harvard University 2018; Golant 2014; UNECE 2017; Zhang et al. 2017).

FIGURE 2.4. THE CONFLUENCE OF AGING AND URBANIZATION

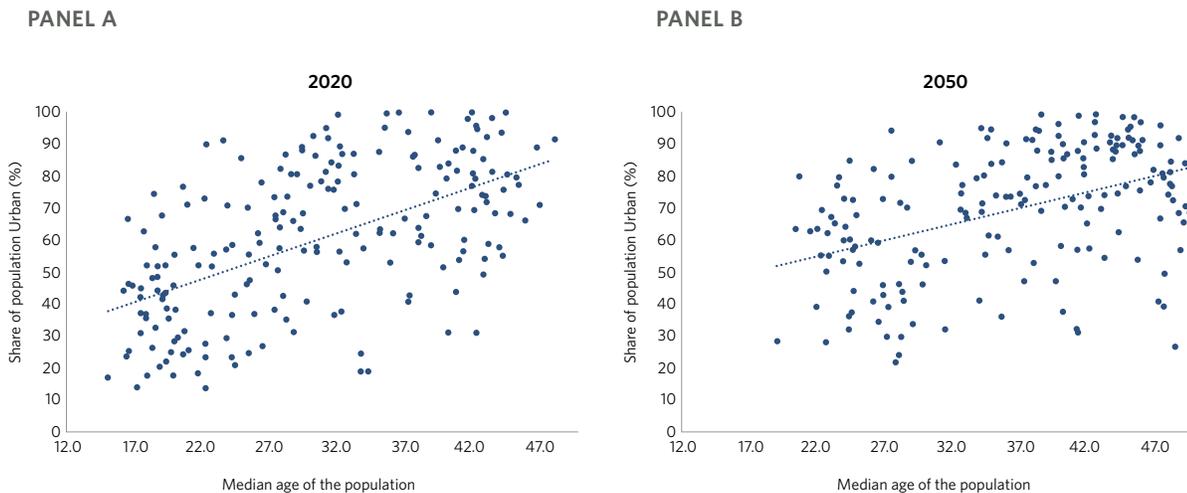


Source: Based on data from UN/DESA 2018 and UN/DESA 2019a.

In 2020, the strong positive relationship between aging and urbanization is exemplified by the countries clustered in the upper right quadrant of the panel a graphs, which are both highly urbanized and have higher shares of their population above the age of 65. Most OECD countries, as well as China and Russia, fall in this category. The aging challenge in these countries, then, is squarely an urban challenge, and they have been on this path for several decades. Cities in this group have adapted to their reality while making constant innovations, and they can demonstrate to others how age-readiness can be achieved and where the pitfalls may be.

A second group of countries, comprising one-third of world population and including many in the Association of Southeast Asian Nations (ASEAN), South Asia, and Sub-Saharan Africa, have low levels of urbanization and low levels of aging today. They are located in the bottom left quadrant of panel a in both figure 2.4 and figure 2.5. These countries will experience aging and urbanization concurrently, presenting them with an opportunity to invest early in age-ready urban infrastructure rather than having to retrofit later. Cambodia's older population, for example, accounts for just 5 percent of the total, and less than a quarter of the population lives in cities. Similarly, Ethiopia's older population is just 4 percent of the total, and urbanization is 22 percent. As working-age people move to cities in many of these countries, older persons remain in rural areas, posing a slightly different challenge. We see this pattern in China and Japan.

FIGURE 2.5. MEDIAN AGE OF THE POPULATION IS RISING WITH THE SHARE OF POPULATION IN URBAN AREAS



Source: Based on data from UN/DESA 2018 and UN/DESA 2019a.

A third group comprises countries that are highly urbanized but have much younger populations than other countries at similar levels of urbanization. As the top left quadrant of panel a in figure 2.5 shows, their median age is low, but urbanization rates are middling to high. Some ASEAN nations, several LAC countries, the Gulf Cooperation Council (GCC) countries, and many other countries in MENA fall into this category. Priorities for this group will be more focused on retrofitting, adapting, and redesigning. With their higher levels of urbanization, however, many also already have more established urban services, such as transportation, that will be important for their aging residents. They also have time to plan for the process of population aging.

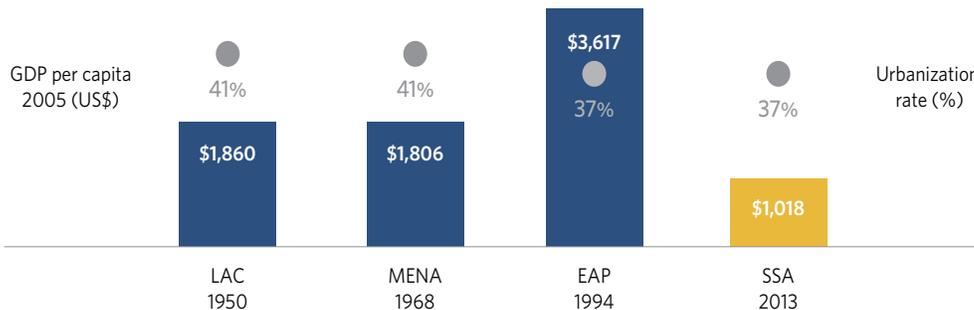
Finally, a very small group of countries are actually aging at comparatively lower levels of urbanization. These fall into the bottom right quadrant of panel a in figures 2.4 and 2.5 and include, among others, Moldova, Sri Lanka, and a few smaller countries in the Caribbean.

Projections for 2050 suggest that the overall positive association between urbanization and aging will persist. As countries urbanize, they will also be aging. By 2050 all countries are expected to have urbanization rates above 20 percent and most above 50 percent. At the same time, by 2050 the older population in more than half of all countries will have surpassed 15 percent. For most countries, therefore, urbanization and aging are set to rise over the next three decades, with implications for the age-readiness of their cities.

Aging across income levels

Overall, higher-income countries tend to be both more urbanized and older, although, as figure 2.6 shows, African countries are urbanizing at lower levels of per capita income than did East Asia and the Pacific almost two decades prior (Lall 2017).

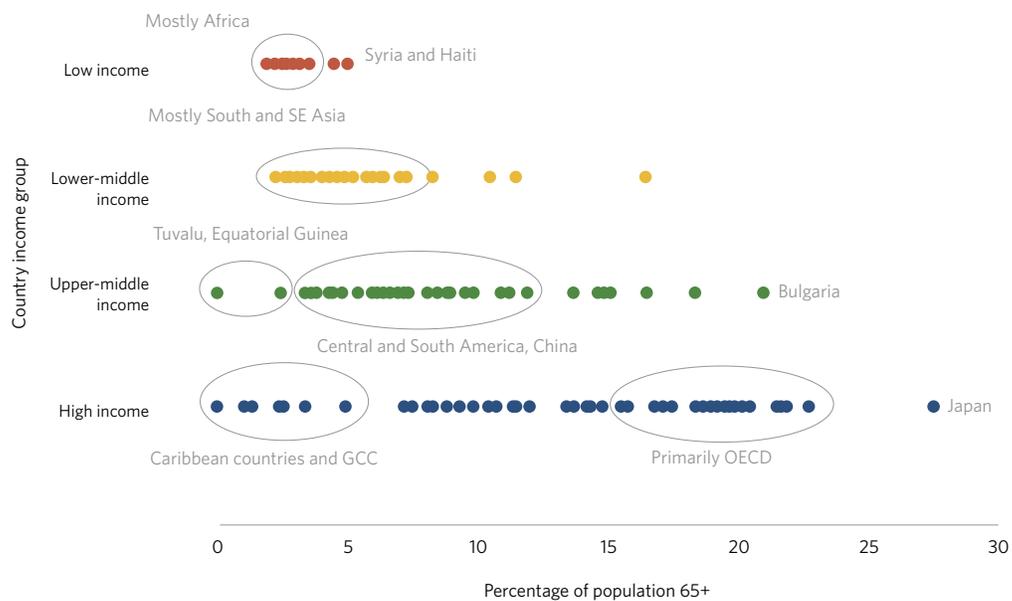
FIGURE 2.6. URBANIZATION RATES BY INCOME LEVELS



Source: Lall et al. 2017, based on UN/DESA 2014.

Even with regard to aging, high-income countries are at very different levels, as figure 2.7 illustrates. Many are already aged, while others, like the GCC countries and several countries in the Caribbean, have lower shares of their populations above the age of 65. This suggests the immediate and medium- and long-term interventions required in these countries will vary. The upper-middle-income countries also vary in their levels of aging today, with most having between 5 and 15 percent of their populations above age 65, with some outliers. Among lower-middle-income countries, the vast majority have shares of older persons below 10 percent. Finally, among low-income countries, all have shares of older persons at or below 5 percent. Again, this means interventions to make cities age-ready will vary. In absolute terms, low- and lower-middle-income countries have nearly as many older individuals as high-income countries, at 207 million compared to 232 million in the latter group of countries (UN/DESA 2019a).

FIGURE 2.7. AGING POPULATIONS BY COUNTRY INCOME GROUP

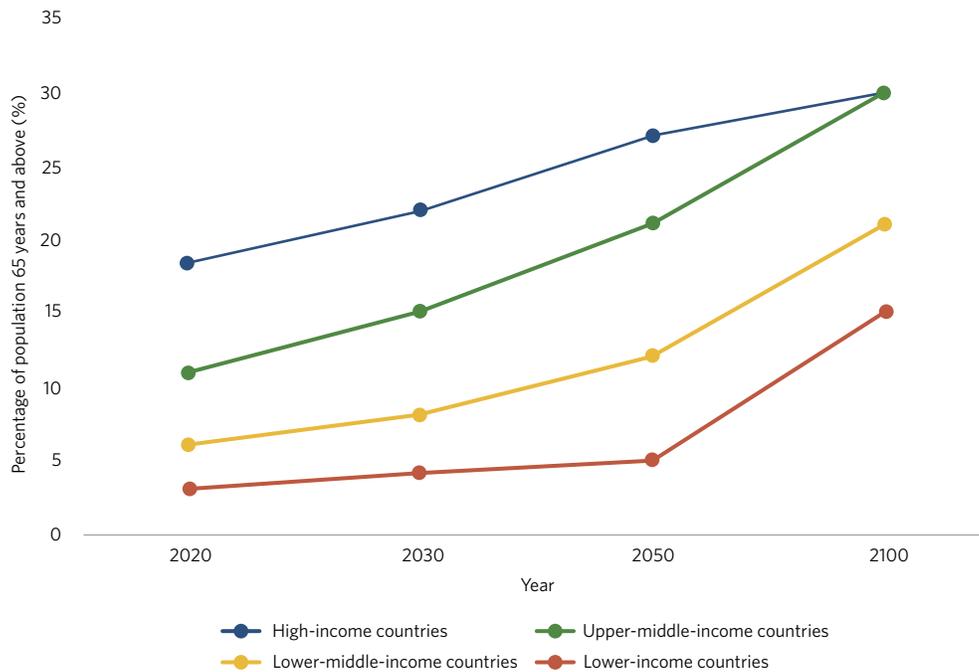


Source: Estimates based on World Bank total population data and age/sex distributions from UN/DESA 2019a.

Note: Income groups are based on the World Bank's definition. Each dot represents a country.

The trajectory of aging across income levels is also important for policy. The conventional wisdom, based on the experience of richer countries, was that they became old as they became wealthy because better standards of living led to faster declines in fertility and increases in life expectancy (Lee et al. 2010). This has changed dramatically and will continue to do so, as many countries will age before they become wealthy (for Vietnam, see World Bank 2021d; for Sri Lanka, see Asian Development Bank 2019). Figure 2.8 (UN/DESA 2020a) shows population projections for persons aged 65 and above by the income level of the country. It demonstrates that the pace of aging in less developed countries is likely not only to exceed that of the developed countries in the past but to occur with less developed infrastructure and weaker systems of social protection in place, such as those that provide pensions, social security, and other entitlements and benefits important to aging.⁵ On the other hand, these countries will be able to apply the lessons learned from countries that have already begun the transformation to aging societies and economies.

FIGURE 2.8. POPULATION PROJECTIONS FOR OLDER PERSONS BY INCOME GROUP, 2020-2100

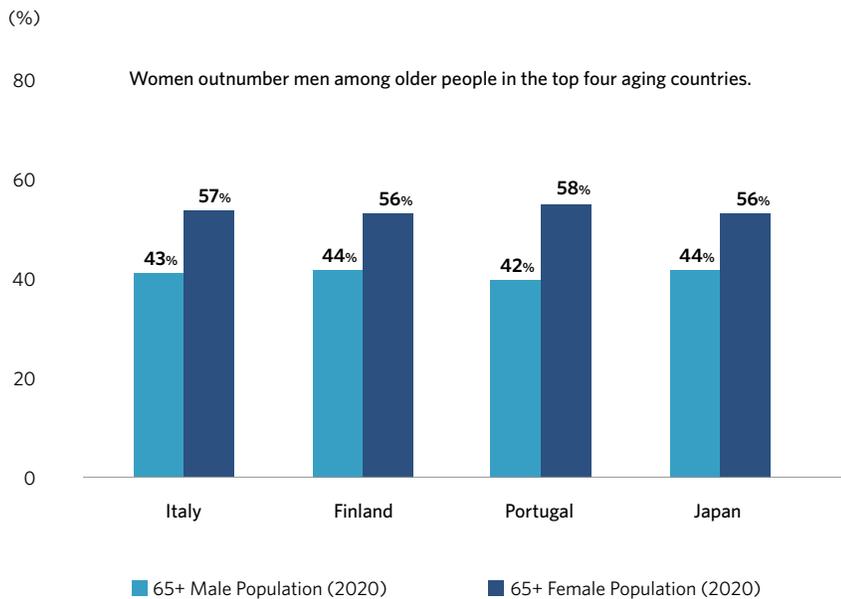


Source: Probabilistic population projections based on UN/DESA 2019a.

Who are older persons?

Even as older persons are often seen as a homogeneous group, they are, in fact, highly diverse. Keeping track of their defining characteristics is the first step toward designing age-ready cities, as knowing who they are, where they live and with whom, their sources of income, and how mobile they are affects the nature of demand for city infrastructure and services. Women, for example, live on average six to eight years longer than men do, so countries are not merely becoming older and more urban; they are also becoming more female.⁶ This often has implications for property rights, living arrangements, safety, and poverty rates. The type of area in which older persons live also matters. Suburban counties in the United States, for instance, are aging faster than either rural or urban counties (Parker et al. 2018).

FIGURE 2.9. FEMALE-MALE RATIO OF OLDER PERSONS IN TOP FOUR AGING COUNTRIES



Source: Estimates based on World Bank total population data and age/sex distributions from UN/DESA 2019a.

Advancing age is a key determinant of the extent to which individuals can live independently and how and whether they can get access to services; and, as pointed out earlier, age is often correlated with disability. Populations of persons older than 65 are differentiated by other characteristics, as well, such as race and ethnicity. In the aggregate, for example, Afro-descendant households in LAC tend to be younger, with fewer members aged 60 years and older. (Freire et al. 2018) Other kinds of disparities also occur within populations of older persons. Take the example of countries that do not have universal social pensions. There, vast inequalities exist between those who have steady pensions and those who do not (Li and Dalaker 2021). As another example, in countries where women's de facto property rights are not well recognized, older women, who live longer than men, risk losing their homes to their children or other relatives after the deaths of their husbands.

Understanding the socioeconomic characteristics of older persons enables cities to design services and to assess the ability of older persons to pay for them. Contrary to a generalized picture of older adults as poor and destitute, poverty outcomes in some contexts improve with age, which means older adults have the financial means both to support younger generations and generate demand for products and services. Global poverty trends in older age are heterogeneous, however, and depend on how poverty is measured. Some countries see a decline in the rate of poverty among older adults compared to the population overall, while others see relative stability or increases. The variation among countries is driven by a number of factors, including, for example, the existence of pension systems and access to affordable housing. There is also a gender dimension to old-age poverty. In all OECD countries except Chile, older women are more likely than older men to be poor; the average poverty rate among women ages 65+ is 15.7 percent, compared to 10.3 percent among men (OECD 2019). In lower- and middle-income countries, poverty rates among older men and women are more similar.

Moreover, within-group inequality remains a serious concern. Both wealth and income inequality among older adults segregates those who have financial means from those who do not, and the image of low-income older persons living in poor-quality housing in informal settlements in cities and towns with poor access to services while those among the top wealth quintile can choose luxury retirement homes is a stark one. Aggregate trends across the life cycle also mask intergenerational inequalities and disadvantages, many of which have a bearing on municipal policies and programs. Health disparities have been widely studied, with older adults often underrepresented in clinical trials and less likely to receive necessary treatment than younger adults and with poorer access to high-quality health care (UN/DESA, n.d.b). Other inequalities range from poorer access to services among older persons, to unequal participation in the labor market, to lower voice and participation in society; these will be discussed later in this report. Underpinning these disadvantages is the widespread ageism and stereotyping of older persons and their capabilities.

Poverty and economic status are also related to the living arrangements of older persons and have a bearing on their needs for housing, transportation, and other services. In Africa, Asia, and Latin America and the Caribbean, most older adults live with their children or extended families, while in Europe and North America most live with spouses or alone (UN/DESA 2019d). The share of older adults living alone is as high as 37 percent in Estonia and as low as 0.3 percent in Afghanistan (ibid.). A particular living arrangement of older persons is the “skip-generation household”—that is, a household comprising grandparents and their grandchildren (UN/DESA 2020a, 2020b). The important caregiving role of older persons is evidenced by such households, which may be necessitated by the migration of parents in search of jobs or when they cannot afford to rear their children as a result of custody arrangements, substance abuse, or other types of hardship. In Africa, early mortality induced by the HIV/AIDS epidemic left orphaned children living with grandparents.

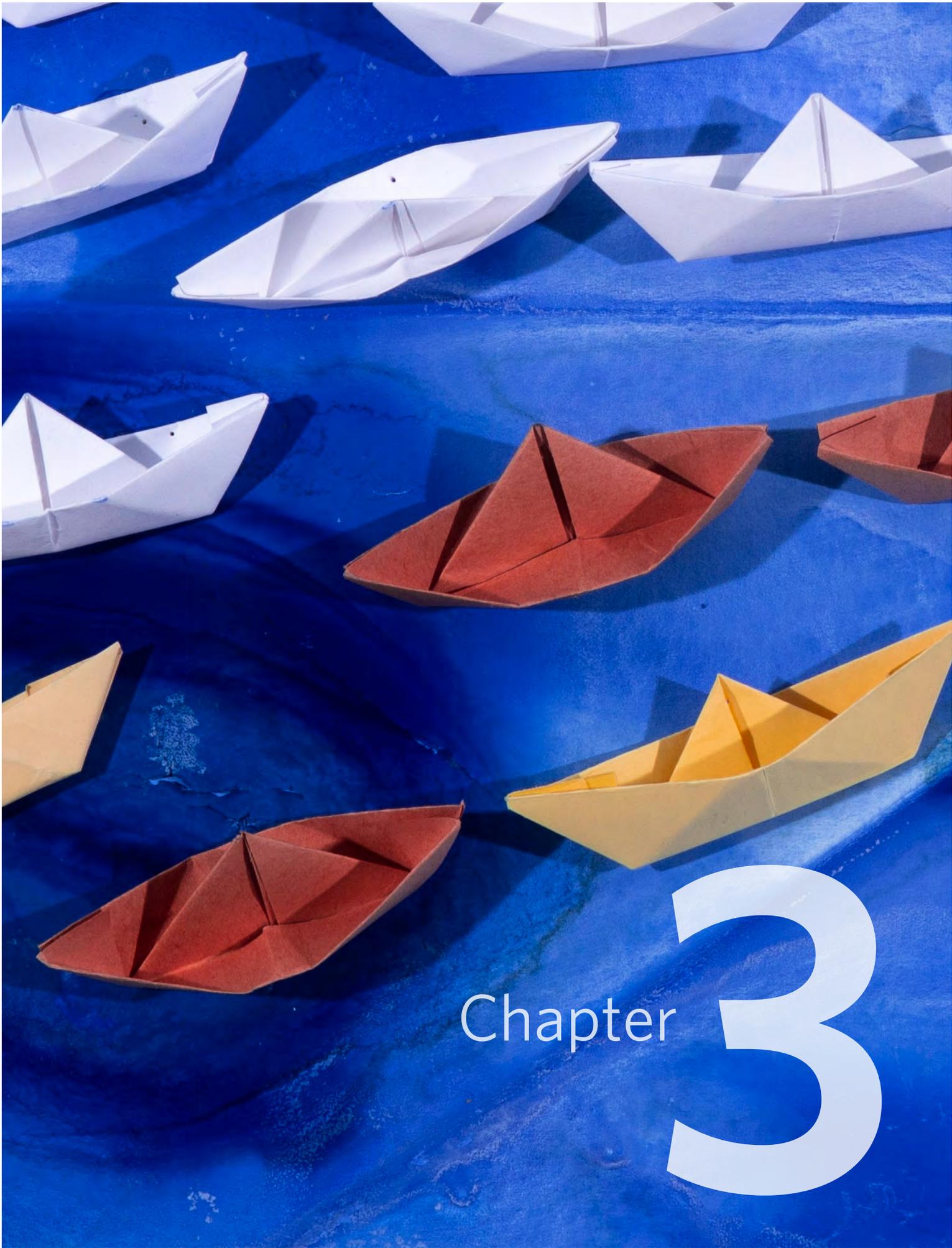
Finally, the burden of caring for others, including older persons, falls disproportionately on women, both before and after retirement, even if they do not live in skip-generation households. A study of China, Mexico, Nigeria, and Peru has shown that between 63 and 89 percent of principal caregivers for older persons are women, the vast majority of them unpaid (Razavi 2017). As the aging population increases around the world, the demand for care work will continue to rise and, without active policy and programmatic intervention, the burden will continue to be borne by women and by immigrant workers. This will have significant negative consequences for caregivers’ well-being and their ability to participate equally in the paid workforce, leading to unequal economic outcomes and reinforcing gender inequality (ibid.).

Conclusion

This chapter highlighted some important trends and patterns that have implications for the design of age-ready cities:

- Aging is inevitable, but it is also predictable. As a result, cities and countries can plan and implement actions toward age-readiness.
- There is a confluence of aging and urbanization. While there is great diversity in the pace of both trends, sooner or later, cities and countries will need to deal with these and other demographic changes simultaneously.
- Older persons are a diverse group. They differ not only by the countries and cities they live in but by income and wealth, gender, age, ethnicity, and disability status, among others. These characteristics affect the demand for city infrastructure and services.
- Ex ante analysis that identifies older persons and their defining characteristics will assist policymakers and city governments in evidence-based interventions toward age-ready cities, but city-level data that enable such analysis are scarce.

The next chapter outlines a set of six areas where cities will need to invest in actions toward attaining age-readiness and highlights the ways in which some cities have moved in that direction.



Chapter

3

Building Age-Ready Cities

What makes an age-friendly city? Good footpaths, open space and parks, good air quality. My neighbourhood does nothing. As you get older in a city, life becomes lonely, everyone around you is busy. Getting outside of your home become more of a challenge. Cities need to make better footpaths and neighbourhood parks. Better public transportation systems as well.

—64-year-old Dhaka resident
Quoted by Francesca Perry, *The Guardian*

The last chapter drove home the message that aging is inevitable and predictable. This chapter and the next argue that age-readiness is a choice, as is age-friendliness. Much of what needs to be done to achieve age-readiness will result in “good cities” or “livable cities” or “cities for all.” In other words, as was argued in chapter 1, designing the built environment of cities or adapting it to a different age structure will have universal benefits. Cities and other tiers of government have a preeminent role in putting policies and programs into place for age-ready city infrastructure and services. This requires conscious planning and execution. It also calls for a social contract in which citizens and stakeholders understand and approve of the investments a city needs to make to move toward age-readiness. Even granted that many of the actions are likely to have universal benefits, they need to be discussed with citizens to secure widespread support. This is particularly important if the investments have fiscal implications in the form of increased taxes or other tradeoffs, such as cutbacks in the budgets or other initiatives.

When Brazil was expanding its cash transfer program, Bolsa Familia, for example, it sought the broad support of its citizens—especially those who would not benefit from the means-tested program—as the World Bank (2013) points out. Radical urbanist Jane Jacobs has highlighted the importance of a city that has a diversity of uses, serving, by implication, a diversity of residents. This strikes at the core of what an age-ready city is.

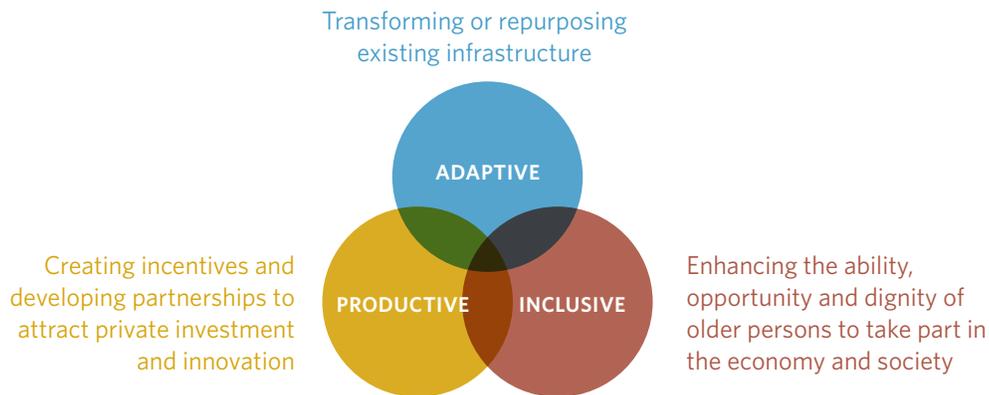
“One principle emerges so ubiquitously, and in so many and such complex different forms, that I turn my attention to its nature . . . This ubiquitous principle is the need of cities for a most intricate and close-grained diversity of uses that give each other constant mutual support, both economically and socially. The components of this diversity can differ enormously, but they must supplement each other in certain concrete ways.”

—Jane Jacobs

In the Death and Life of Great American Cities



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FIGURE 3.1. ATTRIBUTES OF AGE-READY CITIES

What kinds of actions make for an age-ready city? Figure 3.1 illustrates that a city needs to be adaptive, productive, and inclusive in order to become age-ready. In being **adaptive**, a city transforms or repurposes some of its existing infrastructure to respond to the new challenge of aging. In Japan, for example, school buildings were repurposed into community centers as the number of schoolchildren declined and that of older persons increased (Yuen 2021a). Such adaptation means incorporating universal accessibility and flexible design approaches, in some cases retrofitting, repurposing, and redesigning existing infrastructure, such as buildings, public spaces, and housing. Ideally, city infrastructure will be “built better before,” incorporating design that benefits all its residents. But when that is not possible, cities will need to take advantage of renovations and repairs to insert universal design features to “build back better.” This is likely to have implications for the budget and implementation arrangements.

In being **productive**, the city hones its competitive edge by creating incentives for entrepreneurs to develop products and services catering to the growing demands of and for an aging population. Older persons represent an expanding market for products ranging from housing to health care, leisure, and technology. This market comprises not just older adults who can afford these products and services but those who make decisions on their behalf, as well as cities that seek to make adaptations to their built environments. The term “silver economy” (EC 2018) or “longevity economy” (AARP 2021; Coughlin 2017) refers to the profitability of investment in products and services targeted to older persons and their families. Around the world, innovations intended for this market have shown huge growth. To harness the potential of such opportunities, cities will need to create an enabling environment to attract investors and encourage innovation.

In being **inclusive**, the city “enhance[s] the ability, opportunity and dignity of individuals and groups disadvantaged on the basis of their identity, to take part in society” (World Bank 2013) by working toward inclusion in the spatial, social, and economic realms (World Bank 2015). To make progress in this regard, cities will need to understand who older persons are, where they live, what they do, and what their needs are; and to secure this understanding, they will need to invest in data and analysis. They will also need to consult a wide range of residents, including older persons. The growing numbers of older persons in many parts of the world will necessitate new policies, programs, changes to the built environment and to services, and a new role for the private sector and

community-based organizations. Such change often carries risks that some groups will be left out; cities and higher tiers of governments will need to be alert to these risks, build in measures to mitigate them, and have systems for monitoring, evaluation, and making course corrections based on resident feedback.

We should point out that actions that are adaptive, productive, and inclusive are both overlapping and complementary. Universal design, for example, is adaptive in that buildings and spaces are made accessible to diverse users. It enhances productivity, because more persons can get around the city and engage in education or employment. It is inclusive because it caters to the largest possible groups. Ultimately, the visualization of age-readiness will need to be part of an overall city strategy, with actions prioritized based on a clear social contract.

This chapter also identifies six areas for action toward age-readiness: universal design, housing solutions, multigenerational spaces, enhancing the physical mobility of older persons, use of technology, the possibility of efficient spatial forms, and, finally, advancing inclusion and partnerships. These thematic areas draw from the WHO Age-Friendly Cities framework but focus primarily on the built environment (WHO 2007, 9).⁷

FIGURE 3.2. SIX ACTION AREAS TO ENHANCE AGE-READINESS IN CITIES



Universal design toward age-readiness

Universal design broadly defines the user. It's a consumer market driven issue. Its focus is not specifically on people with disabilities, but all people. It actually assumes the idea, that everybody has a disability and I feel strongly that that's the case. We all become disabled as we age and lose ability, whether we want to admit it or not.

—Ronald L. Mace

“A Perspective on Universal Design”

The urban environment can be remarkably unnavigable for its residents, especially those who may have temporary or long-term mobility, cognitive, hearing, or vision challenges, or a combination of these. Buildings and streetscapes, for instance, can present insurmountable obstacles, and the absence of elevators in multistory buildings can make them unusable for such individuals. Housing that is located far from public transportation and other services requires people to walk long distances to obtain necessities, get to work, or receive education. Poorly built or maintained or nonexistent sidewalks can compromise the safety and usability of streets. Even modern, well-appointed bathrooms without features like handrails can be hazardous and uncomfortable to use, and sanitation facilities in informal housing settlements—where nearly a third of the world's population reside—can be distant, hard to get to, and unsafe. Obtaining water for those without indoor plumbing can be beyond the strength and endurance of many. Poor and unreadable signage at public sites blocks the access of persons who have hearing or vision limitations even to basic services—all the more so if they speak minority languages. This lack of accessibility in cities prevents the equitable use of resources and services and can leave older persons particularly affected. But it does not need to be so; changes in design toward greater accessibility have benefits, both direct and indirect, for entire populations.

Yet, the physical environment can also be a great enabler, helping persons with functional limitations to lead productive, healthy, and dignified lives. In 1993, the United Nations urged its member states to recognize the importance of equalizing opportunities and implementing universal accessibility in the built environment. The idea of universal design was first articulated by Ronald Mace, who advocated for “designing all products and the built environment to be aesthetic and usable to the greatest extent possible by everyone, regardless of their age, ability, or status in life” (Center for Universal Design 2008; Mace 1998; 2010). The premise is that universal design is not something special, or only about accessibility. It is, quite simply, good design. With its focus on detail, it purports to make objects and environments universally usable (Mace 1998). The concept is upheld by seven principles: equitable use, flexibility in use, simple and intuitive design, perceptible information, tolerance for error, low physical effort, and size and space for approach and use (Connell et al. 1997). The experience of the user is key to good design. An example is the face masks that have become common during the pandemic era. Although they



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protect wearers, they also pose challenges for those with hearing loss, for whom sounds may be more muffled and lipreading impossible. For those facing such challenges, services might be made more accessible if providers, such as attendants on public transportation or traffic police, wore clear panel masks.

Cities and other tiers of government are critical to the adoption of universal design. Putting in place building and other codes and regulations and enforcing them is a core responsibility of all levels of government. While cities and countries vary in the extent to which they have made progress in this regard, some stand out. One example is Singapore, which legislated the Code of Accessibility in the Built Environment in 2007 (Yuen 2021b). Where the country's 1990 Code on Barrier-Free Accessibility in Buildings applied only to new buildings, the 2007 code expanded the mandate to newly built public spaces, such as the connecting areas between buildings and between buildings and parks. It also raised minimum standards—for example, by increasing the required number of foldable grab bars and adding new requirements for the installation of emergency call buttons in restrooms. The new code also required existing public housing and government buildings to comply with universal design standards. In another example, China issued in 1999 a Code for the Design of Residential Buildings for the Aged as the design standard for new buildings and their extension and reconstruction to meet the needs of aging adults (China, Ministry of Housing and Urban-Rural Development 2012). Enforcement has been difficult, however; adding the element of universal accessibility to the built environment requires training the stakeholders, such as urban planners, architects, construction engineers, and other professionals, in the fundamentals of and updated designs for accessibility. Box 3.1 highlights the example of the ways in which GCC countries have adopted integrated solutions for their aging populations.

As mentioned earlier, though, older persons have accessibility needs that go beyond accommodations for mobility limitations. Many have challenges with respect to hearing, sight, or cognitive ability, or a combination of these, that may not receive the same attention from designers, who probably do not know as much about or have not internalized, for example, the auditory aspects of the built environment. Small changes to the built environment can also help with hearing, however, in addition to providing better access to groups that are not aging. Laszlo's *Principles of Design for Hard of Hearing Access*, as set out by the Canadian Hard of Hearing Association (CHHA 2008), proposes design elements that account for good acoustics and noise control. The organization's best practices also cover design for appropriate visual conditions, including placement of light sources, levels of illumination, and adequate signage; built-in non-acoustic alerting and notification systems; and augmented telecommunication systems. Provisions for assistive communication technologies include awareness of the effects of design elements on persons with hearing loss (ibid.).

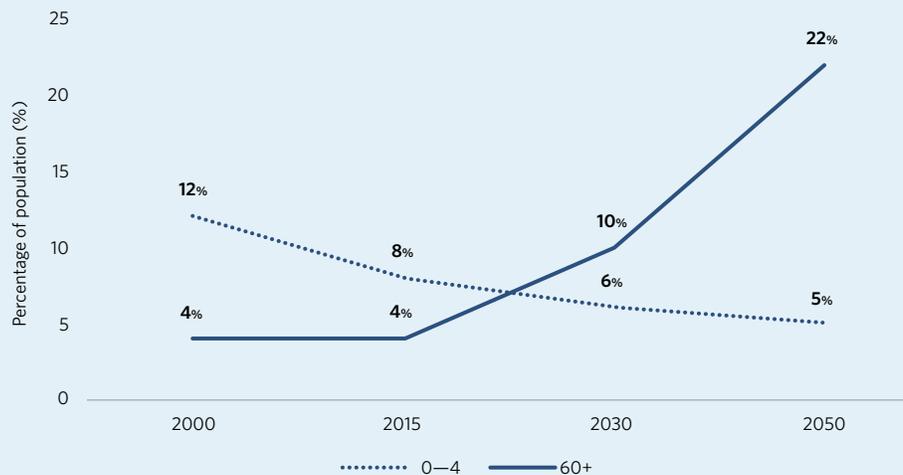
Many World Bank projects have incorporated universal design principles, including, for example, in Senegal, where the Dakar Bus Rapid Transit Pilot Project incorporates accessibility features to facilitate movement for less mobile populations, including women, children, older persons, and those with mobility and other disabilities (World Bank 2021b; World Bank 2021c). The Vietnam Urban Upgrading Project has partnered with persons with disabilities in designing and upgrading urban infrastructure, drawing on their views and experiences (World Bank 2021e). Railway projects in China, including the Hajia and Zhang Hu railways, are currently integrating accessibility features into train stations to increase usability for individuals with mobility difficulties (World Bank 2021c). And projects across Latin America, including in Bogota, Lima, and Sao Paulo, are including universal design features in metropolitan transportation projects (ibid.).

Cities also need to adapt to an ongoing onslaught of climate-related hazards. For example, rising temperatures across the globe have contributed to the urban heat island effect, and older persons are at greater risk of morbidity and mortality from these. New techniques of mapping heat islands and predicting hotspots can make it easier for cities to design both mitigation and adaptation strategies (Chae et al. 2020). Building safe, age-ready neighborhoods also means taking an approach to enhancing resilience to disasters that does not leave older persons—whose physical, financial, and social vulnerabilities put them at particular risk—out of the process of emergency preparedness, response, and recovery efforts. Learning from aging cities that have combated natural hazards can be important for other emergencies—such as epidemics and pandemics—as well. Experience from Japan, for instance, indicates that community hubs can serve as evacuation centers and as sites for preparation trainings and consultations, led by older persons who share their experiences and lessons learned from previous disasters (Ibashi, n.d.).

BOX 3.1. AGING CITIES: BUILDING ON INNOVATION AND PRODUCTIVITY IN THE GCC COUNTRIES

The Gulf Cooperation Council (GCC) includes the countries of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. All are highly urbanized and affluent, and all are aging rapidly; over the past six decades, they have seen huge increases in life expectancy and declines in fertility rates. These demographic changes mean that while the GCC countries have young populations today, by 2050 older persons are expected to account for 20 percent of their inhabitants (UNFPA 2017; see figure B3.1.1).

FIGURE B3.1.1. YOUNG AND OLDER PERSONS AS A SHARE OF THE TOTAL POPULATION IN GCC COUNTRIES, 2000–2050



Source: UN/DESA 2019a.

Note: Data for 2000–2015 are standard estimates; those for 2020–2100 are median variant probabilistic projections.

Cognizant of their demographic trajectories, the governments of GCC countries—primarily their city governments—have put into place various initiatives in anticipation of the change. Priority areas, which include health care and disability, are attracting investment in and technological innovation for age-readiness. The Mada Center in Qatar, for instance, is an assistive technology center run by a nonprofit organization that promotes digital inclusion and the growth of a tech-based community to meet the needs of persons, including older persons, with functional limitations and disabilities (Mada Center 2021). Many GCC countries have their own universal design codes—the Kuwait Universal Design Code and the Dubai Universal Design Code, for example—for buildings, infrastructure, and public spaces. Such codes are already influencing the design of projects being implemented, such as the first accessible playground constructed in Qatar. Similarly, Oman’s National Elderly House Care Program offers a menu of services that facilitate aging in place and provide financial support to those older persons who need it (Oman, n.d.).

GCC country governments are also in tune with trends in global aging and the opportunities that the “silver economy” offers. Investments in age-readiness are likely to intensify, for instance, following a new policy for “retirement visas” that encourages high-net-worth individuals from overseas to live in the UAE (UAE 2021). As richer individuals look for alternative homes to escape any future global emergencies, like COVID-19, the GCC countries are joining the ranks of others that have opened their doors for wealthy older persons to reside in their territories. In short, GCC countries seem to be gearing up to maximize the economic opportunities of global aging.

Housing solutions for age-readiness

As mentioned earlier, living arrangements of older persons vary by country, socioeconomic status, and urban-rural location. In many developing countries, the majority of older persons co-reside with other family members, while in OECD countries, they tend to live with their spouses or alone. Regardless of whom they live with, the homes and other spaces older persons inhabit need to be adapted to their physical and cognitive needs to enable them to lead independent, safe, and dignified lives. In societies where older persons live alone, the choice is between independent living—or “aging in place”—and living in institutional settings. Some evidence suggests institutional care is costlier for individuals, their families, and the state than aging in place, even accounting for the capital cost of retrofitting one’s home (U.S. Department of Housing and Urban Development 2013). In addition, because housing alternatives for them are lacking, many older persons may move into nursing and other institutional care settings before they truly require them, even against their wishes.

Costs aside, the cataclysm of COVID-19 has led to a reexamination of the role of nursing homes and institutional care for older persons; those who are planning for their own or their families’ future living arrangements are likely to take this into account. Even before the pandemic, aging in place had come to be understood in developed countries as the gold standard for housing older adults, for both its social and its economic benefits. For aging in place to be successful, however, cities need to pay adequate attention to services, housing quality, and access to public spaces (Golant 2014). Homes need to be made universally accessible, transportation needs to be accessible, and other services, such as health, personal care, and shopping, need to be available and affordable. In developed housing markets, older persons with financial means are willing to pay more for accessible housing than they would for traditional housing. A study in Korea found that more than half of 700 interview respondents were willing to pay a higher price for accessible housing (Lee and Yoo 2020). Another survey of households in Barcelona and Madrid found that individuals, on average, were willing to pay an additional 12.5 percent for accessible housing (Alonso 2002). Both studies indicated the existence of a sizable private market for housing that meets the demand for accessibility.

Some older persons have the wherewithal to choose between aging in place and moving to an institutional care setting. Those who do not, or who live in cities that do not offer many options, have to contend with the basic issue of affording housing (Molinsky and Airgood-Obrycki 2018). They often live in areas that present greater barriers to aging in place comfortably and safely, including low levels of services and amenities, poor-quality habitation, unsafe conditions, and environmental and other hazards (Rodwin and Gusmano 2006; Smith 2009). In the United States, for example, over 30 percent of persons between the ages of 65 and 79 spend over 30 percent of their income on housing, a proportion that rises to 36 percent among those ages 80 and above (Joint Center for Housing Studies at Harvard University 2018, 7). The housing cost burden is especially high for individuals who live alone and those who rent (*ibid.*). Older renters are more likely to be cost burdened than renters overall, at 53 percent and 47 percent, respectively, with racial and ethnic disparities also evident (Prunhuber and Kwok 2021). Older lower-income

city residents may also be disproportionately affected by the process of gentrification. They may lose their original homes and be unable to find alternative places to live, or they may be pushed into neighborhoods with poorer-quality infrastructure where they are more isolated, with adverse consequences for their well-being (Blanco and Subirats 2008; Buffel and Phillipson 2016; Burns et al. 2012; Galcanova and Sykorova 2015; Zukin 2010). In countries and cities where they co-reside with family members, older persons often have greater support, but they, too, may be hamstrung by lack of accessibility or by living conditions that are not conducive to their well-being, especially if they belong to lower-income households.

Governments at the municipal, subnational, and national levels in many parts of the world have taken steps to improve housing conditions for older persons. In Japan, for instance, home modification support programs implemented at local government levels provide grants to homeowners for making housing space universally accessible (Yuen 2021a); by the end of the 1990s, 70 percent of all Japanese municipalities had offered such grants for home modification (Makigami and Pynoos 2002). In Turkey, the central government supports municipalities in the provision to older persons of community and home care services and home modifications as part of YADES, the Elderly Support Program (AARP, n.d.). Some grassroots organizations also help individuals age in place and stay active; examples include the Grass Roots Organization for the Well-being of Seniors (GROWS) in Maryland and the PA Active Ageing Council (AA Council) in Singapore (Yuen 2021b). These groups promote community bonding and networks and provide advocacy and education for the employment of older persons. By the same token, developing countries such as India have seen an upsurge in the use of assisted living and institutional facilities for older persons.

The next section provides examples of innovations that enable older persons to stay in their homes, while also receiving social and emotional support and becoming active contributors to their cities.



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Mixing it up: Creating multigenerational “spaces” toward age-readiness

Older persons are often isolated from the social and physical environment outside their homes, either because they do not have access to facilities and services or because their families and neighborhoods believe they are “safest” when they are in confined areas (see Papke 2020 for the United States). Both these reasons are implicit testimony to the fact that decision makers both within and outside the family may consider it more work to integrate older persons than to segregate them. Physical spaces that are designated specifically for older persons, like residential facilities or daycare centers, often reinforce social exclusion and isolation, and the generational segregation they impose can have significant mental health costs to them and, hence, to society as a whole.

Designated facilities may, indeed, be needed for those who are physically unable to function without continuous medical and other care. But various studies have shown that older persons generally prefer to be among other generations; and to accommodate this preference, while realizing the significant economic and social benefits of providing accessibility for them, aging cities are moving toward the adoption of multigenerational spaces. These range from innovative housing solutions to recreational facilities, public amenities, and community groups,⁸ and they contribute to the creation of an adaptive, productive, and inclusive age-ready city. In cities where older persons co-reside with their families or other kin, this is less of an issue, but segregation can also occur within the home and if adequate opportunities for mingling with others do not exist.

The city has a salient role in providing incentives for multigenerational spaces, as well as in directly supporting them. The background paper on Korea that was commissioned for this report analyzed the spatial distribution of older persons during the day and night time in Seoul and found that they tended to be concentrated for daily activities in places used by mixed generations, such as near public transit, rather than at the senior citizen centers built for them (Kang 2021). In view of this, the city government is incorporating policies that allow for intergenerational interaction in housing and public infrastructure facilities used by older persons. Similarly, China has utilized parks to encourage active aging across the life course, enhance social interactions, and foster intergenerational connections (Zhang 2009). The Nationwide Physical Fitness Program, established in 1995, promoted the construction of fitness equipment in parks and public spaces across Chinese cities; by 2019, Beijing alone had 4,000 such exercise areas (Arup 2019). Likewise, cities in Romania are refurbishing public spaces to increase their accessibility and encourage multigenerational use by installing additional outdoor furniture, arranging fitness equipment and chess tables in parks adjacent to playgrounds, and providing indoor spaces for community activities (Marin et al. 2021).

Housing presents a powerful opportunity for people of different ages to commingle, with cities putting into place programs that create incentives for mixed-generation living arrangements. The New York Foundation for Seniors Home Sharing Program, for example (which is supported by city, state, and federal grants), matches older New York residents who have extra space in their homes with younger housemates who are seeking low-cost housing (NYFSC 2007). The homeowners, for their part, benefit from having both

the additional income and reliable young people staying in their homes. The program conducts background checks and provides mediation to ensure positive matches. Another such initiative is the One-Roof Multigeneration Homes Program in Korea, which encourages older persons living near universities to lease out rooms to students at affordable prices, again with benefits for both generations, as the students get secure housing, and older persons overcome loneliness by engaging with younger ones (Kang 2021). Similar, less formal private arrangements exist in other countries. In India, for example, many older persons with additional space in their homes rent rooms to “paying guests” who are students or young professionals. Cities can also provide tax incentives for multigenerational living. Programs such as these are likely to gain importance with COVID-19, as many younger persons have lost jobs and are looking for more affordable housing options. Table 3.1 gives a snapshot of the types of interventions governments and civil society have spearheaded for older persons in response to the COVID-19 pandemic.

In addition to cities, local communities are active in creating multigenerational spaces. Vietnam, for instance, has 3,000 Intergenerational Self-Help Clubs, with more than 160,000 members of all ages (NPR 2020). Another innovative program in Shanghai, the Old Partner Program, matches volunteers between the ages of 50 and 75 with older adults aged 75 years and over who live alone. The younger adults support their partners by performing various household and other tasks and making regular in-person visits. Similar programs exist across many countries and cities and are naturally more common in aging contexts.



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TABLE 3.1. GOVERNMENT AND CIVIL SOCIETY SUPPORT FOR OLDER PERSONS DURING THE COVID-19 PANDEMIC

COUNTRY	ORGANIZATION	DESCRIPTION
Argentina	Government of the City of Buenos Aires	The Mayores Cuidados program in Buenos Aires recruits volunteers to aid individuals aged 70 years and over. By calling 147 on their phones, older persons can request volunteers to help them purchase groceries and medicines, walk their pets, and use other essential services, like banking. The city has also deployed the volunteers engaged through the program to support the 80 vaccination centers set up for older persons. Within its first few months, the program had enrolled 39,000 volunteers and assisted 11,700 persons. ^a
India	HelpAge India	Through Older People’s Groups (OPGs), HelpAge India and Gramin Vikas Vigyan Samiti (GRAVIS) established an emergency response mechanism to help older persons during the COVID-19 pandemic. As the second wave of the pandemic strained the health care infrastructure, the OPGs remained active to ensure older persons had access to their medication for chronic illnesses. The groups also organized local health clinics and partnered with Uber, which offered free rides for older persons to reach vaccination centers. ^b
Jordan	HelpAge Jordan	Following the outbreak of the COVID-19 pandemic in early 2020, HelpAge Jordan, supported by the Basic Needs Cluster, a multi-agency emergency response mechanism, and the Ministry of Planning and Jordanian Emergency Response, designed a program to support older persons based on a strategy called “Protect, Assist, and Advocate.” Through partnerships with local organizations, they arrange for food supplies and medicines. By August 2020, they had distributed 2,600 hygiene kits, provided cash assistance for 400 individuals, and conducted weekly remote outreach activities benefiting 2,200 older men and women. ^c
Tanzania	Dorcas Tanzania	Through its community safety net projects in Meru, Olokii, and Rundugai districts, the Dorcas Tanzania organization is delivering food parcels and hygiene kits to older persons and arranging counseling services for those in need. ^d
United Arab Emirates	Ministry of Community Development, United Arab Emirates	Through the “We Are Your Family” initiative, the Ministry of Community Development in the UAE mobilized its staff and volunteers to reach out to older persons to monitor their health status and basic needs. In 2020, the ministry contacted a total of 18,115 people. Additionally, the senior citizen customers’ happiness centers associated with the ministry organized workshops on remote digital awareness and psychological support for older persons. ^e
	Social Services Department, Sharjah	As of June 2021, the Department for Social Services in Sharjah has assisted 1,983 older persons through an outreach program that includes home delivery of groceries and medical supplies. ^f

a. City of Buenos Aires 2020; Arano et al. 2020.

b. HelpAge International 2021.

c. HelpAge International 2020b.

d. Dorcas 2020.

e. Sharjah 24 2021.

f. WHO and World Bank 2021.

Getting around: Age-readiness through improved transportation

Being able to get around their city is important for all residents, and older persons are no exception. Mobility is essential for well-being as individuals meet their basic needs, work, engage in recreation, socialize, and make use of services, and making urban mobility accessible can have wide-ranging benefits. A study from the United Kingdom, for instance, found that improving accessibility at several train stations led to a 30 percent increase in the number of trips taken by wheelchair users, a 20 percent increase for individuals with limited hearing, and a 15 percent increase for those with limited mobility. Overall, the benefits exceeded the costs by a ratio of 2.4 to 1 (Rebstock 2017). Conversely, the opportunity costs associated with inaccessible environments can be large, as some groups are excluded from the labor market, education, and recreation.

Finally, enhancing mobility and the accessibility of public transportation for older persons can confer benefits for all residents in line with other urban development priorities, including climate impacts. Examples include reduced congestion and air and noise pollution as people use public transportation more and depend on cars less, improved safety for pedestrians and bicyclists, and improved health, as people take advantage of the reallocation of road space by walking and cycling more. As cities rethink their mobility solutions in a post-COVID world, they are likely to expand walkable spaces even more. This presents an opportunity to ensure such spaces are accessible.

Travel patterns of older persons are often distinct from those of other age groups and are determined by many factors, including socioeconomic status. The study mentioned earlier that was commissioned by the City of Los Angeles (Loukaitou-Sideris and Wachs 2018) found that older, low-income, minority residents residing in inner-city areas tend to take shorter and more frequent trips than those living in outer-city areas and whose incomes are higher. Inner-city minority residents also drive less and exhibit much lower rates of car ownership than outer-city residents. Older persons living in outer-city areas take the overwhelming majority of their trips by car, mirroring typical travel patterns in California, while older persons in the inner city drive much less frequently and tend to walk more or to use public transportation. The latter are more likely to take shorter trips and more frequent trips in a day. Another study in the United States that looked at the travel patterns of persons above the age of 75 found both the frequency of their trips and the modes of transportation they used were influenced by various characteristics of residential areas (Lynott et al. 2009). There is also some evidence of gender differences in mobility patterns, with women less likely than men of the same age to drive as they grow older and also less likely to own cars (see Loukaitou-Sideris and Wachs 2018 for Los Angeles and Liu et al. 2017 for Beijing). Box 3.2 reports on the travel patterns of older persons in Delhi and Nairobi.

BOX 3.2. MOBILITY PATTERNS OF OLDER PERSONS IN DELHI AND NAIROBI

“I avoid the bus mostly because of the difficulty boarding.”

—Older man, Trilokpuri, Delhi

“I have to think many times before taking a bus journey because of cost and discomfort.”

—Older man, Trilokpuri, Delhi

“When planning a journey, I must find the bus for both myself and my caregiver, which is challenging.”

—Older woman, Kibera, Nairobi

Context is important in comparisons of the mobility patterns of older persons with those of their younger counterparts. In 2019, HelpAge International conducted a survey of over 1,300 older persons across four research sites in Delhi, India, and Nairobi, Kenya.^a It found that older persons relied heavily on walking and on public transportation, highlighting the importance to them of access to both. Mobility was additionally shaped by poverty, gender, and disability. Older women, for instance, made 20 percent fewer trips by bus than men, and 55 percent of persons with disabilities found transportation for journeys difficult to plan.

The survey also highlighted the tendency of individuals often to make only essential trips as they grow older, with mobility further limited by disability. In both Delhi and Nairobi, more journeys included visits to health centers, while Delhi respondents made only infrequent trips to the market. In Nairobi, the percentage of journeys to attend places of worship declined with age, even though many older persons see this as a valuable experience. Older persons with disabilities in Delhi made half as many journeys to visit friends or family as those without.

Source: HelpAge International 2020a.

a. Mexico City was included in the research, but results are available only for Delhi and Nairobi.

What do these travel patterns and behaviors mean for the age-readiness of cities? They imply that, if a city is to be accessible and to promote independent living among its older residents and persons with disabilities, it will need to adapt its public spaces and transportation options. An understanding of mobility patterns and behaviors is important in predicting the usage of transportation and public spaces, as well as for the creation of policies related to setting fares, providing transportation vouchers, and developing other facilitating programs. Similarly, a clear understanding of the barriers to the utilization of city infrastructure and services can help in alleviating them. Knowing, for example, that constraints for older persons in high traffic spaces include difficulties in getting to and from and waiting at transit stations and boarding and alighting from

vehicles, lack of access to and within buildings, and the presence of narrow entryways and inaccessible toilets, the city can prioritize addressing those in its adaptation strategy (Satariano et al. 2012).

Several cities have prioritized the accessibility of their transportation systems, roads, and pedestrian paths. All Mass Rapid Transit trains in Singapore, for instance, were made wheelchair accessible by 2017, and 80 percent of the train stations are equipped with at least two universally accessible routes (Yuen 2021b). Buses are even more accessible; over 80 percent are wheelchair accessible, and almost all bus stops are barrier free. Similarly, Germany amended its Passenger Transportation Act in 2013 to set a goal of making public transportation barrier free by 2022. In Romania, the central government and the European Union have provided incentives to local public administrations to plan for sustainable mobility (Marin et al. 2021). These initiatives have focused on replacing old public transportation vehicles with more efficient and adapted buses, trolley buses, and, in some cases, trams (street refurbishment and modernization are also included). The new vehicles to be deployed are expected to adhere to the norms for universal accessibility (ibid.). Box 3.3 highlights the example of the MyCiti Rapid Bus Transit System in Cape Town, South Africa, drawing attention to the fact that cities in middle-income countries as well as in high-income countries can and do make provisions for age-readiness.

The extent to which the COVID-19 pandemic will lead to revisiting the idea of a denser city is an open question. If anything, the reimagined city is likely to be one that is more walkable, with more mixed-use spaces. It is important that such reimagination keeps in mind the needs of older persons and persons with disabilities. Finally, the access of all city residents to affordable and sustainable transportation will remain an urgent policy issue.

BOX 3.3. MYCITI RAPID BUS TRANSIT SYSTEM IN CAPE TOWN

Cape Town's transportation system was not designed with a diversity of users in mind. Barriers to mobility for older persons, persons with disabilities, and young children included "poorly designed footways, long travelling distances, non-existent or obscure transport information, dangerous road crossings and inaccessible buses, mini-bus taxis, trains, public transport facilities and over-crowding" (Gorman et al. 2019). In 2014, Cape Town implemented the Universal Access Policy, which set out an approach to "the planning, provision, management, regulation, and enforcement of universal access measures" (City of Cape Town 2014). It aimed to reduce barriers through design principles that ensured transportation and services were accessible to everyone.

The application of universal design principles in the Cape Town Bus Rapid Transit (BRT) system has resulted in universal accessibility for 35 MyCiti BRT stations and 161 bus stops (Zero Project 2014). All 379 buses have level boarding and spaces for wheelchairs, and they provide transportation information in a number of formats. Other features include wide entranceways without turnstiles, accessible toilets, and wayfinding signage (ibid.).

Making technology work for age-readiness

Technology, which pervades all aspects of life, is an essential piece of the swath of infrastructure solutions needed to support the age-readiness of cities. Digital platforms, applications, robotics, artificial intelligence, and machine learning are all transforming the world. They can ease the lives of older persons and their caregivers and service providers by enabling older persons to live independently longer and enhancing their social connections and access to services and can greatly improve their overall well-being. Technology is also helpful to city governments in designing, tracking the use of, and monitoring infrastructure and services. Innovation and entrepreneurship related to the “silver economy” are also expected to happen predominantly in the technology sector. COVID-19 has not only shown the indispensability of modern technology for the functioning of systems and processes across cities but has drawn attention to the ways in which advanced technology can make the lives of older persons and their caregivers easier during a pandemic—a lesson that will prove essential for the post-pandemic world, as well. Box 3.4 spotlights some of the technology-based initiatives designed to facilitate older adults’ access to services and facilities.



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BOX 3.4. STARTUPS DRIVING TECHNOLOGICAL SOLUTIONS TOWARD AGE-READINESS

The conflux of a growing market of older adults and their increasing digital capabilities provides endless possibilities for technological products and services that can be used by older persons and, equally so, by their immediate or remote caregivers and service providers. The pandemic has accelerated the trend toward digital services and the adoption of new technologies by older adults (Morrison 2020). With the uncertainties brought on by COVID-19 and the growing preference of older adults for aging in place over moving into retirement homes, “reinvention, though born of necessity, is the theme of the day” (Tett 2020). Industries from across sectors have already begun to take advantage of this opportunity, with startups in health, finance, wellness, transportation, communications, and food all responding to older adults’ needs and preferences with new products and services.

Among the many examples of such startups are innovative health-tech companies that draw on artificial intelligence (AI) to collect, analyze, and share health data among patients, care providers, and family members (Hinounou, n.d.). Other firms are responding to the demand for at-home services and support, designing, for instance, platforms that match care providers and consumers (Caregiver Asia, n.d.; Homage, n.d.). Still others foster communities through fitness, wellness, education, or social network platforms (Emoha, n.d.). Developers of smartphones are adapting them to be more user friendly for individuals with vision and hearing challenges or arthritis (Thomas 2014), and the field of robotics has been tapped by several companies that are tackling the rising challenge of loneliness among older adults by creating robot companions like Genie (Emoha, n.d.). Some firms are producing innovative products to make acts of daily living, such as taking medicines, easier (Pillpress 2020). Technologies from the defense industry have been employed in the development of assistive devices that use sound recognition to detect when someone in the household has fallen (SoundEye, n.d.). These innovative ideas and new applications of existing technologies are emblematic of the economic potential presented by the growing older population—an opportunity already being seized by entrepreneurs across continents.

Government at all levels, national to local, has a vital role in creating conditions under which these innovations will grow and pervade the lives of their citizens. It also has the preeminent responsibility of ensuring the availability of new products and services to all older persons and their care providers, not just the wealthiest. Social programs that accompany the rollout of technological services can help prevent the exclusion of some groups.

The importance of technology in connecting individuals and groups with each other and the world needs no emphasis. Through the use of social media, older persons have increasingly been interacting with others and enhancing their social connections, although the global growth has been uneven. An IPSOS survey, for instance, found large discrepancies in responses to the statement “I never post anything on social media” between the youngest and the oldest groups in the study (16–35 versus 50–64 years of age) in Australia, France, Germany, Japan, Russia, the UK, and the United States. In Brazil, China, and Mexico, however, there was almost no difference (Yeung 2019). But social connections are advanced by other media, as well. Since older persons represent a significant market share for many products and services, various platforms expressly target them. The section above on multigenerational spaces described some of the ways

in which older persons can live and interact with other generations. The evidence on the impact of such interventions on loneliness is mixed, however (Chipps et al. 2017; Choi and Lee 2021). Digital technology is also being used to develop programs to combat loneliness and isolation among older persons, which have likely become more important as a result of the social distancing imposed by the pandemic.

More practically speaking, digital technology has become an important tool for the delivery of services, especially to those individuals and groups who would otherwise be excluded. It is especially important for older persons, whose physical and mental capacity may often be compromised. State-sponsored programs have a huge potential to expand their inclusion of older persons through digital technology. An example is the rollout of digital pension payments across many parts of the world, including Kenya, which has prompted large numbers of older persons to learn to use technology or find ways to gain access to opportunities through digital platforms (Ndung'u 2019). Similarly, older persons can enhance their skills through online programs. The "University of the Third Age" in the Slovak Republic provides higher education to older persons and is offered by many Slovak universities (Association of the Universities of the Third Age in Slovakia, n.d.).

Other services that may be offered online include those associated with the provision of health care, with enormous potential impacts on older persons. Shandong Province in China, for example, has an online hospital that provides a variety of services, including consultations with doctors, diagnosis, prescriptions, and disease management and other follow-up services. These save patients from having to visit hospitals in person and reduce pressure on the nation's health care system in general (China, Weifang Municipal Health Commission 2020). The online hospital has also partnered with leading pharmacy chains; with China's major mobile phone carrier, China Mobile, to create the network infrastructure that supports the platform; and with an assistive smart home care company, Lanchuang Network Technology. During the COVID-19 pandemic, the availability of telehealth has expanded worldwide, even in countries that had not experimented with it on a large scale before; as we note below, however, the challenges to access for older persons can limit their use of it.

While technology has immense potential to improve the quality of life for older adults and their caregivers, inequality in access to it is a serious policy challenge. A Pew Research Center survey of 11 countries, including Colombia, India, Jordan, Kenya, Lebanon, Mexico, the Philippines, South Africa, Tunisia, Venezuela, and Vietnam, found that smartphone ownership varied significantly by age, ranging from a difference of 29 percentage points in Jordan between the youngest (aged 18–29 years) and oldest (above age 50) cohorts to a 61-point difference in Vietnam (Anderson and Perrin 2017). Even in the United States, where the adoption of technology is generally high, Pew found that only four out of ten older adults were using smartphones. Although this represented a doubling from three years prior, the prevalence of use was very uneven across age groups among older persons, as well as across education and income groups (ibid.). The digital divide between older and younger persons has become especially significant in the context of COVID-19, where setting up vaccination and telehealth appointments and making use of a vast array of services all require internet access and proficiency.

Under these conditions, the training of older persons in digital skills becomes especially important, but it must be geared to their particular needs. A survey of older adults conducted in an urban residential care facility in South Africa, for instance, found that while the respondents were interested in using technology, its adoption was highly correlated with ease of use (Chipps et al. 2017). Another study from Nairobi, Kenya, found that “perceived self-efficacy, perceived usefulness, trust, technical experience and social influence” were strong determinants of the adoption of internet banking among persons 55 and older (Gathongo 2019, iv). Such needs can be addressed by innovations that provide training and digital support targeted to older persons. Singapore, for instance, has launched “Silver Infocomm Junctions” to encourage creation of a network of community-based digital learning hubs for individuals ages 50 and over (Yuen 2021b). It also has a program through which older persons can learn digital skills at public libraries. In many developing countries, younger persons volunteer to help older ones with digital skills. In Niger, a program called Alhabétisation de Base par Cellulaire (ABC): Mobiles 4 Literacy, started in 2008, uses mobile phones to enhance adult literacy and numeracy. The course teaches adult students reading, writing, and math and about environmental and health issues, while also instructing them on how to use cell phones (UNESCO Institute for Lifelong Learning 2015). In Mexico, the Universidad Autónoma del Estado de Hidalgo began offering digital literacy workshops to adults over age 60 in 2014. A tutor leads the lessons, and gerontologists support individual participants (Martínez-Alcalá et al. 2018). Myriad other examples exist of public, private, and community-based initiatives to buttress the digital skills of older persons.

Like many other enablers, technology is a mixed blessing. Cybercrime and infringement of data privacy are rampant globally, and older persons are more susceptible than others to online scams and theft. Many cyber protection programs expressly focus on their vulnerability and design applications around them, highlighting more generally the need of older persons for better cyberliteracy and ability to navigate technology. Overall, Coughlin’s (2017) words with reference to the United States are valid globally: “The explosion of startups in the aging and technology field is a grand reason for optimism, but the dearth of public knowledge, trusted advice and ultimately distribution of these innovations is a major challenge to unlocking the promise of technology today.”

Finally, the acquisition of digital skills by older persons is of value not just to them but to society as a whole. By enhancing their independence, productivity, and social ties, such skills contribute to the overall well-being of older persons and ease the work of their families and caregivers. Having digital skills also gives them more opportunities to contribute to society. Older persons generally have more free time than others and are often more civic and politically minded. Given the right tools and resources, they could become proficient at fact checking and debunking misinformation—functions that are especially important during emergencies (Moore and Hancock 2020).

In sum, technology by itself cannot help older persons lead better lives or make a city age-ready unless policies actively enable it. The role of the city, in tandem with other tiers of government, the private sector, and communities, is crucial to ensuring that the benefits accrue as intended.



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Efficient spatial forms: What can they mean for age-readiness?

As we have shown in previous sections, the built environment of the city offers both opportunities and obstacles for its residents. Effective spatial planning is essential to opportunity when it allows resources and services to be concentrated rather than spread out. Such concentration facilitates accessibility and the provision of services and optimizes land use, but it needs careful planning and execution if it is to be effective because reversing or relocating infrastructure is often impossible (OECD 2012).

There are also cost considerations to efficient spatial forms. As a city grows, green areas are often compromised, and the city's carbon footprint is enlarged. When a city starts aging, the proportion of the working population diminishes, as does the tax base for the city's government. The United Nations Department of Economics and Social Affairs has found that between 300 and 400 cities—mostly in Europe, Japan, and the United States—are shrinking and points to a relationship between aging and shrinking societies (UN/DESA 2019d). In an aging and shrinking city with decreasing population density, per capita service delivery becomes costlier because the city still needs to provide infrastructure and basic services to the same geographical area. To give an example, a city has to finance access roads and water pipes for suburban neighborhoods located on its fringes regardless of how many people live within them. If, on the other hand, city centers become denser and the cities can shrink or downsize the urban form by concentrating population and public amenities in these core areas, they can more efficiently serve their residents.

While some aging cities try to retrofit urban forms to accommodate the needs of changing demographic trends and provide efficient and affordable infrastructure services, it makes more economic sense for cities not yet aging to contain urban sprawl from the beginning. The growth trajectories in developed countries have proved this is not always easy, and significant political and policy challenges are associated with containing sprawl and moving toward compactness. According to the C40 Cities Climate Leadership Group (2021), the term “compact cities,” which historically has referred to densification



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strategies to address urban sprawl, has taken on a new meaning in the context of aging. In Japan, for instance, it involves the redistribution of infrastructure and housing and the optimization of locations to allow for concentration of the population in the city core; this places amenities within walking distance or makes them reachable by public transportation, making them accessible to the city's aging population (ibid.). Similar efforts are underway in other OECD countries.

One approach to creating compact cities that has been gaining popularity is the concept of the “15-minute city.” The idea is that neighborhoods should be mixed-use, dense, and walkable, with everything residents need on a day-to-day basis within a 15-minute radius. Several cities in China, including Guangzhou and Shanghai, have incorporated 15-minute community “life circles” into their masterplans (C40 Cities Climate Leadership Group 2021). Chengdu, China, is creating an entirely new satellite city that incorporates the 15-minute city concept and connects residents to services and amenities through mass transit. While the 15-minute city is a welcome innovation for all its residents, it is particularly salient for groups whose mobility is limited by age or disability status or, in some cases, where females are restricted by social norms and household responsibilities from traveling too far from where they live.

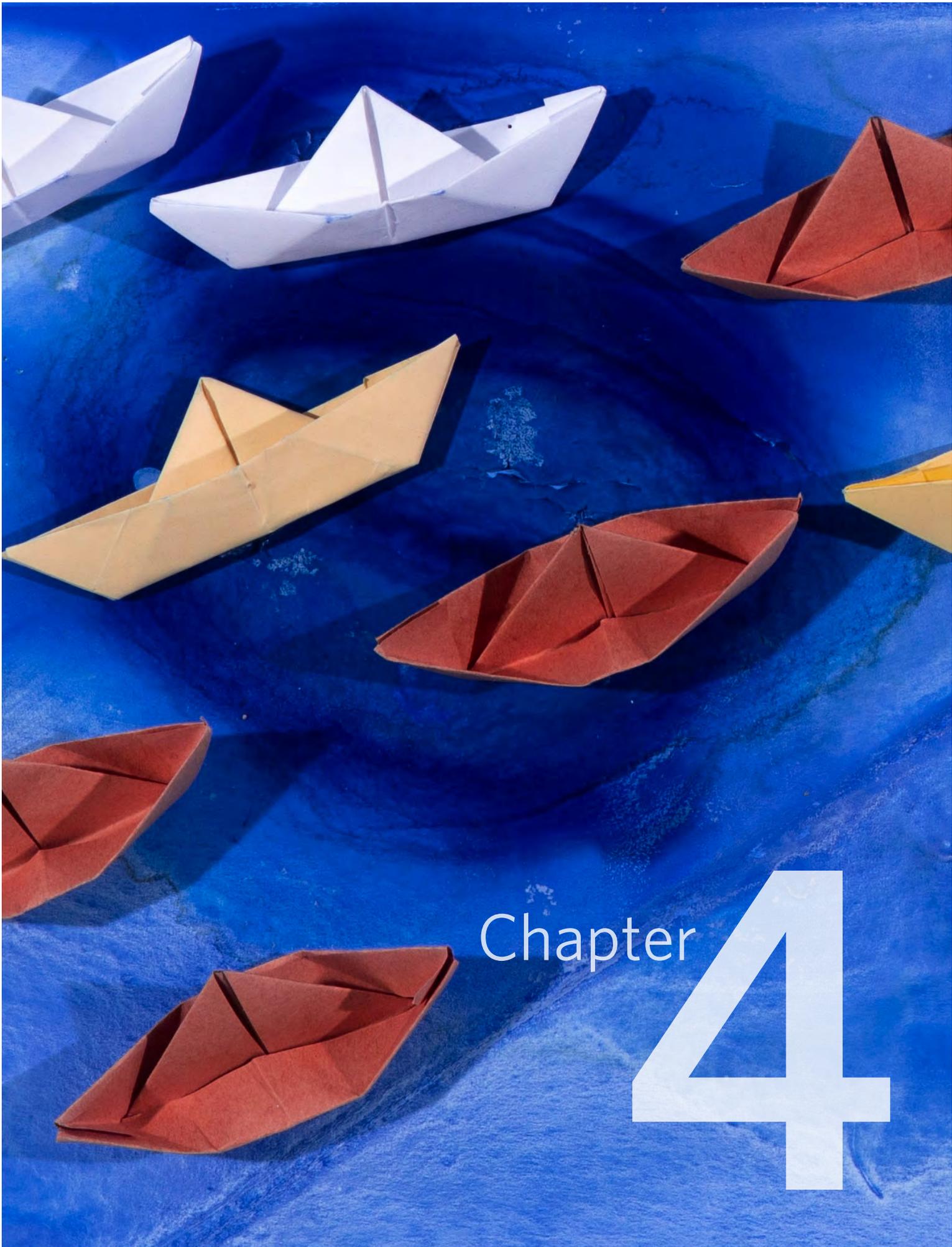
Another approach to achieving efficient urban forms is transit-oriented development (TOD), in which clusters of housing, facilities, and amenities are created around transportation hubs (C40 Cities Climate Leadership Group 2021). The objective is to create compact and mixed-use neighborhoods that are walkable and highly connected by

public transportation, making mass transit easier and more attractive to use and reducing dependence on cars (ibid.). While TOD offers solutions to some of the mobility challenges faced by many older adults in aging cities, the evidence on its impact is inconclusive and comes mainly from developed countries. A study on the travel behaviors of older adults in Denver, Colorado, showed varied needs and patterns among older persons, indicating that those residing in TOD areas did not necessarily increase their use of public transportation; yet walking and shorter trips in individual cars were more common in these areas (Boschmann and Brady 2013). Another study in the United States that surveyed transportation authorities to determine the extent to which they explicitly considered older adults' needs and requirements in the design and implementation of TOD found that few did (Duncan et al. 2021). Other evidence underscores the benefits of TOD for older persons (Kotval-K et al. 2020; Lynott et al. 2017; Murray 2015), as well as for the population at large (Dong 2021; Salat and Ollivier 2017) and suggests that more compact urban forms are more efficient for residents and should be further explored in the context of aging (Yuen 2021a).

In some cases, changing trends of working from home and using technology for access to services, as seen during the COVID-19 pandemic, may not support a need for compact spatial forms, which is prompting city planners to revisit the idea of dense core-centric cities. Compact urban forms that promote walkability, accessibility, and mixed-use spaces remain widely accepted today, though, and UN-Habitat's report on "Spatial Planning Guidelines during COVID-19" recommends compact urban forms focusing on mixed land uses as a spatial planning strategy for resilient neighborhoods and cities after the pandemic (UN-Habitat 2020).

Conclusion

Since aging is a dynamic yet linear and fairly predictable process, age-readiness can, with the requisite political will, technical expertise, and creative use of resources, be planned for. This chapter has shown what an age-ready city can look like and the actions it can take that are adaptive, productive, and inclusive. An overarching message has been that these actions have wide-ranging benefits that can lead to the creation of a better city for all. The chapter also identified the challenges standing in the way of age-readiness and presented examples of solutions drawn from a range of cities, underscoring the role of municipal governments in creating the conditions to bring age-readiness about. As mentioned, the limited availability of data from some places and the reliance of the analysis on information from cities that are already aging resulted in some overrepresentation of cities in OECD countries in the examples provided. The many examples contained in this chapter are intended to provide illustrations for cities that may not be able to visualize aging as a reality because they are immersed in addressing the issues of a youthful population. The chapter further elaborated on the actions by focusing on six action areas: universal design, housing solutions, multigenerational spaces, physical mobility, technology, and efficient spatial forms.



Chapter

4

City for All: Vision and Actions toward Age-Readiness

“We don’t need planetary-scale macroeconomic interventions to make progress in combating ageism. Instead, we can think in terms of cascading micro-interventions, each designed to change behaviors among employers, policymakers, and individual workers.”

—Mona Mourshed
“The Opportunity in Aging”

An age-ready city is, at its core, an inclusive city. The motivation to build an inclusive city is probably one of the most powerful propellers of policy and programmatic action by cities and by higher tiers of government. Many cities have the idea of inclusion either as an overt goal in their vision statements or as an underlying theme. As cities reimagine themselves in a post-COVID era, they will need to consider some of the ways in which life has changed in the era of the pandemic. This concluding chapter outlines the idea of a city that is inclusive of older persons and goes on to recommend actions and steps to achieve age-readiness.

Why do cities need to focus on inclusion? As we have seen from the previous chapters, older persons are a heterogeneous group: gender, disability status, location, income, marital status, and living arrangement, among other characteristics, define them and their position in their societies and communities. They may also be disadvantaged in some respects but privileged in others. A rich older man, for example, who is disadvantaged by his age-related inability to walk to public spaces may offset that disadvantage by hiring an attendant who can drive him there. Overall, however, older persons are more prone than younger ones to feel isolated and disconnected from their environments, a sense of anomie that has been exacerbated by COVID-19. An important aspect of inclusion is to feel safe, and older persons tend to be more vulnerable both inside homes and in public spaces. Box 4.1 highlights the fact that while an age-ready city has to pay attention to the safety of all its residents, a particular focus on older persons is needed.

BOX 4.1. SAFETY OF OLDER PERSONS IN AN AGE-READY CITY

Even as older persons are venerated in many cultures, they are also vulnerable to exclusion, stigma, and violence, including psychological, physical, sexual, and financial abuse and neglect (Yon et al. 2017). The issue of violence against and ill-treatment of older persons deserves special discussion because there is evidence that such violence and victimization is pervasive and likely increasing, especially in light of the restrictions and vulnerabilities imposed by COVID-19 (Elman et al. 2020; Pillemer et al. 2016; WHO 2020b). Global estimates suggest around 15.7 percent of older persons are subject to abuse, but this prevalence varies widely by country (Yon et al. 2017). A survey in Bangladesh found 88 percent of older adult respondents had experienced psychological or emotional abuse (HelpAge International 2014). In another in Mozambique, 17 percent of older male and 20 percent of older female respondents reported having experienced physical abuse, and in Peru 76 percent of men and 61 percent of women surveyed had experienced a crime or deception (Yon et al. 2017).

Abuse of older persons is committed in the private sphere by intimate partners, family members, friends, and caregivers, and in the public realm it takes the form of violent crime, discrimination, and mistreatment in institutional care settings (Yon et al. 2017; Yon et al. 2019). Several factors increase the risk that older persons will be ill-treated. In India, for instance, they include income and wealth, living arrangements, education, and working status (Sinha et al. 2021). Other studies have found that living arrangements (especially for those in institutional care settings), social isolation, disability status, gender, and dementia are important risk factors (Yon et al. 2019). While domestic abuse is probably equally pervasive in urban and rural settings, crime and public violence against older persons are most likely more common in cities. In addition, and as noted in the next chapter, older persons are often at greater risk of financial scams and fraud. Limitations of the existing data and underreporting of violence and abuse make the full scope of the problem of elder abuse difficult to ascertain. As cities focus on overall safety and security, however, they would do well to consider the special vulnerabilities of their aging residents. Such consideration would certainly pertain to the design of services, but it should go beyond that to encompass the care system, the use of technology to help prevent violence and mistreatment, and the design of residential and public spaces with an emphasis on safety.

The value societies place on their aging members affects the way they are treated. Some social movements adapt and reinforce traditional notions of respect and regard toward older persons by highlighting their contributions to society. *Ikigai*, for instance, is a Japanese philosophy of life; the word translates as “life plus value,” or that which makes life worth living.⁹ *Ikigai* is important to the potential of older persons to stay active and healthy. It speaks directly to their dignity by maintaining that one should be conscious of how one contributes and adds value to society and the greater public good. The *Ibasho* approach¹⁰ uses the *Ikigai* philosophy to challenge negative perceptions about aging, offering older persons an opportunity to help create physical places where they can contribute to the community. Other parts of the world have also adapted cultural values to enhance the attention paid to older persons. Confucian values of filial piety and *Ubuntu* in Africa are other examples (*Wall Street Journal* 2015).

Older persons often have political and social influence on the manner and extent to which city politicians deploy policies toward age-readiness. Over 52 percent of the U.S. electorate in the 2020 general elections, for example, was above the age of 50. Older persons in aging societies can also have strong lobbies, such as the AARP, that advocate for their interests. Anzia (2016) looked at the relationship between the turnout of older voters in city elections in the United States and the “senior-friendliness of city transportation policy.” She found more “friendly” transportation policies for older adults in those cities where the group was “cohesive, politically-focused . . . [and involved in] political activities other than voting.” Even so, older persons, like other age groups in cities, are a diverse group. Some are more likely to participate in leadership positions than others who may be less educated, come from minority backgrounds, or are among the oldest old. In countries where older persons are outnumbered by younger ones, the former may not be as powerful an electoral force. Therefore, the political role of older persons is both complex and often one to be reckoned with as states and municipal authorities design policies.

As in the case of building an inclusive city for all other groups, citizen voice and participation are also critical to building age-ready cities. This includes the participation of those who are older persons today, those who will join their ranks tomorrow, and anyone who is invested in the age-readiness of the city. Such participation is essential for the city to garner public support for investments in infrastructure and services, not only targeted to older persons (such as the Restaurant of Mistaken Orders initiative, described in box 4.2), but also those that will have broader benefits. It is part of forging a wider social contract and building consensus around the idea of an age-ready city. Ex ante analysis is central to identifying issues and their solutions, so as to ensure participation by citizens and accountability of the city. Buffel (2018) reports on a research initiative that trained older members of a low-income community in Manchester, UK, to collect data through interviews with residents over the age of 60 who were experiencing social isolation. In other cases, survey personnel may need to be instructed not to ignore older members of households, a problem that arises in the literature on disability. This is easily addressed at the stage of enumerator training and through the design of survey questions that will ensure greater participation of older persons and representation of their preferences in the research.

A central tenet of voice and participation is that citizens are not passive recipients of policies and programs, but, rather, they have the agency and capacity to influence them actively and be involved in their implementation. Older persons are often, for example, excellent monitors of ongoing construction projects, as they tend to be available during the day and can provide feedback on the quality of the work and the performance of contractors. For this they need some training but, more importantly, a formal role, so project personnel will take their remarks seriously. Once trained, including in the use of technology, they can provide real-time assessments of the progress and quality of the projects.

BOX 4.2. RESTAURANT OF MISTAKEN ORDERS

The way cities and, indeed, societies treat their older persons is embedded in the responses of government, the private sector, and communities to their needs. By the same token, creating age-ready cities is a collective enterprise. Take the case of dementia, which affects between 5 and 8 percent of individuals above the age of 60 (WHO 2020a). Globally, an estimated 50 million people have dementia, a number that is expected to rise to 152 million by 2050 (ibid.).

Persons with dementia are often treated as burdens, but an innovation in Tokyo demonstrates one way to channel their productive capacities and encourage community participation in their inclusion. The “Restaurant of Mistaken Orders” is a pop-up restaurant that hires individuals who have various forms of dementia as waiters, accepting that they may forget or confuse customers’ orders. The concept is premised on the idea that if customers know mistakes may happen, they will not mind, and the model even encourages them to embrace the mistakes.

This change in perspective and the freedom it gives the waiters to make mistakes makes it possible for them to serve, even if they cannot remember all the details of the orders. So, customers may get the wrong order, but they will still get good food. In 2017, the restaurant launched a temporary Café of Mistaken Orders in collaboration with a local government partner, and, for a day in 2018, the waiters from the restaurant served at a different restaurant.

Through its unique model, the Restaurant of Mistaken Orders seeks to change public perceptions around dementia. The empathy and acceptance the model generates could go a long way toward creating room for individuals with dementia to make mistakes in other everyday activities and participate more wholly in society.

Source: Restaurant of Mistaken Orders, <http://www.mistakenorders.com/en/home.html>.

Finally, cities cannot go it alone. This truism is particularly relevant in the case of investments toward age-readiness. Cities need a large group of partners that include the community, the private sector, and other actors to come together for a common goal, as illustrated by the social enterprises described in box 4.3. Ultimately, governments are responsible for providing for their citizens, but when cities lack the political will or the financial and technical wherewithal to design infrastructure and services toward age-readiness, communities can fill the void with solutions that are often innovative and powerful.

BOX 4.3. SOCIAL ENTERPRISES TO MEET THE NEEDS OF AGING POPULATIONS

Creating conditions for age-readiness is undoubtedly the responsibility of the state, to be carried out at the national and subnational levels of government, including the municipal level. Government cannot implement age-readiness on its own, however; it needs to work with partners from across the private and nonprofit sectors. Social enterprises (SEs), which span both sectors, have emerged as powerful vehicles for the inclusion of historically disadvantaged groups in markets, services, and “spaces.” In the quest for age-readiness, they are developing innovative solutions to challenges in housing, employment, continued learning, income generation, political engagement, and social connections that are changing how aging is perceived and experienced. SEs offer a distinctive model for the development of products and services for aging communities by balancing financial sustainability with the achievement of social goals (OECD/EU 2017). They are also uniquely positioned relative to other actors because of their robust networks, broad experience, innovative and agile nature, and high levels of community trust (Das et al. 2020). Below are some examples of the ways in which SEs are fostering age-readiness and providing older adults with care and dignity.

Neighborhood Old Age Homes (NOAH) is an organization that provides an innovative model for old age services in Cape Town, South Africa. NOAH runs twelve communal houses and two primary health care clinics, as well as offering community-based care services for those in need of additional support. NOAH also operates community centers that offer wellness and social support activities to their members, with the goal of increasing social connectivity. Its social enterprise development program runs small companies where members can work, and it convenes a Sector Task Team for Older Persons that engages with local government to advocate for the rights and interests of older persons.

Travasia 100, or “Crossing 100,” is a Chilean company that promotes active, happy, and purposeful aging. Taking the view that they are interested in contributing to their societies and capable of starting and running their own companies, Travasia supports entrepreneurship among older adults through learning opportunities like online courses. The company also fosters community and engagement by facilitating reflection and learning circles, providing telephone support services, and convening conversation groups, as well by organizing work commissions.

Labora is a Brazilian online employment platform designed to promote the inclusion of older persons in the workforce. Labora helps older professionals find work through a modification of the hiring and recruitment process that reduces the barriers they face. The app maps jobseekers’ skills and goals and matches them with employment opportunities. Labora also supports the process of integrating older workers into new jobs through the provision of training, and it offers its members online content for skill development.

The Samvedna Senior Care Foundation in Delhi, India, aims to promote awareness about aging and health, empower older populations to use digital technologies and remain socially engaged, maintain independence and autonomy, and raise awareness of and standards of care for dementia. It has provided digital literacy workshops since 2014 and, during the pandemic, has offered free online counseling services to help older persons combat the loneliness and isolation many have experienced during lockdowns and as a result of social distancing. The foundation’s dementia support activities include hosting memory screening camps, providing caregiver training and counseling, and forming dementia support groups.

AgeWatch Africa is a nonprofit social enterprise in Kenya whose mission is to “provide, improve, and maintain access to quality and affordable older persons care services to support graceful aging.” AgeWatch provides home care services to support aging in place, such as assistance with household chores, activities of daily living, shopping, and medication and appointment reminders. It also offers adult daycare programs and residential care services to those in need of more intensive support.

Organization sources: NOAH, <https://www.noah.org.za>; Travasia, <https://travesia100.cl/>; Samvedna, <https://www.samvednacare.org/>; Labora, <https://www.mapfre.com/en/insights/commitment/labora-brazilian-project/>; AgeWatch Africa, <https://agewatchafrica.com/>.

Progress toward age-readiness

This report has highlighted six areas with illustrative actions under each, as summarized in table 4.1

TABLE 4.1. ILLUSTRATIVE ACTIONS IN SIX THEMATIC AREAS

THEMATIC AREAS	ILLUSTRATIVE ACTIONS TO INFLUENCE POLICIES AND INSTITUTIONS	ILLUSTRATIVE ACTIONS TO INFLUENCE IMPLEMENTATION PROCESSES
Universal design toward age-readiness	<ul style="list-style-type: none"> ▪ Prepare building codes and regulations and encourage their application not only to new buildings and public spaces but also to reconstruction and retrofitting of existing ones (e.g., accessible lifts for multistory buildings; accessible sidewalks to enhance safety and usability of streets; accessibility features, such as handrails in bathrooms). 	<ul style="list-style-type: none"> ▪ Actively involve older persons as partners in the process of building resilience to disasters (e.g., community hubs doubling as evacuation centers; sites for preparation trainings; consultations led by older persons who share their experiences and lessons learned from previous disasters).
Housing solutions for age-readiness	<ul style="list-style-type: none"> ▪ Consider home modification support programs at local government levels that provide grants to homeowners for making housing spaces universally accessible. ▪ Encourage grassroots-level support for people to age in place comfortably and stay active (e.g., promoting community bonding and networks; providing advocacy and education for the employment of older persons). ▪ Create conditions for private sector expansions in the housing sector. 	<ul style="list-style-type: none"> ▪ Support aging in place where this choice is possible, paying adequate attention to services, housing quality, and access to public spaces (e.g., universally accessible homes; accessibility for older persons to meet needs regarding health, personal care, and shopping at affordable prices). ▪ Seek fiscal support from national or subnational governments for the provision of community- and home-based care services to older persons as part of older person support programs.
Creating multigenerational “spaces” toward age-readiness	<ul style="list-style-type: none"> ▪ Incorporate policies that allow for intergenerational interaction in housing and public infrastructure facilities. ▪ Put into place programs that create incentives for mixed-generation living arrangements, and consider tax incentives for multigenerational living. ▪ Encourage self-help groups of older people. 	<ul style="list-style-type: none"> ▪ Avoid designating segregated physical spaces specifically for older persons (e.g., residential facilities; daycare centers), which can reinforce social exclusion and isolation. (Designated facilities are needed, however, for those physically unable to function without continuous medical and other care.) ▪ Utilize parks to encourage active aging across the life course, enhance social interactions, and foster intergenerational connections.

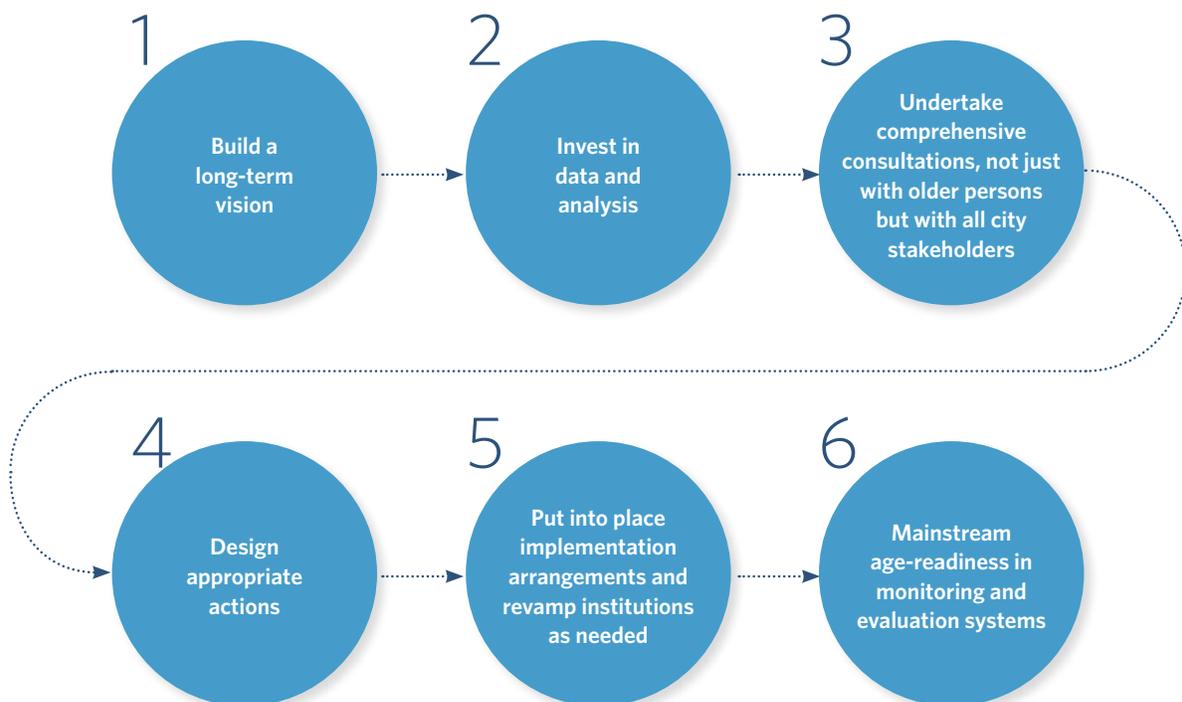
THEMATIC AREAS	ILLUSTRATIVE ACTIONS TO INFLUENCE POLICIES AND INSTITUTIONS	ILLUSTRATIVE ACTIONS TO INFLUENCE IMPLEMENTATION PROCESSES
Age-readiness through improved transportation	<ul style="list-style-type: none"> ▪ Seek to understand mobility patterns and behaviors of older persons to predict usage of transportation and public spaces, as well as for creating policies, such as those for fare setting, provision of transportation vouchers, and creation of other facilitating programs. ▪ Provide incentives to local public administrations to plan for sustainable mobility (e.g., replacement of old public transportation vehicles with more efficient and adapted buses, trolley buses, and trams; street refurbishment and modernization). 	<ul style="list-style-type: none"> ▪ Identify barriers to utilizing city infrastructure and services and prioritize adaptation strategies (e.g., getting to and from transit stations; waiting for, boarding, and alighting from vehicles; access to and within buildings; narrow entryways; inaccessible toilets, especially in high traffic spaces or spaces frequented by older persons). ▪ Adopt accessibility features for public transportation (e.g., level boarding and spaces for wheelchairs; wide entranceways without turnstiles; accessible toilets; wayfinding signage; provision of transportation information in various languages and formats).
Making technology work for age-readiness	<ul style="list-style-type: none"> ▪ Introduce telemedicine that provides a variety of services (e.g., consultations with doctors and diagnosis; prescriptions; disease management and other follow-up services) and can partner with pharmacy chains, network infrastructure providers, and assistive smart home care companies to reduce the pressure on the nation's overall health care system. ▪ Encourage innovation and entrepreneurship for technology solutions targeted to older people. 	<ul style="list-style-type: none"> ▪ Deploy cyber protection programs to enhance cyberliteracy and the ability of older persons to navigate technology. ▪ Utilize digital technology for service delivery to older persons with mobility impairments. ▪ Boost digital skills of older persons.
Efficient spatial forms	<ul style="list-style-type: none"> ▪ Encourage transit-oriented development to create compact and mixed-use neighborhoods that are walkable and highly connected by public transportation, reducing dependency on cars and offering a potential solution to mobility challenges faced by many older adults. Ensure that older persons benefit from the compactness. 	<ul style="list-style-type: none"> ▪ Connect residents to services and amenities through mass transit by locating housing near public transportation corridors.

How can cities advance toward age-readiness?

This report is anchored in the understanding that there is an intersection between aging and urbanization. While different countries and cities are at different points of the trajectory, the future will be both more urban and older. Based on lessons learned from those that have already identified the challenges and made headway toward building cities that work for all their residents, this report draws lessons for other cities and national and subnational entities to apply in their quests for age-readiness. We suggest six steps cities can take toward age-readiness involve strengthening existing systems, capacity, and accountability mechanisms and ensuring that age-readiness is integrated into the broader vision of the city.

First, build a long-term vision. Most countries that integrate aging issues into policy start by acknowledging the challenges and producing a statement of intent. Such intent needs to apply simultaneously at the national, subnational, and local levels. Often, building age-readiness is a matter not of making large financial investments, but of recognizing its importance and centrality to future actions. Most cities that have articulated such a vision are already aging, but some, like Kuala Lumpur (Economic Planning Unit of Malaysia, n.d.), for example, have foreseen the age structure ahead of them and are beginning to envision such futures for themselves as this report gets finalized.

FIGURE 4.1. SIX STEPS TOWARD AGE-READINESS



Second, invest in data and analysis. City-level data are absent or often difficult to obtain, and this can stymie the efforts of cities, scholars, and residents to analyze the issues and provide inputs into the planning process. Investments in data also have wide-ranging benefits, but data gathering is not the same as analysis. Therefore, robust ex ante analyses that identify city-level demographic trends and define the problems at hand and the core needs of an age-ready city are a sine qua non for evidence-based policy action.

Third, undertake comprehensive consultations, not just with older persons but with all stakeholders in the city. Such consultations are central to building a social contract whereby all residents are invested in the vision of an age-ready city. Moreover, any robust understanding of the needs of older populations, their families, caregivers, and service providers has to be underpinned by a process that is participatory and consultative. Such a process is also important to detecting any resistance and understanding its source. The nature and extent of investments in age-readiness can involve tradeoffs in the form of additional taxes and changes in expenditure priorities, among others. Consultations would benefit the design, sequencing, and implementation of any reform actions.

Fourth, design actions toward age-readiness. How will a city mainstream aging issues into its overall policy framework? Will it design special programs? Will it focus on mainstreaming aging issues into existing programs? How will it adapt buildings and other infrastructure toward universal accessibility? Will it need to retrofit infrastructure? What will be the role of the public and private sectors, of communities, academia, civil society, and external bilateral or multilateral institutions? These are questions the city will need to consider as it designs the actions it will take.

Fifth, put into place implementation arrangements and revamp municipal-level institutions to respond to age-readiness, because the proof of policy actions is in their effective implementation. Such implementation takes place through existing systems, augmented systems, or reformed systems. It includes provision of services, contracting, management, and quality control and enforcement mechanisms. Overall, gearing institutions toward changing populations makes the institutions more responsive to their needs but can be politically, bureaucratically, and financially challenging.

Sixth, mainstream age-readiness in monitoring and evaluation systems. This is best achieved when cities are at early stages of aging, so that monitoring systems can be built into investments that seek to build age-readiness. Monitoring and evaluation will be essential to progress and to knowing if investments are efficient and effective in achieving stated objectives. Monitoring systems may need to have statistical capacity or rely on making incremental additions to existing systems. Cities can also deploy community monitoring mechanisms that include older persons to buttress the top-down monitoring systems. Also, putting into place impact evaluations at the start of a new program can enable the provision of robust data to facilitate course corrections. Finally, cities should be agile enough to make course corrections in response to the results of monitoring and evaluation and to citizen feedback.

Conclusion

“Silver Hues: Building Age-Ready Cities” has drawn attention to the changing age structure of the global population and its implications for cities. It has pointed to the variation in the pace of aging across cities; while some have large proportions of older persons, others are young and cannot, perhaps, visualize an aging future in the wake of more pressing challenges today. This report was intended primarily to address the latter by drawing on the experiences of the former.

While highlighting the inevitability of aging, it also shone a light on how cities can be prepared for it by conveying the following main messages:

- 1.** The world is becoming increasingly urban and older. This growing confluence of urbanization and aging is uneven, and cities and countries are at different points on the two trajectories.
- 2.** Since aging is a dynamic yet linear and relatively predictable process, age-readiness can, with the requisite political will, technical expertise, and creative use of resources, be planned for and implemented.
- 3.** Older persons constitute a growing market for goods and services related to health care, leisure, and information and communications technology (ICT). But they are a diverse group, differing not only by the countries and cities in which they live, but by income, wealth, gender, age, ethnicity, and disability status, among other attributes. The profile of older persons in a city or neighborhood affects the demand for city infrastructure and services and the manner in and extent to which they contribute to the economy and society.
- 4.** Cities and towns are enablers that provide opportunities for older persons to lead full, productive, and dignified lives, but they also present insurmountable barriers unless their leaders make intentional investments in age-readiness.
- 5.** Actions that lead to age-readiness are not just good for older persons; they create public goods with wide-ranging social and economic advantages that benefit, for instance, persons with disabilities, persons carrying heavy loads, or those who may be temporarily disabled by illness.
- 6.** Cities can make progress toward age-readiness, especially in the built environment, with the help of actions in six areas: universal design, housing solutions, multigenerational spaces, physical mobility, technology, and efficient spatial forms.

The report set out a narrative and identified some key elements of age-readiness. It began by making a case for age-readiness and argued that planning for an aging city makes both economic and social sense. Ultimately, a city that works for all its residents is a public good. The report mapped some of the most important aspects of the progression of aging and urbanization, highlighting the relationship between these two “megatrends.” While it profiled older persons as a diverse, growing cohort whose members are active agents in their social and political environments, it also showed that the extent to which they participate in their milieu is contingent upon a number of factors, including their age, socioeconomic status, location, marital status and living arrangements, gender, ethnicity, and disability and health status, among others. Finally—and this is where the role of the city is crucial—the report demonstrated that the availability, affordability, and accessibility of services and the extent to which spaces within a city are welcoming to older adults can change its age-readiness. As more of its residents become aged, the city will, perforce, have to address the challenges of an altered population profile, which makes early planning and execution essential.

The COVID-19 crisis and its catastrophic proximate and ultimate impacts on older persons, their caregivers, and health providers are already leading cities to reimagine themselves in the post-pandemic world. Changes may include expanding walkable spaces, improving street accessibility features, rethinking the design and layout of nursing homes, devising intergenerational housing solutions that benefit both older persons and young, integrating older persons into built and social environments, making greater investments in the care sector, addressing the gender dimensions of caregiving to older persons, and investing in technology solutions, among others. It is important, however, as cities pivot to a new reality after the pandemic that they keep age-readiness in mind.



Endnotes

- ¹ The “Decade of Healthy Ageing: Plan of Action” was endorsed by the 73rd World Health Assembly on August 3, 2020, and welcomed by the UN General Assembly the following December 14, ultimately leading to a proclamation of a UN Decade of Healthy Ageing (2021–2030). This document makes specific reference to SDG 11 as follows: “Age-friendly cities and communities allow all people to maximize their abilities across the life-course. Multiple sectors (health, social protection, transport, housing, labour) and stakeholders (civil society, older people and their organizations) should be involved in creating them” (UN 2020, 8).
- ² In 2010, WHO established the Global Network for Age-friendly Communities and Cities, comprising 1,114 communities and cities in 44 countries, to encourage the implementation of policy recommendations. Membership is based on a commitment to listen to the needs of older persons, assess and monitor the age-friendliness of cities, and work with older persons and across sectors to create accessible physical environments, inclusive social environments, and an enabling service infrastructure.
- ³ Defined here as non-acute residential and nursing facilities that house individuals with some form of long-term care needs.
- ⁴ Even before COVID-19, loneliness was nearly twice as prevalent among older persons in care home settings than among the overall population; see, for example, Victor 2012.
- ⁵ In many countries where pension systems are not in place or fail to provide adequate income, including several in Asia and Sub-Saharan Africa, older persons are more likely to live in poverty than younger ones (OECD 2015).
- ⁶ Women account for 62 percent of the global population over the age of 80 (UN/DESA 2020b).
- ⁷ WHO identified 24 principles that promote active participation, health and security, and independence for people of all ages. It highlighted the importance of eight topics to age-friendly urban area development: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services.
- ⁸ Since physical spaces have social benefits, we use the term “spaces” as used by the World Bank (2013), with all its physical, social, cultural, and political connotations.
- ⁹ Translation by Yuko Arai.
- ¹⁰ See <https://ibasho.org/wp-content/uploads/2016/10/160902Empowering-Elders-Through-Community-Coalitions-for-Resilience-The-Ibasho-Approach.pdf>.

References

The background of the page is a deep blue marbled paper with intricate, swirling patterns in various shades of blue, from light to dark, creating a textured and organic appearance.

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- AARP. 2021. "AARP Answers: Nursing Homes and Coronavirus." Updated November 17, 2021. <https://www.aarp.org/caregiving/health/info-2020/nursing-homescoronavirus-faqs.html>.
- AARP. n.d. "The Aging Readiness and Competitiveness Report: Turkey." Accessed December 12, 2021. <https://arc.aarpinternational.org/File%20Library/Full%20Reports/ARC-Report---Turkey.pdf>.
- Alonso, Fernando L. 2002. "The Benefits of Building Barrier-Free: A Contingent Valuation of Accessibility as an Attribute of Housing." *European Journal of Housing Policy* 2, no. 1: 25-44.
- Anderson, Monica, and Andrew Perrin. 2017. "Technology Use among Seniors." Chapter 1 in *Tech Adoption Climbs among Older Adults*. Pew Research Center, May 17, 2017. <https://www.pewresearch.org/internet/2017/05/17/technology-use-among-seniors/>.
- Anzia, Sarah F. 2016. "Testing the Turnout-Policy Connection: Senior Citizens, City Elections, and Local Transportation." Presented at the annual meeting of the Midwest Political Science Association, Chicago, IL, April 7-10, 2016. https://gspp.berkeley.edu/assets/uploads/research/pdf/Anzia_SeniorTurnout_Policy_3_31_16.pdf.
- Arano, Angeles, Ignacio Cámara, Mariana Cammisa, and Benardo Zamichiei. 2020. "Voluntary Local Review: Buenos Aires Adaptation of the 2030 Agenda." *City of Buenos Aires*, July 2020. https://sdgs.un.org/sites/default/files/2020-10/VLR%20BA%202020_eng.pdf.
- ARUP. 2019. "Cities Alive: Designing for Ageing Communities." ARUP, London, UK. <https://foresight.arup.com/publications/ageing-communities/>.
- Asian Development Bank. 2019. "Growing Old Before Growing Rich: Challenges of an Aging Population in Sri Lanka." Asian Development Bank, Manila. <https://www.adb.org/sites/default/files/publication/557446/aging-population-sri-lanka.pdf>.
- Association of the Universities of the Third Age in Slovakia. n.d. "Introduction." Accessed December 9, 2021. <https://english.asutv.sk/>.
- Blanco, Ismael, and Joan Subirats. 2008. "Social Exclusion, Area Effects and Metropolitan Governance: A Comparative Analysis of Five Large Spanish Cities." *Urban Research and Practice* 1:130-48. <http://dx.doi.org/10.1080/17535060802169823>.
- Boschmann, E. Eric, and Sylvia A. Brady. 2013. "Travel Behaviors, Sustainable Mobility, and Transit-Oriented Developments: A Travel Counts Analysis of Older Adults in the Denver, Colorado Metropolitan Area." *Journal of Transport Geography* 33:1-11. <https://www.sciencedirect.com/science/article/abs/pii/S0966692313001701>.
- Buffel, Tine. 2018. "Social Research and Co-Production with Older People: Developing Age-Friendly Communities." *Journal of Aging Studies* 44:52-60. <https://doi.org/10.1016/j.jaging.2018.01.012>.
- Buffel, Tine, and Chris Phillipson. 2016. "Can Global Cities Be 'Age-Friendly Cities?' Urban Development and Ageing Populations." *Cities* 55:94-100.
- Buffel, Tine, Sophie Yarker, Chris Phillipson, Luciana Lang, Camilla Lewis, Patty Doran, and Mhorag Goff. 2021. "Locked Down by Inequality: Older People and the COVID-19 Pandemic." *Urban Studies*. First published September 6, 2021. <https://doi.org/10.1177/00420980211041018>.
-

-
- Burns, Victoria F., Jean-Pierre Lavoie, and Damaris Rose. 2012. "Revisiting the Role of Neighbourhood Change in Social Exclusion and Inclusion of Older People." *Journal of Aging Research* 2012, article 148287. <https://www.hindawi.com/journals/jar/2012/148287/>.
- Burtless, Gary. 2013. "The Impact of Population Aging and Delayed Retirement on Workforce Productivity." *Center for Retirement Research Working Paper 2013-11*. Boston College, May 2013. https://cr.bc.edu/wp-content/uploads/2013/05/wp_2013-111.pdf.
- Bussolo, Maurizio, Johannes Koettl, and Emily Sinnott. 2015. "Golden Aging: Prospects for Healthy, Active, and Prosperous Aging in Europe and Central Asia." World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/22018>.
- Caregiver Asia. n.d. "About Caregiver Asia." Accessed June 1, 2021. https://www.caregiverasia.com/about_us?locale=en.
- CDC (Centers for Disease Control and Prevention). 2021. "COVID-19 Risks and Vaccine Information for Older Adults." Last modified August 2, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html>.
- Center for Universal Design. 2008. "About the Center: Ronald L. Mace." https://projects.ncsu.edu/ncsu/design/cud/about_us/usronmace.htm.
- C40 Cities Climate Leadership Group. 2021. "How to Implement Transit-Oriented Development." C40 Knowledge Hub Implementation Guides, August 2021. https://www.c40knowledgehub.org/s/article/How-to-implement-transit-oriented-development?language=en_US.
- CHHA (Canadian Hard of Hearing Association). 2008. "Universal Design & Barrier-Free Access: Guidelines for Persons with Hearing Loss." Prepared by Michel David, Canadian Hard of Hearing Association, Ottawa. https://www.chs.ca/sites/default/files/uploads/universal_design_and_barrier-free_access_hardofhearing.pdf.
- China, Ministry of Housing and Urban-Rural Development. 2012. "Code for the Design of Residential Buildings for the Aged." Update of the 1999 version. [http://download.mohurd.gov.cn/bzgg/gjbz/GB50340-2016%20%E8%80%81%E5%B9%B4%E4%BA%BA%E5%B1%85%E4%BD%8F%E5%BB%BA%E7%AD%91%E8%AE%BE%E8%AE%A1%E8%A7%84%E8%8C%83\(%E7%94%B5%E5%AD%90%E7%89%88\).pdf](http://download.mohurd.gov.cn/bzgg/gjbz/GB50340-2016%20%E8%80%81%E5%B9%B4%E4%BA%BA%E5%B1%85%E4%BD%8F%E5%BB%BA%E7%AD%91%E8%AE%BE%E8%AE%A1%E8%A7%84%E8%8C%83(%E7%94%B5%E5%AD%90%E7%89%88).pdf).
- China, Weifang Municipal Health Commission. 2020. "Weifang City Municipal Hospitals Quick-Diagnosis Internet Hospital Launched." Sohu.com. https://www.sohu.com/a/380835600_120047151.
- Chippis, Jennifer, Mary Ann Jarvis, and Suvira Ramlall. 2017. "The Effectiveness of E-Interventions on Reducing Social Isolation in Older Persons: A Systematic Review of Systematic Reviews." *Journal of Telemedicine and Telecare* 23, no. 10: 817-27. <https://pubmed.ncbi.nlm.nih.gov/28958209/>.
- Choi, Hee Kyung, and Seon Heui Lee. 2021. "Trends and Effectiveness of ICT Interventions for the Elderly to Reduce Loneliness: A Systematic Review." *Healthcare* 9, no. 3: 293. <https://pubmed.ncbi.nlm.nih.gov/33800099/>.
- City of Buenos Aires. 2020. "Adaptation and Response in Times of Crisis: The COVID-19 Strategy of the City of Buenos Aires." Updated April 5, 2020. https://www.uclg.org/sites/default/files/buenos_aires_covid-19_response_exec_summary.pdf.
-

- City of Cape Town Planning Department. 2014. "Universal Access Policy for Transport for Cape Town." Cape Town Planning Department, p [http://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Universal%20Access%20Policy%20-%20\(Policy%20number%2017958\)%20approved%20on%2029%20May%202014.pdf](http://resource.capetown.gov.za/documentcentre/Documents/Bylaws%20and%20policies/Universal%20Access%20Policy%20-%20(Policy%20number%2017958)%20approved%20on%2029%20May%202014.pdf).
- Comas-Herrera, Adelina, Joseba Zalakaín, Elizabeth Lemmon, David Henderson, Charles Litwin, Amy T. Hsu, Andrea E. Schmidt, Greg Arling, Florian Kruse, and Jose-Luis Fernández. 2021. "Mortality Associated with COVID-19 in Care Homes: International Evidence." International Long Term Care Policy Network. Last updated February 1, 2021. <https://ltccovid.org/2020/04/12/mortality-associated-with-covid-19-outbreaks-in-care-homes-early-international-evidence>.
- Connell, Bettye Rose, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, and Gregg Vanderheiden. 1997. "The Principles of Universal Design 2.0." Center for Universal Design, North Carolina State University. https://projects.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm.
- Coughlin, Joseph F. 2017. "What Does the Smart City of the Future Look Like?" Adapted by Blue Zones from "Mapping the Community of the Future." *The Atlantic*. <https://www.bluezones.com/2017/11/city-of-the-future/#>.
- . 2019. "Aging and Disability in the 21st Century: How Technology Can Help Maintain Health and Quality of Life." Testimony before the Special Committee on Aging, United States Senate, Washington, DC, May 22, 2019.
- Coughlin, Joseph F., and Jasmin Lau. 2006. "Global Aging and Technology Policy: Extending the Vision of Innovation in Aging Societies." Presented at the 9th International Conference on Technology and Innovation, Santorini, Greece, June 21, 2006.
- Das, Maitreyi Bordia, and Sabina Anne Espinoza. 2020. *Inclusion Matters in Africa*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/32528>.
- Das, Maitreyi Bordia, Ibrahim Ali Khan, and Elaine Tinsley. 2020. "Results-Based Financing through Social Enterprises: A White Paper for the Global Partnership for Results-Based Approaches, in Response to the Covid-19 Pandemic." Working paper. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/34319>.
- Dong, Hongwei. 2021. "Evaluating the Impacts of Transit-Oriented Developments (TODs) on Household Transportation Expenditures in California." *Journal of Transport Geography* 90, no. 1: 102946. <https://www.sciencedirect.com/science/article/pii/S0966692320310231?via%3Dihub>.
- Donovan, Rich. 2020. "Design Delight from Disability: The Global Economics of Disability." Annual report of the Return on Disability Group, September 1, 2020. <https://www.rod-group.com/sites/default/files/2020%20Annual%20Report%20-%20The%20Global%20Economics%20of%20Disability.pdf>.
- Dorcas. 2020. "Tanzania—COVID-19 Emergency Response." November 10, 2020. <https://dorcas.org/tanzania/tanzania-covid-19-emergency-response/>.
- Duncan, Michael, Kristin Gladwin, Brittany Wood, Yazmin Valdez Torres, and Mark Horner. 2021. "Transit-Oriented Development for Older Adults: A Survey of Current Practices among Transit Agencies and Local Governments in the US." *Journal of Transport and Land Use* 14, no. 1: 255-76. <https://doi.org/10.5198/jtlu.2021.1798>.

-
- Eaton, Joe. 2020. "Reimagining the Nursing Home Industry after the Coronavirus." AARP, June 8, 2020. <https://www.aarp.org/caregiving/health/info-2020/nursing-home-changes-after-coronavirus.html>.
- Economic Planning Unit of Malaysia. n.d. Twelfth Malaysia Plan, 2021–2025: A Prosperous, Inclusive, Sustainable Malaysia. Kuala Lumpur: Economic Planning Unit. Accessed December 9, 2021. <https://rmke12.epu.gov.my/en>.
- Elman, Alyssa, Risa Breckman, and Sunday Clark. 2020. "Effects of the Covid-19 Outbreak on Elder Mistreatment and Response in New York City: Initial Lessons." *Journal of Applied Gerontology* 39, no. 7 (May): 690–99.
- Emoha. n.d. "Keeping Our Elderly Loved Ones Engaged." Accessed June 1, 2021. <https://emoha.com/services/engagement>.
- Fengler, Wolfgang. 2021. "The Silver Economy Is Coming of Age: A Look at the Growing Spending Power of Seniors." Brookings, January 14, 2021. <https://www.brookings.edu/blog/future-development/2021/01/14/the-silver-economy-is-coming-of-age-a-look-at-the-growing-spending-power-of-seniors/>.
- Freire, German, Carolina Diaz-Bonilla, Steven Schwartz Orellana, Jorge Soler Lopez, and Flavia Carbonari. 2018. "Afro-Descendants in Latin America: Toward a Framework of Inclusion." World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/30201>.
- Galcanova, Lucie, and Dana Sykorova. 2015. "Socio-Spatial Aspects of Ageing in an Urban Context: An Example from Three Czech Republic Cities." *Ageing and Society* 35:1200–1220. <http://dx.doi.org/10.1017/S0144686X14000154>.
- Gathongo, Teresa W. 2019. "Older Adults and Technology Adoption: Investigating the Use of Online Banking among the Seniors in Nairobi County." Master's thesis, University of Nairobi, August 2019. <http://erepository.uonbi.ac.ke/handle/11295/107207>.
- Golant, Stephen M. 2014. "Age-Friendly Communities: Are We Expecting Too Much?" *IRRP Insight*, no. 5.
- Gorman, Mark, Sion Jones, and Jeffery Turner. 2019. "Older People, Mobility, and Transportation in Low and Middle-Income Countries: A Review of the Research." *Sustainability* 11, no. 21.
- HelpAge International. 2014. "Violence against Older People Is a Global Phenomenon Says HelpAge International as Activists Call for a UN Convention on the Rights of Older People." <https://www.helpage.org/newsroom/press-room/press-releases/violence-against-older-people-is-a-global-phenomenon-says-helpageinternational-as-activists-call-for-a-un-convention-on-the-rights-of-older-people/>.
- . 2020a. "Ageing and Place: Exploring How Cities Shape Older People's Lives." Oxford Institute of Population Ageing. <https://www.ageing.ox.ac.uk/blog/ageingand-place-how-cities-shape-older-peoples-lives>.
- . 2020b. "Jordanian Government Praises HelpAge Response to COVID-19." HelpAge International. Latest News, August 13, 2020. <https://www.helpage.org/newsroom/latest-news/jordaniangovernment-praises-helpage-response-to-covid19/>.
- . 2021. "Supporting Older People in India to Fight COVID-19." May 14, 2021. <https://www.helpage.org/newsroom/latest-news/supporting-older-people-in-india-to-fight-covid19/>.
-

- Hinouou. n.d. "Home Wellness Kit." Accessed June 1, 2021. <https://www.hinouou.com/Index/index/homecare>.
- Homage. n.d. "Care Where You Are." Accessed June 1, 2021. <https://www.homage.sg/>.
- Ibasha. n.d. "Empowering Elders through Community Coalitions for Resilience: The Ibasha Approach." Accessed June 1, 2021. <https://preparecenter.org/sites/default/files/ibasha-casestudy-final.pdf>.
- Jacobs, Jane. 1992. *In the Death and Life of Great American Cities*. New York: Vintage Books.
- . 2018. "Housing America's Older Adults 2018: A Supplement to the State of the Nation's Housing Report." *Joint Center for Housing Studies of Harvard University*. https://www.jchs.harvard.edu/sites/default/files/Harvard_JCHS_Housing_Americas_Older_Adults_2018_1.pdf.
- Kang, Myounggu. 2021. "Silver Hues: Building Age-Ready Cities Korea Country Background Paper." World Bank, Washington, DC.
- Kotval-K, Zeenat, Lina Keilman, and Wijing Wang. 2020. "Transportation Services for Older Adults and Preventive Healthcare Attainment." *Urban Science* 4, no. 38: 38. <https://doi.org/10.3390/urbansci4030038>.
- Lall, Somik Vinay, J. Vernon Henderson, and Anthony J. Venables. 2017. "Africa's Cities: Opening Doors to the World." World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/25896>.
- Lee, Ronald, Andrew Mason, and Daniel Cotlear. 2010. "Some Economic Consequences of Global Aging: A Discussion Note for the World Bank." Health, Nutrition and Population (HNP) discussion paper. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/13603>.
- Lee, So Young, and Sung Eun Yoo. 2020. "Willingness to Pay for Accessible Elderly Housing in Korea." *International Journal of Strategic Property Management* 24, no. 1: 70-82.
- Li, Zhe, and Joseph Dalaker. 2021. "Poverty among the Population Aged 65 and Older." R45791. Congressional Research Service. Updated April 14, 2021. <https://sgp.fas.org/crs/misc/R45791.pdf>.
- Liu, Jenny X., Yevgeniy Goryakin, Akiko Maeda, Tim Bruckner, and Richard Scheffler. 2017. "Global Health Workforce Labor Market Projections for 2030." *Human Resources for Health* 15, no. 1: 11.
- Liu, Wenzhi, Huapu Lu, Zhiyuan Sun, and Jing Liu. 2017. "Elderly's Travel Patterns and Trends: The Empirical Analysis of Beijing." *Sustainability* 9, no. 6. <https://doi.org/10.3390/su9060981>.
- Loukaitou-Sideris, Anastasia, and Martin Wachs. 2018. "Transportation for an Aging Population: Promoting Mobility and Equity for Low-Income Seniors." Project 1704. Mineta Transportation Institute, San Jose State University, December 2018. <https://transweb.sjsu.edu/sites/default/files/1704-Sideris-Transportation-Aging-Population-Equity-Mobility.pdf>.
- Lynott, Jana, William J. McAuley, and Megan McCutcheon. 2009. "Getting Out and About: The Relationship Between Urban Form and Senior Travel Patterns." *Journal of Housing for the Elderly* 23, no. 4: 390-402.

- Lynott, Jana, Mariia Zimmerman, and Patricia Happ. 2017. "Communities Are Embracing Development near Transit: A Snapshot of Transit-Oriented Development Support across the United States." *AARP Public Policy Institute*. <https://www.aarp.org/content/dam/aarp/ppi/2019/04/Communities%20Are%20Embracing%20Development%20near%20Transit.pdf>.
- Mace, Ronald L. 1998. "A Perspective on Universal Design." Excerpt from a presentation by Ronald L. Mace, FAIA, at *Designing for the 21st Century: An International Conference on Universal Design*, Hofstra University, Hempstead, New York, June 19, 1998. Title and text edited by Jan Reagan for publication, August 1998. https://projects.ncsu.edu/ncsu/design/cud/about_us/usronmacespeech.htm.
- . 2010. "Universal Design in Housing." *Assistive Technology* 10, no. 1: 21-28.
- Mada Center. 2021. "About Us: Mada Is the World's Center of Excellence in Digital Access in Arabic." <https://mada.org.qa/about-us/>.
- Makigami, Kuniko, and Jon Pynoos. 2002. "The Evolution of Home Modification Programs in Japan." *Aging International* 27, no. 3: 95-112.
- Marin, Vera, Ilinca Paun Constantinescu, and Zina Macri. 2021. "Silver Hues: Building Age-Ready Cities Romania Country Background Paper." World Bank, Washington, DC.
- Martínez-Alcalá, Claudia I., Alejandra Rosales-Lagarde, María de los Ángeles Alonso-Lavernia, José Á. Ramírez-Salvador, Brenda Jiménez-Rodríguez, Rosario M. Cepeda-Rebollar, José Sócrates López-Noguerola, María Leticia Bautista-Díaz, and Raúl Azael Agis-Juárez. 2018. "Digital Inclusion in Older Adults: A Comparison between Face-to-Face and Blended Digital Literacy Workshops." *Frontiers in ICT*, August 28, 2018. <https://www.frontiersin.org/articles/10.3389/fict.2018.00021/full>.
- Molinsky, Jennifer, and Whitney Airgood-Obrycki. 2018. "Old Adults Increasingly Face Housing Affordability Challenges." Blog. *Joint Center for Housing Studies of Harvard University*. <https://www.jchs.harvard.edu/blog/older-adults-increasingly-facehousing-affordability-challenges>.
- Montgomery, Anne, Sarah Slocum, and Christine Stanik. 2020. "Experiences of Nursing Home Residents during the Pandemic." *Altarum*. Special report, October 2020. https://altarum.org/sites/default/files/uploaded-publication-files/Nursing-Home-Resident-Survey_Altarum-Special-Report_FINAL.pdf.
- Moore, Ryan C., and Jeffrey T. Hancock. 2020. "Older Adults, Social Technologies, and the Coronavirus Pandemic: Challenges, Strengths, and Strategies for Support." *Social Media + Society* 6, no. 3. <https://doi.org/10.1177/2056305120948162>.
- Morrison, Sara. 2020. "How Older People Can Use Tech to Stay Healthy and Connected while Avoiding Coronavirus." *Vox*, March 19, 2020. <https://www.vox.com/recode/2020/3/19/21185746/covid-19-seniors-apps-amazon-skype-food-delivery>.
- Mourshed, Mona. 2021. "The Opportunity in Aging." Project Syndicate. PS OnPoint Long Reads, August 20, 2021. <https://www.project-syndicate.org/onpoint/mid-career-older-workers-promise-savings-productivity-gains-by-monamourshed-2021-08>.

- Munoz Boudet, Ana Maria, Paola Buitrago, Benedicte Leroy de la Briere, David Newhouse, Eliana Rubiano Matulevich, Kinnon Scott, and Pablo Suarez-Becerra. 2018. "Gender Differences in Poverty and Household Composition through the Lifecycle." Policy Research Working Paper 8360. World Bank, Washington DC. <https://openknowledge.worldbank.org/bitstream/handle/10986/29426/WPS8360.pdf?sequence=1&isAllowed=y>.
- Murray, Lesley. 2015. "Age-Friendly Mobilities: A Transdisciplinary and Intergenerational Perspective." *Journal of Transport and Health* 2, no. 2. <https://www.sciencedirect.com/science/article/abs/pii/S2214140515000079>.
- Ndung'u, Njuguna. 2019. "Digital Technology and State Development in Kenya." *Center for Global Development*. <https://www.cgdev.org/sites/default/files/digital-technology-and-state-capacity-kenya.pdf>.
- . 2021. "Nearly One-Third of Coronavirus Deaths Are Linked to Nursing Homes." *New York Times*. Updated June 1, 2021. <https://www.nytimes.com/interactive/2020/us/coronavirus-nursing-homes.html>.
- NPR (National Public Radio). 2020. "Older People Got a Pandemic Problem? A Club to Help You Figure It Out—Yourself." *The Coronavirus Crisis*, NPR, September 23, 2020. <https://www.npr.org/sections/goatsandsoda/2020/09/23/904604257/older-people-got-a-pandemic-problem-a-clubto-help-you-figure-it-out-yourself>.
- NYFSC (New York Foundation for Senior Citizens). 2007. "Home Sharing—A Free Matching Service—Helps New Yorkers Find Perfect Housing Mates." November 16, 2007. <https://www.nyfsc.org/home-sharing-a-free-matching-service-helps-new-yorkersfind-perfect-housing-mates/>.
- OECD (Organisation for Economic Co-operation and Development). 2012. "Compact City Policies: A Comparative Assessment." *OECD Green Growth Studies*. <https://www.oecd.org/cfe/regionaldevelopment/50524895.pdf>.
- . 2015. *Ageing in Cities*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264231160-en>.
- . 2019. *Pensions at a Glance: OECD and G20 Indicators*. Paris: OECD Publishing. <https://doi.org/10.1787/b6d3dcfc-en>.
- OECD/EU (European Union). 2017. *Boosting Social Enterprise Development: Good Practice Compendium*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264268500-en>.
- Okumura, Masato, Marco Stampini, César Buenadicha, Ana Castillo, Fermín Vivanco, Mario Alberto Sánchez, Pablo Ibararán, and Paula Castillo. 2020. "The Silver Economy in Latin America and the Caribbean: Aging as an Opportunity for Innovation, Entrepreneurship and Inclusion." *Inter-American Development Bank, Washington, DC*. <https://publications.iadb.org/publications/english/document/The-Silver-Economy-in-Latin-America-and-the-Caribbean-Aging-as-an-Opportunity-for-Innovation-Entrepreneurship-and-Inclusion.pdf>.
- . n.d. "The Elderly's Affairs." Oman Ministry of Social Affairs and Labour. Accessed June 1, 2021. <https://www.mosd.gov.om/index.php/en/special-care/elderly>.
- Papke, David Ray. 2020. "Segregation of a Different Sort: Age-Segregation in the Housing and Accommodation of Older Americans." *Marquette Law School Legal Studies* (no. 20-08), December 3, 2020. <https://ssrn.com/abstract=3742397> or <http://dx.doi.org/10.2139/ssrn.3742397>.

- Park, Chae Yeon, James H. Thorne, Shizuka Hashimoto, Dong Kun Lee, and Kiyoshi Takahashi. 2021. "Differing Spatial Patterns of the Urban Heat Exposure of Elderly Populations in Two Megacities Identifies Alternate Adaptation Strategies," *Science of the Total Environment* 781:146455. <https://www.sciencedirect.com/science/article/pii/S0048969721015230#bb0180>.
- Parker, Kim, Juliana Menasce Horowitz, Anna Brown, Richard Fry, D'Vera Cohn, and Ruth Igielnik. 2018. "What Unites and Divides Urban, Suburban and Rural Communities." *Pew Research Center*, May 22, 2018. <https://www.pewresearch.org/socialtrends/2018/05/22/demographic-and-economic-trends-in-urban-suburban-and-ruralcommunities/>.
- Perry, Francesca. 2016. "'Teach Young People We Are Not Going to Move Over': Stories of Ageing in Cities." *The Guardian*, April 28, 2016. <https://www.theguardian.com/cities/2016/apr/28/teach-young-people-stories-ageing-cities>.
- Pillemer, Karl. 2016. "Ask the Aged" in *Aeon*, 13 January, 2016. <https://aeon.co/essays/why-we-should-all-ask-our-elders-about-how-best-to-live> accessed December 12, 2021
- Pillemer, Karl, David Burnes, Catherine Riffin, and Mark S Lachs. 2016. "Elder Abuse: Global Situation, Risk Factors, and Prevention Strategies." *Gerontologist* 56, no. 2: S194-S205.
- Pillpress. 2020. "Improving Medication Management." <https://pillpresso.com/>.
- Prunhuber, Patti, and Vivian Kwok. 2021. "Low-Income Older Adults Face Unaffordable Rents, Driving Housing Instability and Homelessness." Justice in Aging issue brief. National Low-Income Housing Coalition, February 2021. <https://justiceinaging.org/wp-content/uploads/2021/02/Older-Adults-Rental-Housing-Burdens.pdf>.
- Razavi, Shahra. 2017 "Long Term Care for Older People: The Role of Unpaid Care Work." Presented to the UN Women Expert Group Meeting on Care and Older Persons, United Nations Headquarters, New York City, December 5-7, 2017. https://www.un.org/development/desa/ageing/wpcontent/uploads/sites/24/2017/11/Razavi_PP_EGM_Unpaid-Care.pdf.
- Rebstock, Markus. 2017. "Economic Benefits of Improved Accessibility to Transport Systems and the Role of Transport in Fostering Tourism for All." Discussion paper no. 2017-04. <https://www.itf-oecd.org/sites/default/files/docs/improved-accessibilityfostering-tourism-for-all.pdf>.
- . 2020. "Cost Comparison Feasibility Study." Rick Hansen Foundation Accessibility Certification. Issued by HCMA Architecture + Design, January 2020. <https://hcma.ca/wp-content/uploads/2020/01/2020.01.15-RHFAC-FINAL-Report-FULL-v4.pdf>.
- Rodwin, Victor G., Michael K. Gusmano, and Robert N. Butler. 2006. *Growing Older in World Cities*. Nashville, TN: Vanderbilt University.
- Rohwerder, Brigitte. 2015. "Disability Inclusion: Topic Guide." *GSDRC Applied Knowledge Services*, November 2015. <https://gsdrc.org/wp-content/uploads/2015/11/DisabilityInclusion.pdf>.
- Salat, Serge, and Gerald Ollivier. 2017. "Transforming the Urban Space through Transit-Oriented Development: The 3V Approach." Working paper. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/26405>.
- Satariano, William A., Jack M. Guralnik, Richard J. Jackson, Richard A. Marottoli, Elizabeth A. Phelan, and Thomas R. Prohaska. 2012. "Mobility and Aging: New Directions for Public Health Action." *American Journal of Public Health* 102, no. 8: 1508-15.

- Schwab, Klaus. 2016. "The Fourth Industrial Revolution: What It Means, How to Respond." World Economic Forum, January 14, 2016. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>.
- Service Robotics Limited. n.d. "Meet Genie Connect: The Digital Companion for Remote Care." Accessed January 6, 2022. <https://www.genieconnect.co.uk/>.
- Shafik, Minouche. 2021. *What We Owe Each Other: A New Social Contract for a Better Society*. Princeton, NJ: Princeton University Press.
- Sharjah 24. 2021. "Hessa Buhumaid: Senior Citizens on Our Top Priority List." Sharjah 24, October 1, 2021. <https://www.sharjah24.ae/en/articles/2021/10/01/Hessa-Buhumaid-Senior-Citizens-on-Our-Top-Priority-List>
- Sharma, Nidhi, Subho Chakrabarti, and Sandeep Grover. 2016. "Gender Differences in Caregiving among Family—Caregivers of People with Mental Illnesses." *World Journal of Psychiatry* 22, no. 6: 7-17.
- Simard, Joyce, and Ladislav Volicer. 2020. "Loneliness and Isolation in Long-Term Care and the COVID-19 Pandemic." *Journal of the American Medical Directors Association* 21, no. 7: 966-67.
- Sinha, Debashree, Prem Shankar Mishra, Shobhit Srivastava, and Pradeep Kumar. 2021. "Socio-Economic Inequality in the Prevalence of Violence against Older Adults—Findings from India." *BMC Geriatrics* 21, article 322. <https://doi.org/10.1186/s12877-021-02234-6>.
- Smith, Allison E. 2009. *Ageing in Urban Neighbourhoods*. Bristol: Policy Press.
- SoundEye. n.d. "How It Works." <http://www.sound-eye.com/>.
- Tett, Gillian. 2020. "Start-Ups for Silver Surfers." *Financial Times*, July 30, 2020. <https://www.ft.com/content/d4749707-b85e-4774-a45b-bbb2d505f56d>.
- Thomas, Daniel. 2014. "The Silver Economy: Start-Ups Reinvent Smartphone for Older People." *Financial Times*, October 20, 2014. <https://www.ft.com/content/2feb-d73a-560f-11e4-a3c9-00144feab7de>.
- UAE (United Arab Emirates). 2021. "Retirement Visa for UAE Residents." Emirates News Agency. Updated September 29, 2021. <https://u.ae/en/information-and-services/visa-and-emirates-id/types-of-visa/retirement-visa-for-uae-residents#:~:text=Retired%20residents%20over%20the%20age,a%20period%20of%205%20years>.
- UN (United Nations). 2020. "Decade of Healthy Ageing: Plan of Action." December 14, 2020. https://cdn.who.int/media/docs/default-source/decade-of-healthy-ageing/final-decade-proposal/decade-proposal-final-apr2020-en.pdf?sfvrsn=b4b75ebc_25&download=true.
- . 2021. "Leave No One Behind." Universal Values Principle Two: Leave No One Behind. UN Sustainable Development Group. <https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind>.
- UN/DESA (United Nations, Department of Economics and Social Affairs). 2014. *World Urbanization Prospects The 2014 Revision*. New York: United Nations. <https://population.un.org/wup/Publications/Files/WUP2014-Report.pdf>.

-
- . 2015. *World Population Ageing 2015 Highlights*. ST/ESA/SER.A/368. New York: United Nations. https://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Highlights.pdf.
- . 2016. *World Population Ageing 2015*. ST/ESA/SER.A/390. New York: United Nations. https://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf.
- . 2018. *World Urbanization Prospects: The 2018 Revision*. New York: United Nations. <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html>.
- . 2019a. "World Population Prospects: 2019." Official United Nations population estimates and projections prepared by the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. <https://population.un.org/wpp/>.
- . 2019b. *World Population Prospects 2019 Highlights*. New York: United Nations. https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf.
- . 2019c. "Population Facts: Living Arrangements of Older Persons around the World." *Population Facts*, no. 2019/2 (April). https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2019_factsheet2.pdf.
- . 2019d. "Growing at a Slower Pace, World Population Is Expected to Reach 9.7 Billion in 2050 and Could Peak at Nearly 11 Billion around 2100." News, June 17, 2019. <https://www.un.org/sustainabledevelopment/blog/2019/06/growing-at-a-slower-pace-world-population-is-expected-to-reach-9-7-billion-in-2050-and-could-peak-at-nearly-11-billion-around-2100-un-report/>.
- . 2020a. *World Population Ageing 2019*. New York: United Nations. <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf>.
- . 2020b. *World Population Ageing 2020 Highlights*. New York: United Nations. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Sep/un_pop_2020_pf_ageing_10_key_messages.pdf.
- . n.d.a. "Ageing and Disability." Accessed November 2021. <https://www.un.org/development/desa/disabilities/disability-and-ageing.html>.
- . n.d.b. "Health Inequalities in Old Age." Accessed November 2021. <https://www.un.org/development/desa/ageing/wp-content/uploads/sites/24/2018/04/Health-Inequalities-in-Old-Age.pdf>.
- . n.d.c. "The 17 Goals." Accessed December 12, 2021. <https://sdgs.un.org/goals>.
- UNECE. 2017. "Older Persons in Rural and Remote Areas." UNECE Policy Brief on Ageing No. 18, March 2017. https://unece.org/DAM/pau/age/Policy_briefs/ECE-WG1-25-E.pdf.
-

- UNESCO Institute for Lifelong Learning. 2015. "Alphabétisation de Base par Cellulaire (ABC): Mobiles 4 Literacy (Niger)." September 16, 2015. <https://uil.unesco.org/case-study/effective-practices-database-litbase-0/alphabetisation-base-cellulaire-abc-mobiles-4>.
- UNFPA (United Nations Population Fund). 2017. "Ageing in the Arab Region: Statistical Trends and Policy Perspectives." https://arabstates.unfpa.org/sites/default/files/pub-pdf/En_Ageing%20report_final%20for%20web%209-11-2017.pdf.
- UN-Habitat. 2020. "Spatial Planning Guidelines during COVID-19." UN-Habitat COVID-19 Response. September 2020. https://unhabitat.org/sites/default/files/2020/11/covid19_spatialplanning_eng1.pdf.
- UNICEF. 2013. *State of the World's Children 2013*. UNICEF flagship report. November 2013. <https://www.unicef.org/reports/state-worlds-children-2013>.
- U.S. Department of Housing and Urban Development. 2013. "Measuring the Costs and Savings of Aging in Place." *Evidence Matters*, Fall 2013. U.S. Department of Housing and Urban Development, Office of Policy Development and Research. <https://www.huduser.gov/portal/periodicals/em/fall13/highlight2.html#title>.
- U.S. Department of Justice. 2009. *Americans with Disabilities Act of 1990, As Amended*. March 25, 2009. <https://www.ada.gov/pubs/ada.htm>.
- . 2010. *Final Regulatory Impact Analysis of the Final Revised Regulations Implementing Titles II and III of the ADA, Including Revised ADA Standards for Accessible Design*. Final report. Prepared by HDR | HLB Decision Economics for the U.S. Department of Justice, Civil Rights Division, Disability Rights Section, Washington, DC. July 23, 2010. https://www.ada.gov/regs2010/RIA_2010regs/DOJ%20ADA%20Final%20RIA.pdf.
- Varnai, Peter, Paul Simmonds, Kristine Farla, and Henry Worthington. 2018. *The Silver Economy*. Brussels: European Union. DOI: 10.2759/685036.
- Victor, Christina R. 2012. "Loneliness in Care Homes: A Neglected Area of Research?" *Aging Health* 8, no. 6. <https://doi.org/10.2217/ahe.12.65>.
- Wahba, S., Luis Triveno, Horacio Cristian Terraza, and Sarah Elizabeth Antos. 2018. "Building Better Before the Next Disaster: How Retrofitting Homes Can Save Lives and Strengthen Economies." *Sustainable Cities*, World Bank Blogs, October 9, 2018. <https://blogs.worldbank.org/sustainablecities/building-better-next-disaster-howretrofitting-homes-can-save-lives-and-strengthen-economies>.
- Wall Street Journal*. 2015. "Respect Your Elders: Confucian Kindergartens Catch on in China." ChinaRealTime blog, September 21, 2015. <https://www.wsj.com/articles/BLCJB-27746>.
- WHO (World Health Organization). 2007. *Global Age-Friendly Cities: A Guide*. Geneva: WHO Press.
- . 2018. *The Global Network for Age-Friendly Cities and Communities: Looking Back over the Last Decade, Looking Forward to the Next*. World Health Organization Global Report. February 15, 2018. <https://www.who.int/publications/i/item/WHO-FWC-ALC-18.4>.
- . 2020a. "Dementia Fact Sheet." World Health Organization, September 2, 2020. <https://www.who.int/news-room/fact-sheets/detail/dementia>.

-
- . 2020b. "Elder Abuse Fact Sheet." World Health Organization, October 4, 2021. <https://www.who.int/news-room/fact-sheets/detail/elder-abuse>.
- WHO (World Health Organization) and World Bank. 2011. *World Report on Disability 2011*. December 14, 2011. <https://www.who.int/teams/noncommunicablediseases/sensory-functions-disability-and-rehabilitation/world-report-on-disability>.
- . 2021. "Enhance the Protection for Elderly and Bedridden in Sharjah." World Health Organization Age-Friendly World, September 2021. <https://extranet.who.int/agefriendlyworld/enhance-the-protection-for-elderly-and-bedridden-in-sharjah/>.
- World Bank. 2013. *Inclusion Matters: The Foundation for Shared Prosperity*. New Frontiers of Social Policy. Washington, DC: World Bank.
- . 2015. "Inclusive Cities Approach Paper." World Bank, Washington, DC. <https://documents1.worldbank.org/curated/en/402451468169453117/pdf/AUS8539-REVISED-WP-P148654-PUBLIC-Box393236B-Inclusive-Cities-Approach-Paper-w-Annexes-final.pdf>.
- . 2016. *Global Monitoring Report 2015/2016: Development Goals in an Era of Demographic Change*. Washington, DC: World Bank. DOI: 10.1596/978-1-4648-0669-8.
- . 2021a. *Demographic Trends and Urbanization*. Washington, DC: World Bank. <https://open-knowledge.worldbank.org/handle/10986/35469>.
- . 2021b. "Dhaka Bus Rapid Transit Pilot Project." What We Do/Projects and Operations. World Bank, May 2, 2021. <https://projects.worldbank.org/en/projectsoperations/project-detail/P156186>.
- . 2021c. "Disability Inclusion Matters to Achieve an Accessible Future for All." Feature story. World Bank Group, May 25, 2021. <https://www.worldbank.org/en/news/feature/2019/12/03/disability-inclusion-matters-to-achieve-an-accessible-future-for-all>.
- . 2021d. "Vietnam: Adapting to an Aging Society." World Bank, Washington, DC. <https://documents1.worldbank.org/curated/en/544371632385243499/pdf/Vietnam-Adapting-to-an-Aging-Society.pdf>.
- . 2021e. "Vietnam Scaling Up Urban Upgrading Project." What We Do/Projects and Operations. World Bank, May 25, 2021. <https://projects.worldbank.org/en/projects-operations/project-detail/P159397>.
- . 2021f. "Indonesia: National Slum Upgrading Project." What We Do/Projects and Operations. World Bank, December 9, 2021. <https://projects.worldbank.org/en/projects-operations/project-detail/P154782>.
- Yeung, Carmen. 2019. "Social Media Usage Statistics by Age: Marketing to Adults Aged 50+." Synthesio's Social Media Usage Series, part 2, August 29, 2019. <https://www.synthesio.com/blog/social-media-usage-statistics-byage/>.
- Yon, Yongjie, Christopher R. Mikton, Zachary D. Gassoumis, and Kathleen H. Wilber. 2017. "Elder Abuse Prevalence in Community Settings: A Systematic Review and Meta-Analysis." *Lancet Global Health* 5, no. 2: 147-56. [https://doi.org/10.1016/S2214-109X\(17\)30006-2](https://doi.org/10.1016/S2214-109X(17)30006-2).
-

- Yon, Yongjie, Maria Ramiro-Gonzalez, Christopher R. Mikton, Manfred Huber, and Dinesh Sethi. 2019. "The Prevalence of Elder Abuse in Institutional Settings: A Systematic Review and Meta-Analysis." *European Journal of Public Health* 29, no. 1: 58-67. <https://doi.org/10.1093/eurpub/cky093>.
- Yuen, Belinda. 2021a. "Silver Hues: Building Age-Ready Cities Japan Country Background Paper." World Bank, Washington, DC.
- . 2021b. "Silver Hues: Building Age-Ready Cities Singapore Country Background Paper." World Bank, Washington, DC.
- Zero Project. 2014. "Inclusive Design of Cape Town's Bus System." Innovative Policy 2014 on Accessibility. South Africa. <https://zeroproject.org/policy/cape-town/>.
- Zhang, Hong. 2009. "The New Realities of Aging in Contemporary China: Coping with the Decline in Family Care." In *The Cultural Context of Aging: Worldwide Perspectives*, 3rd ed. Edited by Jay Sokolovsky. Westport, CT: Praeger Publishers.
- Zhang, Xufan, Matthew E. Dupre, Li Qiu, Wei Zhou, Yuan Zhao, and Danan Gu. 2017. "Urban-Rural Differences in the Association between Access to Healthcare and Health Outcomes among Older Adults in China." *Geriatrics* 17, no. 1: 151. <https://doi.org/10.1186/s12877-017-0538-9>.
- Zukin, Sharon. 2010. *The Naked City: The Death and Life of Authentic Urban Places*. New York: Oxford University Press.



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