



Asia-Pacific
Economic Cooperation

The Role of Standards and Innovation for Driving APEC's Silver Economy

An Issues Paper for the 2017 APEC Workshop on
Standards and Innovation

APEC Sub-Committee on Standards and Conformance
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Contents

Figures & Tables	3
Explanatory Notes	3
Abbreviations	4
Acknowledgements	5
Foreword	6
Executive Summary	8
Introduction.....	10
What is the Silver Economy? The Midas Touch Turning Silver into Gold	14
The International Dimension – The Benefits and Role of International Standards	17
A New APEC Standards and Innovation Initiative	21
APEC Silver Economy Survey	24
Sector Outcomes	30
Preparing for the Future – Further Insights from the APEC Survey	37
Conclusion.....	39
Main References and Further Reading.....	40
Report Authors.....	41
About Standards Australia	42
Appendix A – Silver Economy Standards and Other Lower Consensus Documents	43
Appendix B – APEC Member Economy Population Pyramids.....	66

Figures & Tables

Figure 1 – Number and Proportion of Older People Globally in 2015, 2030, 2050	10
Figure 2 – Older Age Dependency Ratios 2000 & 2015.....	11
Figure 3 – Consumer Spending, Age 65+	16
Figure 4 – Key ISO Silver Economy Standards.....	18
Figure 5 – A Chronology of Silver Economy Developments.....	21
Figure 6 – Project Flow Chart.....	23
Figure 7 – APEC Silver Economy Survey	24
Figure 8 – Survey Respondents Field of Employment.....	26
Figure 9 – Assessing the Silver Economy as an Opportunity.....	27
Figure 10 – Awareness of Silver Economy Initiatives	28
Figure 11 – Awareness of Silver Economy Standards.....	29
Figure 12 – Priority Sectors for Standards, Conformity Assessment and Regulatory Development in APEC	30
Figure 13 – Which Health Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	31
Figure 14 – Which Building Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	32
Figure 15 – Which Transport and Mobility Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	33
Figure 16 – Which Information and Communication Technology Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	34
Figure 17 – Which Travel, Leisure, Social and Community Engagement Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	35
Figure 18 – Which Workforce Planning Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?	36
Figure 19 – Support for a Voluntary Standardisation Work Program.....	37
Notable Feedback from Survey Respondents	38

Explanatory Notes

Details and percentages in tables do not necessarily add to totals because of rounding.

Reference to “dollars” (\$) indicates United States dollars, unless otherwise stated.

The term “billion” signifies a thousand million.

Throughout this paper ageing and aging are used interchangeably.

Abbreviations

AAL	Active and Assisted Living
AAI	Active Ageing Index
ABAC	APEC Business Advisory Council
APEC	Asia-Pacific Economic Cooperation
APEC SCSC	APEC's Sub-Committee on Standards and Conformance
APEC SMEWG	APEC's Small and Medium Enterprises Working Group
BCG	Boston Consulting Group
DIIS	Department of Industry, Innovation and Science (Australian Government)
GRPs	Good Regulatory Practices
GVCs	Global Value Chains
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission
IAL	Independent Assisted Living
ISO	International Organization for Standardization
IT	Information Technology
IWA	International Workshop Agreement
JTC 1	Joint Technical Committee 1 (ISO/IEC)
MIPAA	Madrid International Plan of Action on Ageing
NQI	National Quality Infrastructure
NSB	National Standards Body
NSBs	National Standards Bodies
NTM	Non-Tariff Measures
NWIP	New Work Item Proposal
OADR	Old-Age Dependency Ratio
OECD	The Organisation for Economic Co-operation and Development
PSG	Project Steering Group
SA	Standards Australia
SAG	ISO Strategic Advisory Group on Ageing Societies
SMEs	Small to Medium sized Enterprises or Small and Medium Enterprises
SyC AAL	IEC System Committee on Active Assisted Living
TBT	Technical Barriers to Trade
WHO	World Health Organization
WEF	World Economic Forum

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This is a discussion paper and does not reflect the views of Standards Australia, the Australian Government, APEC or PASC. Neither Standards Australia nor any person acting on its behalf is responsible for any errors, omissions in, or the correctness of the information contained in this document. The Issues Paper is not presented as standards or innovation policy per se, but with a view to inform and stimulate wider consideration of the current and future role of standards and innovation within APEC’s emerging silver economy.

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Australian Government

Foreword

Dr Bronwyn Evans, Chief Executive Officer Standards Australia



APEC brings together 21 member economies across the Pacific Rim and encompasses a diverse group of economies and societies each at different stages of economic and social development. Nevertheless, over the past few decades ageing has emerged as an increasingly critical societal challenge that is widely impacting the region. Access to new medical products and services, health care technologies and innovation, lower or declining fertility levels, reduced mortality rates and rising quality of life have all contributed to the ageing societies phenomena. Increased life expectancy has been one of the most notable

global human achievements but the downside is that simultaneously, governments around the world and in APEC are facing growing budgetary and fiscal pressures. Governments are struggling to find workable and sustainable solutions to challenges that are proving increasingly difficult to manage, deliver and achieve.

Based on current demographic trends, the APEC region will experience some of the world's fastest growth rates of persons over 65 years in the next three decades or so. Therefore, it is important to recognise that APEC urgently needs to develop a silver economy standards and innovation roadmap, with a clear vision and strategic priority focus to develop policy and actions to capitalise on this regional and global trend. The development of a roadmap will bring a number of benefits such as identifying current and future gaps in meeting user requirements, some of which can be addressed through National Standards Bodies.

Despite all the challenges, business opportunities are materialising for APEC with the establishment of a new market of possibilities in the emerging silver economy. As our societies across APEC age faster than ever before, new products, services and technologies are required to support this burgeoning trend. It is vitally important that policy makers look at other policy levers, such as the role that voluntary standards and innovation can play, as part of a toolbox of market based solutions to help address current and unfolding developments.

The central aim of this Issues Paper is to highlight the main issues, challenges and emerging opportunities associated with ageing societies in APEC viewed through a set of standards and innovation lenses. It presents the data, results and feedback of an APEC wide survey of some 230 key stakeholders, which outlines the current state of play in the region and provides some possible solutions to help address growing market needs and expectations. This thought leadership is particularly focused on creating and promoting a platform for dialogue and importantly driving fresh thinking. This dialogue is largely centred on the important role that standards and innovation can play to help policy makers, regulators, industry and civil society address one of the most pressing and multifaceted challenges that we collectively face over the next fifty years and beyond. Rising concerns for APEC's member economies on age related expenditure - especially affordable housing, transport, work force planning, social security, healthcare and caring costs can no longer be ignored. Now is the time for collective action!

Our hope is that this Issues Paper and this APEC initiative, more broadly, will help to bring about a greater awareness and understanding of ageing issues and challenges facing APEC today; and above all, promote and contribute to a greater understanding of the significant benefits and importance of the silver economy. This is an important and necessary first step in ultimately improving and enhancing the lives of APEC ageing communities.



*Old age hath yet his
honour and his toil."*

—Alfred Lord Tennyson (1809–1892)

Executive Summary

SUMMARY OF INSIGHTS

- 1. There is strong support for mainstreaming silver economy issues in APEC's broader agenda; ageing societies can be seen as a driver of future business opportunities and economic growth.**
- 2. There is an identified need for developing a Voluntary Action Plan which includes adopting and using international standards to foster innovation solutions.**
- 3. APEC should consider developing a five-year silver economy standardisation roadmap with a focus on leveraging a range of sectoral standards and innovation supported by NSBs.**
- 4. APEC members have a window of opportunity before the baby-boom generation retires to tackle the many challenges associated with ageing populations. However, the APEC survey highlights that the community is largely unaware of their governments' and NSB's work to prepare for the silver economy.**
- 5. APEC should consider funding pilot projects that link standards and innovation to create new products, services and technologies to address market gaps.**

Given the projected growth of ageing populations, which will occur in almost every APEC member economy over coming decades, it has become apparent to policy makers, industry and civil society groups that the Asia Pacific region is at an important and potentially transformative crossroads. On one hand, ageing populations present both a significant policy conundrum and societal challenge. On the other hand, this global phenomenon is opening up a new frontier for business opportunity and market growth, which has the potential to unlock a myriad of economic, business and community benefits. These benefits will include new employment and careers, enhanced productivity, facilitation of social redesign and generation of new consumer markets for age friendly products, services and assistive technologies.

It has become abundantly clear that governments throughout APEC, and indeed globally, need to look at alternate and cost effective solutions to meet the challenges and opportunities presented by ageing societies. Standards and innovation provide two possible policy options for APEC member economies to draw upon.

This Issues Paper, the first of its kind in APEC, has been produced by Standards Australia with inputs from members of the Role of Standards and Innovation for Driving APEC's Silver Economy Project Steering Group (PSG), an APEC wide survey and desk research. The first section of the Issues Paper provides a background and context of global and Asia Pacific developments relating to ageing societies. A definition for the silver economy is provided and the objectives of the broader APEC *Role of Standards and Innovation for Driving APEC's Silver Economy Project* is outlined.

The second part of the discussion document conveys the key findings of an APEC survey, which looks at the important role-played by standards and innovation to support the silver

economy. It also provides some interesting insights into issues, the unmet needs of ageing societies and presents some ideas on growing the potential of the silver economy.

The final section of the Issues Paper explores the theme of Preparing for the Future and provides some practical action items for APEC to consider. These outputs will be part of the deliberations at the APEC silver economy workshop that is taking place in early April 2017.

Finally, a set of references and web links are provided for readers interested in exploring this subject matter further. "Appendix A – Silver Economy Standards and Other Lower Consensus Documents" on page 43 contains a list of current international and member economy standards related to the silver economy that are in use across APEC.

Introduction

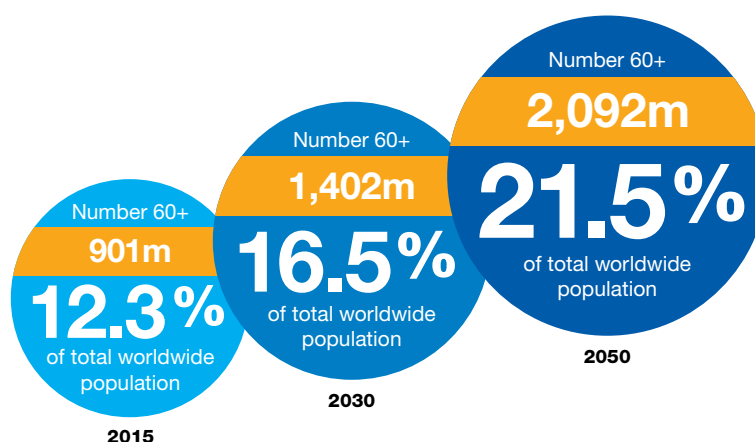


The ageing of the global population represents the greatest social, economic, and political transformation of our time”

—Global Coalition on Ageing

The world's population is ageing at a rate unprecedented in recorded history. Improved access to clean water, health and medical care, housing, transport, food, diet and nutrition, education and new technologies have all contributed positively to increased longevity. In fact, demographic research undertaken by the United Nations, Department of Economic and Social Affairs, Population Division, indicates that globally the proportion of people aged 60 years or over will increase from 12.3 % in 2015 to 16.5 % in 2030. This compares to a more modest 2.3 % increase in the share of older persons that took place between 2000 and 2015¹. This trend continues to accelerate further when forecast to 2050 and beyond where it is estimated that the over 60's population will grow to 2.09 billion or 21.5% of the world's total population. Figure 1, below, outlines the number and proportion of older persons globally in 2015, 2030 and 2050.

Figure 1 – Number and Proportion of Older People Globally in 2015, 2030, 2050



Source: Global AgeWatch Index 2015: Insight Report, Help Age International, London, p. 5., Standards Australia Analysis

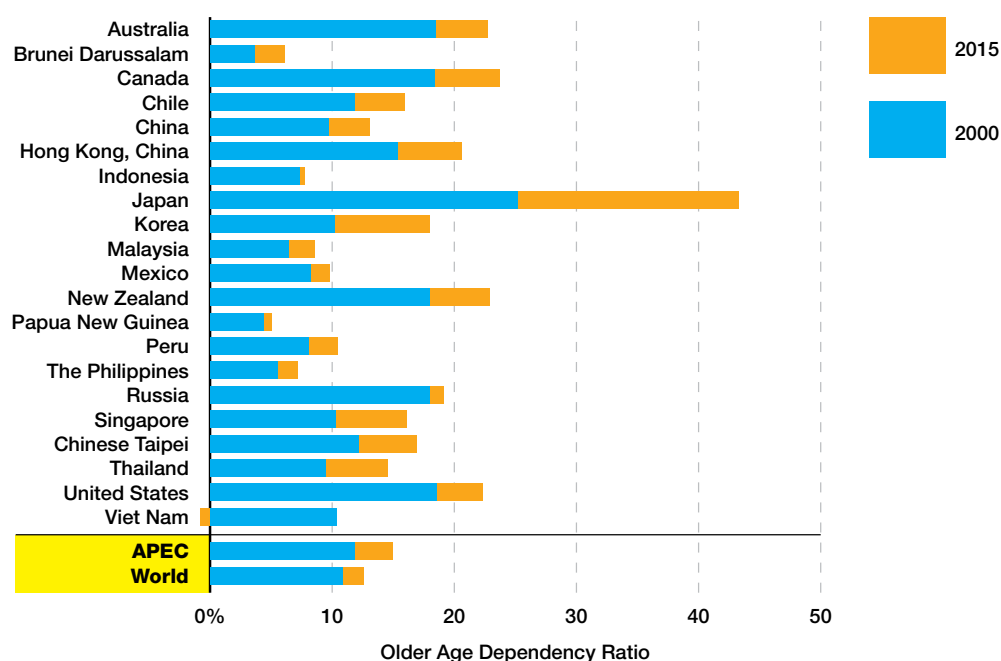
1 United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Ageing 2015 (ST/ESA/SER.A/390), p.3

This is without doubt, a remarkable 21st century achievement. But allied to this success is the need to address the ageing societies as a regional cross cutting issue which urgently warrants the increasing attention of governments, policy makers, regulators, innovators, businesses, civil society organisations and communities.

Globally, the number of persons aged 60 and above is expected to more than double by 2050 and more than triple by 2100, increasing from 901 million in 2015 to 2.1 billion in 2050 and 3.2 billion in 2100. Sixty-six per cent of the increase between 2015 and 2050 will occur in Asia.²

Similarly, along with this global growth of ageing societies, the dynamic Asia Pacific Economic Co-operation (APEC) region is experiencing a historic and unprecedented growth in the total and percentage of persons who are aged 65 years and more³. APEC, which comprises 21 member economies, has an estimated population of 2.83 billion persons. 10.16% of this total population is over 65 years of age, compared to the world average of 8.1% (2014)⁴. The Asia Pacific is the most rapidly ageing region of the world. Figure 2 provides a comparison of Asia Pacific with the world.

Figure 2 – Older Age Dependency Ratios 2000 & 2015



Source: http://www.statistics.apec.org/index.php/key_indicator/kid_result/1 downloaded on 14 December 2014

2 United Nations Department of Economic and Social Affairs/Population Division 5, World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. The projections for 2050 are based on a medium growth scenario.

3 APEC has 21 member economies comprising of: Australia, Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong (China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States of America and Viet Nam.

4 http://www.statistics.apec.org/index.php/key_indicator/kid_result/1 downloaded on 14 December 2014

Against the backdrop of decreasing fertility rates and increases in life expectancy, APEC member economies in the first half of the twenty first century are now confronting what has been referred to by some commentators as the 'age quake,' 'grey quake' or 'silver tsunami'⁵. Most literature and studies regarding the ageing populations across APEC, indicate profound long-term political, economic and societal implications.



According to the World Economic Forum (WEF), the Asia Pacific region alone is now home to more than fifty percent of the world's ageing population who are over 60 years of age."

In a global context, the number of older persons, is forecast to reach over 2.09 billion by 2050 with over a quarter from this region alone⁶. Although its timing, impact and speed differs widely across APEC individual member economies, it is nonetheless, from any standpoint, a staggering and unprecedented development.

If we consider APEC population growth in the medium term, the challenge is all too apparent. By 2020, the population over the age of 65 will grow by 60% in Japan, 111% in Mexico and 80% in China. Based on current demographic trends, Chinese Taipei is the fastest ageing society within APEC and it is expected that 20% of its population will be over the age of 65 by 2026. Presently, Japan has the oldest population in the world (2014); 25.7% of its total population are already over 65 years of age. These trends are exacerbated in the long-term, as it is predicted that two out of every five people in Japan will be over the age of 65 by 2050. In the same period, it is anticipated that more than one in every three persons will be over the age of 65.

Evaluation of a key demographic indicator such as the Old-Age Dependency Ratio (OADR), which is the number of persons, aged 65 and above divided by the working age population, across APEC member economies, the picture between 2000 and 2014 is very poignant indeed. We can see from the data in Figure 2: OADR in APEC compared to the World that APEC's OADP is increasing at a much faster rate than the world's average. From 2000 to 2014 alone, APEC increased from 11.81% to 14.46%. This is in contrast to 10.85% to 12.33% for the world⁷. At the APEC member economy level we can see that Japan, Canada, New Zealand, Australia, and the United States have ratios over 20%, which can be categorised as 'super ageing' societies. However, we also have another six member economies that have ratios greater than the current APEC average of 14.46% (2014). Namely, Hong Kong, Russia, Korea, Chinese Taipei, Chile and Singapore.

To put this into local context for an economy such as Singapore, this means quadrupling of the OADR ratio from 15.12% (2014) to 58% (2050) in less than two generations. In


5 Understanding the Needs and Consequences of the Ageing Consumer, The Consumer Goods Forum, AT Kearney, p.2f, see http://www.theconsumergoodsforum.com/files/Publications/ageing_consumer_report.pdf

6 Source <https://www.weforum.org/agenda/2016/09/asia-pacific-ageing-what-we-can-learn> accessed on 7 December 2016

7 http://www.statistics.apec.org/index.php/key_indicator/kid_result/1 downloaded on 14 December 2014. For the purposes of this Issues Paper, a member economy with a population where more than 14% is aged over 65 years is called or termed an 'aged society.'

the case of China, a 2014 report by Moody's, the ratings agency, describes significant demographic changes between the periods 2020 to 2050. China is expected to have six working adults for every 65-year-old plus in 2020. This figure is expected to decrease to 4.2 persons in 2030, and then declines even further to 2.6 by 2050⁸. In the same report Moody goes on to look at Hong Kong and Korea which will respectively have 3.8 and 4.6 working age adults per 65 year old plus in 2020, and decrease substantially to 2.3 and 2.7 persons by 2030 and 1.5 each by 2050⁹.

The implication of these developments mean that any OADR greater than 20% reveals there are approximately 5 persons of working age for every single person aged 65 or over and the numbers are set to fall even further. The picture being painted of shrinking workforces, reduced taxation receipts, increased pressure on already strained preventative care, health and medical services, has significant knock on effects and implications for long-term fiscal sustainability and social cohesion. Simply put, the trend for higher OADR anticipated in the future will not be sustainable.

 *In coming decades, many forces will shape our economy and our society, but in all likelihood no single factor will have as pervasive an effect as the ageing of our population”.*

*—Former U.S. Federal Reserve Chairman
Ben Bernanke, October 4, 2006*

Many of APEC's member economies are at an inflexion point. The outlook for APEC is that more resources will be needed, with less public funds available. This requires a rebalancing of social policies and consumer expectations. Regionally, we are at a critical moment where ageing societies and the growth of the silver economy must be central to APEC's future strategic priorities. So what can be done? Consideration of a 'do nothing' approach is not a sustainable policy option, nor an adequate community response in the medium to long-term. Already, there are signs and growing pressures that warrant action. We urgently need a new conversation to guide a 'whole of APEC approach' to manage ageing societies. This global challenge is no longer the sole responsibility of governments alone. The issue requires consideration of other market solution providers, such as the contribution of age-friendly innovation and voluntary standards as part of a multifaceted robust policy response.

⁸ https://www.moody's.com/research/Moodys-Aging-will-reduce-economic-growth-worldwide-in-the-next-PR_305951

⁹ See Sarah O'Connor's thought provoking article in the Financial Times, titled Ageing Populations, World will have 13 'super-aged' nations by 2020 <https://www.ft.com/content/f356f8a0-1d8c-11e4-8f0c-00144feabdc0> and also references Moody's research report.

What is the Silver Economy? The Midas Touch Turning Silver into Gold

At this point, it would be prudent to define the term 'silver economy.' For the purpose of our project, the silver economy entails a broad range of different but interrelated elements that cover "existing and emerging economic opportunities associated with the growing public and consumer expenditure related to population ageing and the specific needs of the population over 50."¹⁰



...the big market opportunity for consumer businesses will be in the 50-75 year old population, not the 20-35 year old population."

—Scott Miller, CEO of SSA & Company

The need to support and sustain those aged over the age of fifty across APEC will see the growth of the silver economy. "The big market opportunity for consumer businesses will be in the 50-75 year old population, not the 20-35 year old population."¹¹ Undoubtedly, a whole new consumer market is unfolding with this demographic shift. Ageing societies will require access to existing and new products, services and technologies. This will include dramatically increased expenditure on wellness, health and medical care facilities, senior and retirement housing, education and employment, entertainment, tourism, hospitality, financial products/services and hobbies.

Two aspects of the emerging silver economy opportunity deserve close examination. The first relates to APEC's National Quality Infrastructure (NQI) and the second relates to the region's business sectors strategic positioning and take up.

Turning firstly to the issue of NQI. Do National Standards Bodies (NSBs) in the Asia Pacific region have a silver economy standardisation strategy? From background research conducted for this project and Issues Paper, in APEC we are only aware of SPRING Singapore developing a silver industry standardisation roadmap. Similarly, on the business front, a report by Boston Consulting Group (BCG) indicates that less than 50% of firms surveyed have developed a specific business strategy to target sales and marketing opportunities to older persons¹². It is most likely that an APEC specific

¹⁰ European Commission, Growing the European Silver Economy February 2015. The EU is one of the global leaders in researching and promoting silver economy opportunities. APEC should actively monitor the EU's work in supporting its ageing societies and consider areas where they could be joint research and developments related to standardisation and innovation.

¹¹ <http://ssaandco.com/wp-content/uploads/2012/06/SSA-CFR-LA-Aging-Roundtable-Playbook.pdf> accessed on 19 December 2016

¹² Global Aging - How Companies Can Adapt to the New Reality, Boston Consulting Group, December 2011, p. 28.

business survey would indicate an even lower percentage of companies that have developed a sales and marketing plan specifically focused on the over 50s market segment. Clearly, to better serve our ageing populations there is much work for NSBs, industry and other stakeholders to do if APEC is to address growth opportunities. The upcoming business boom associated with ageing will drive innovation, employment, and investment led growth opportunities. Is APEC well positioned to capitalise on this unprecedented development? In the BCG report mentioned above, their research findings indicate that the silver economy will not only dwarf the market opportunity presented by the period of the baby boomers (1946–1964), but also be far more long-term. APEC businesses, especially Small to Medium Sized Enterprises (SMEs), need to act now to benefit from the changing demographics or risk being left competitively disadvantaged.

 *The Asia Pacific's silver economy is expected to hit US\$3.3 trillion by 2020.”*

—Ageing Asia, 2015

The results of our APEC wide project survey on the *Role of Standards and Innovation in Driving APEC's Silver Economy* revealed that the Health Sector is considered to hold the greatest opportunities for growth and development. In support of the responses from the APEC survey, it is interesting to explore the 2014 Health Innovation report by the leading US senior citizen's advocacy organisation AARP. Their report identified nine specific areas of business opportunity¹³.

- Medication management – compliance services, tracking services, reminder solutions and information providers
- Ageing with vitality – cognitive & brain health, hearing & vision health, preventive ageing care and everyday life support
- Vital sign monitoring – vital sign monitoring solutions, vital sign monitoring, enablers diagnostic devices and sensor innovations
- Care navigation – care planning tools, care/plan review & comparison, care records & expense management and care provider directories & marketplaces
- Emergency detection and response – home sensor, activity tracking, home sensors/ hardware, person/fall detection and location tracking
- Physical fitness – fitness solution enablers, fitness programs, fitness apps and fitness devices
- Diet and nutrition – meal plan/ delivery/ cooking solutions, diet/nutrition management, diet & nutrition tracking tools, and content & education

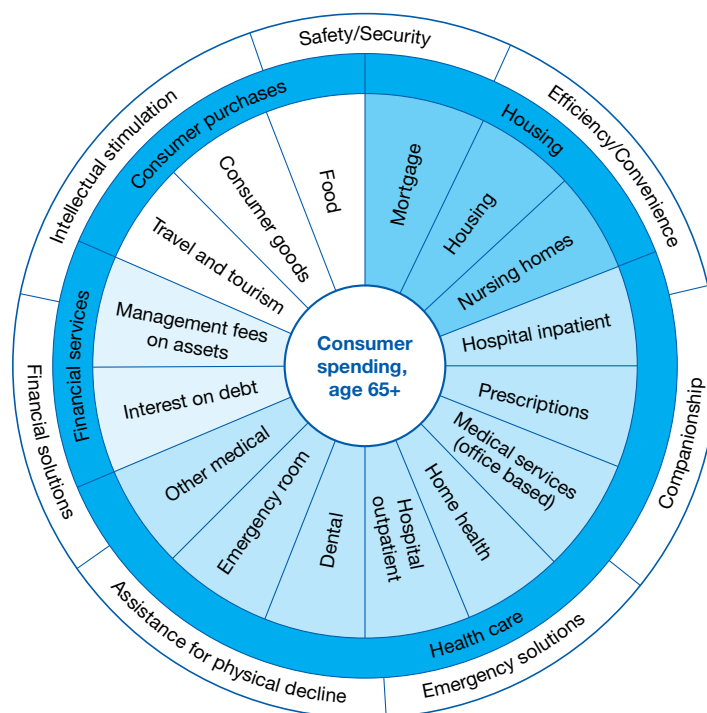
¹³ AARP, Inc., formerly the American Association of Retired Persons, see <http://www.aarp.org/content/dam/aarp/home-and-family/personal-technology/2014-10/2014-Health-Innovation-Frontiers-Untapped-Market-Opportunities-for-50+-Exec-Summary-AARP.pdf> accessed on 19 December 2016.

- Social engagement – online patient community and p2p support, “digital inclusion” solutions and mobility assistance
- Behavioural and emotional health – stress & emotion management/therapy, behavioural modification & self-help, support groups & community and companionship.

Notwithstanding this, the list above is far from exhaustive and this could be replicated in adjacent areas such as financial planning, building and housing, transport, workforce planning, telemedicine, smart homes, driverless vehicles, and robotics to name a few.

One of the key takeaways for APEC is that we need to collectively foster the growth of the silver economy as part of a multi-pronged approach. The development of the silver economy as a driver of innovation and source of new economic opportunities is critical to the overall success and long-term economic sustainability of the Asia Pacific region. The silver economy will also be an enabler for the growth of employment and industrial competitiveness in other areas of economic activity such as functional foods, assisted living and smart homes as mentioned earlier.

Figure 3 – Consumer Spending, Age 65+



Source: 'Global Aging: How Companies Can Adapt to the New Reality', The Boston Consulting Group, December 2011.

The International Dimension – The Benefits and Role of International Standards

In 2002, the landmark Madrid International Plan of Action on Ageing (MIPAA) was launched by the United Nations. The importance of the MIPAA is that, for the first time, ageing was recognised as a major twenty first century societal issue and directly linked this global trend with social, economic development and human rights. The MIPAA is primarily focused on three key priority policy setting areas namely, older persons and development; advancing health and well-being into old age; and lastly, ensuring enabling and supportive environments¹⁴. Following this, a global review of the MIPAA was undertaken in 2013. While the review noted progress on a number of substantive matters such as developing national plans on ageing and developing policies and plans to improve the accessibility, affordability and availability of health care services – so much more remains to be done.

Recognising ageing societies as a global mega trend, international standards development organisations such as the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) have embarked on a number of critical initiatives to help support and address societal issues and concerns relating to population ageing and sustainable development.



For its part, ISO (as well as IEC and ITU) has a growing portfolio of standards, Publicly Available Specifications, Technical Specifications, Technical Reports, IWA and ISO Guides that directly and indirectly support ageing societies and enable the growth of the silver economy. Figure 4, below, shows key ISO standards that cover such diverse areas as ergonomics, housing, transport, community services, design of buildings and health care. Many of these international standards are complemented by APEC member economy NSBs standard development activities. These standards will support new job opportunities, foster innovation in new products and services, and contribute towards the growth of investments in the emerging silver economy.

¹⁴ A full copy of the MIPAA and political declaration can be found here <http://www.un.org/esa/socdev/documents/ageing/MIPAA/political-declaration-en.pdf>

Figure 4 – Key ISO Silver Economy Standards¹⁵

Document identifier	Title (English)
ITU-T E.138	Human factors aspects of public telephones to improve their usability for older people
ISO/IEC TR 19766:2007	Information technology - Guidelines for the design of icons and symbols accessible to all users, including the elderly and persons with disabilities
ISO/IEC 10779:2008	Information technology - Office equipment accessibility guidelines for elderly persons and persons with disabilities
ISO/IEC TR 19765:2007	Information technology - Survey of icons and symbols that provide access to functions and facilities to improve the use of information technology products by the elderly and persons with disabilities
ISO 1503:2008	Spatial orientation and direction of movement -- Ergonomic requirements
ISO/TR 20278:2015	Unwanted reflections from the active and inactive areas of display surfaces visible during use
ISO/TS 20282-2:2013	Usability of consumer products and products for public use -- Part 2: Summative test method
ISO 9241-171:2008	Ergonomics of human-system interaction -- Part 171: Guidance on software accessibility
ISO/IEC 15045-1:2004	Information technology - Home electronic system (HES) gateway - Part 1: A residential gateway model for HES
ISO/TS 15666:2003	Acoustics -- Assessment of noise annoyance by means of social and socio-acoustic surveys
ISO 20252:2012	Market, opinion and social research -- Vocabulary and service requirements
ISO 26000:2010	Guidance on social responsibility
ISO 26362:2009	Access panels in market, opinion and social research -- Vocabulary and service requirements
ISO 16678:2014	Guidelines for interoperable object identification and related authentication systems to deter counterfeiting and illicit trade
ISO/DIS 34001	Security management system - Fraud countermeasures and controls
ISO 10001:2007	Quality management. Customer satisfaction. Guidelines for codes of conduct for organizations
ISO 10002:2014	Quality management. Customer satisfaction. Guidelines for complaints handling in organizations
ISO 10003:2007	Quality management. Customer satisfaction. Guidelines for dispute resolution external to organizations
ISO 10004:2012	Quality management. Customer satisfaction. Guidelines for monitoring and measuring
ISO/TR 22312:2011	Societal security - Technological capabilities
ISO 22320:2011	Societal security - Emergency management - Requirements for incident response
ISO 22325:2016	Security and resilience -- Emergency management -- Guidelines for capability assessment
ISO/TR 22351:2015	Societal security -- Emergency management -- Message structure for exchange of information
ISO/IEC/IEEE 18881:2016	Information technology -- Ubiquitous green community control network -- Control and management
ISO/IEC/IEEE 18883:2016	Information technology -- Ubiquitous green community control network -- Security
ISO/IEC/IEEE 18880:2015	Information technology -- Ubiquitous green community control network protocol
ISO 17069:2014	Accessible design - Consideration and assistive products for accessible meeting

Source: ISO

¹⁵ It is acknowledged that an expansion of Figure 4 and Appendix A to include a much fuller listing and matrix which cross references ISO, IEC, ISO/IEC JTC 1 and ITU standards to equivalent National Standards Body/Member economy standards would be a useful aid memoire for APEC. The development of such a matrix will provide crucial information as to: A) which international standards have been adopted by member economies?; and B) which member economies do not (yet) have an international standard equivalent?

Recently, ISO has embarked on some forward thinking work related to ISO/TC 228, Tourism and related services, which has launched a New Work Item Proposal (NWIP) on accessible tourism. ISO also established a new technical committee ISO/TC 304, Healthcare administration and as mentioned earlier, with the support of IEC is pioneering some very interesting work under its System Committee on Active Assisted Living (SyC AAL), to help develop Active Assisted Living solutions. These are just some of the examples of innovative work conducted by voluntary international standards bodies to simultaneously help address societal challenges and provide a solid foundation for growing silver economy opportunities globally.

Following a proposal from the British Standards Institution (BSI) in 2015, ISO approved an International Workshop Agreement (IWA) on Community-based integrated health and care services for ageing societies¹⁶. The IWA was held on 1 July 2015 in London and 29–30 October 2015 in Tokyo. It was initiated to lead an international discussion within the ISO system to consider the fundamental principles associated with the provision of community-based, integrated health and care services for aged societies. Over 100 global experts from some 15 economies, with diverse backgrounds and experiences, contributed accordingly. The workshop participants included technologists, policy makers, academics, health care professionals, industry associations and NSBs, representatives from the World Health Organization (WHO) and Organisation for Economic Co-operation and Development (OECD). It was also pleasing to note that a number of APEC member economies NSB's were involved in this international initiative, including; Australia, Canada, Japan and Korea. The output of this workshop was the publication of an IWA 18:2016 Framework for integrated community-based life-long health and care services in aged societies¹⁷. The IWA participants concluded that the document could be used as a baseline for further international standards work to support ageing societies. Participants also recommended that ISO give additional momentum to this initiative, so in 2016 the ISO established a Strategic Advisory Group (SAG) on Ageing Societies.

The rationale for the development of the SAG, is that traditional models and approaches to deal with global ageing societies are simply not working. Innovation is one of the keys to unlocking market-based solutions. Furthermore, in tandem with innovation, standards are an important cornerstone for setting out the principles that facilitate the development of new products/services and market solutions. The first meeting of the ISO SAG took place in London on 24 October 2016 and focused on undertaking three key activities:

1. To consider a number of scenarios in order to identify the challenges/opportunities arising from ageing societies;
2. Undertake a gap analysis of existing national, regional and international standards and lower consensus documents used to support ageing societies; and
3. To identify priority areas for ISO based on the outcomes of the first two tasks. IEC's Systems Committee on Active Assisted Living and the WHO will also aid the SAG¹⁸.

16 An IWA is an ISO document/deliverable produced through an international workshop meeting(s) and not through the normal technical committee process. It is particularly a suitable mechanism for exploring current issues and future opportunities. Further information on the process and benefits of an IWA can be found via this link http://www.iso.org/iso/tmb_iwa.pdf

17 The IWA can be purchased and downloaded from the ISO via http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=67913

18 Further information on IEC's SyC AAL's scope, work program and documents can be found here http://www.iec.ch/dyn/www/f?p=103:186:0:::FSP_ORG_ID,FSP_LANG_ID:11827,25

The SAG will explore seven broad categories including:

- Community Care Service/In-Home;
- Technology – Enabling & Assisting
- Care Giving
- Integrated Information Management
- Future Planning
- Enabling Communities
- Building Standards

Again, there is a number of APEC member economies who are involved in this important international standardisation work. APEC's ISO and IEC members closely will closely monitor developments and related outcomes. It will be useful to have APEC member economies report on the progress of this important ISO work at the upcoming APEC Silver Economy workshop that will be held in Sydney, Australia in early April 2017.

A New APEC Standards and Innovation Initiative

Peru hosted APEC in 2016 with the theme “Quality Growth and Human Development.” This theme is intrinsically linked to improving the quality of life, and strengthening healthy and productive workforces and communities. Within APEC’s Business Advisory Council (ABAC), there is a growing concern and focus on the need to increase efforts to improve the health and health care systems in the Asia-Pacific region, recognising the region’s continuing economic growth and future prosperity depends on healthy and productive workforces.

Figure 5 – A Chronology of Silver Economy Developments

2002	UN’s Madrid International Plan of Action on Ageing
2011	APEC Policy Dialogue on Aging, Health and Innovation
2012	OECD-APEC-Waseda University Joint Workshop: Anticipating the Special Needs of the 21st Century Silver Economy
2012	APEC workshop ICT Applications for People with Special Needs (Disabilities) and Ageing
2014	APEC workshop on strengthening ICT applications for the elderly and people with disabilities
2014	OECD and the Global Coalition on Aging Expert Consultation on “The Silver Economy: Facts, Challenges and Opportunities”
2015	IEC establishes Systems Committee on Active Assisted Living
2015	ISO runs International Workshop Agreement on Community-Based integrated health and care services for ageing societies
2016	ISO establishes Strategic Advisory Group on Ageing Societies
2016	APEC SCSC approves the Role of Standards and Innovation for Driving APEC’s Silver Economy project
2016	APEC Silver Economy Project Steering Group established
2016	APEC Silver Economy Survey
2017	Publication of Issues Paper (March 2017)
2017	APEC Silver Economy Workshop (April 2017)

Note: this is a timeline of relevant initiatives to help provide a background and context for this APEC project, Standards Australia analysis.

APEC has undertaken previous initiatives to support ageing societies. The importance of the ageing agenda as a source of innovation and growth is not new. In March 2011, APEC held a policy dialogue on the topic Aging, Health and Innovation: Preparing APEC Economies for the Fiscal and Economic Opportunities of Aging Populations. In September 2012, the OECD and APEC hosted a workshop in Tokyo titled: “Anticipating Special Needs of the 21st Century Silver/Ageing Economy.” More recently, in June 2014, Senior APEC Officials and businesses participated in an APEC workshop on “Strengthening ICT applications for the elderly and people with disabilities”. In both workshops leading experts, policy makers, innovators, academics, consumer, civil society and business representatives met to discuss the challenges ageing societies present and contribute towards the development of policy responses. A particularly noteworthy outcome was recognition of the importance of principles and practices

for fostering age-friendly business and workplaces. The importance of reskilling older persons was also emphasized.

Recognising the enormous multidimensional challenges and opportunities posed, Australia together with a number of co-sponsoring member economies including: China, Japan, Mexico, Singapore and Viet Nam proposed an APEC project in early 2016 titled, *The Role of Standards and Innovation for Driving APEC's Silver Economy*¹⁹.

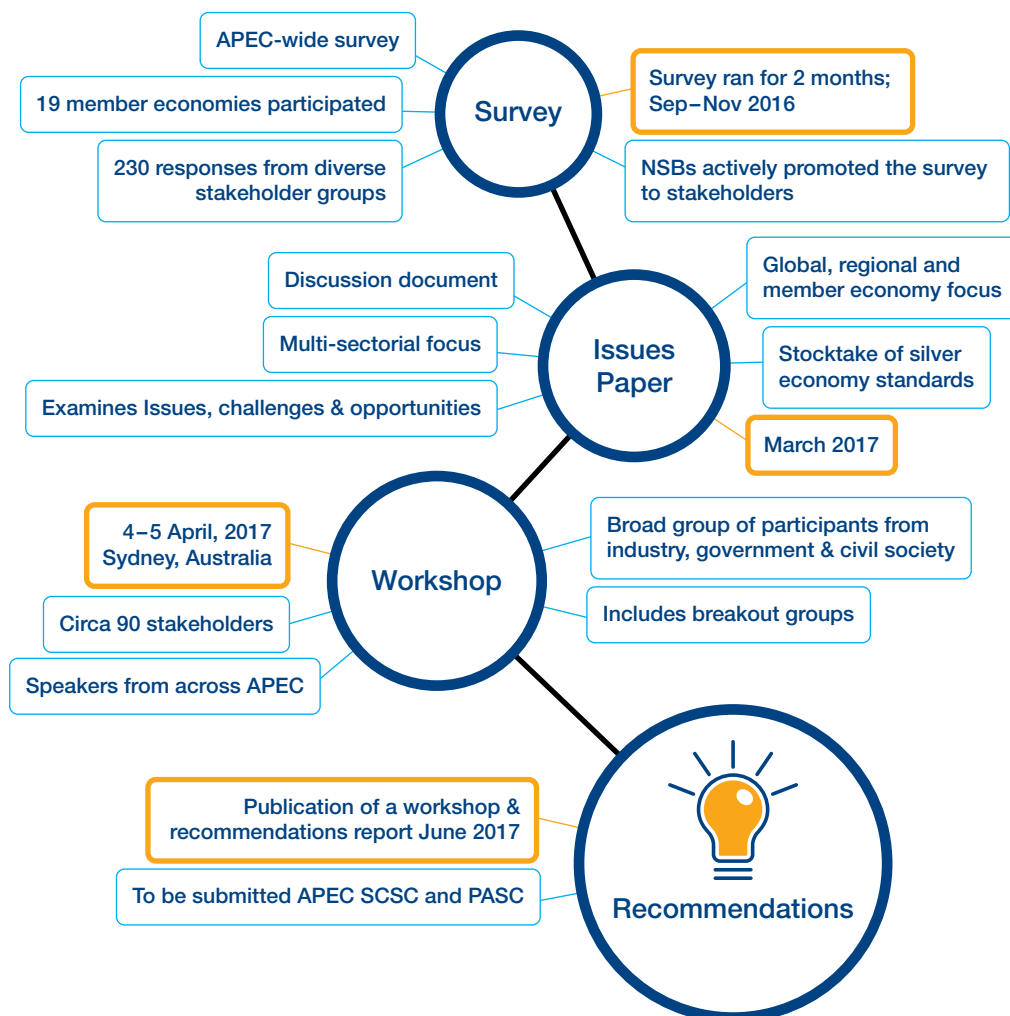
The key objective of this project is to identify standardisation and innovation needs of business, government and consumers. Further, we should agree the necessary steps to support and facilitate the development of new products/services and technology offerings to assist our ageing communities, and grow this new market opportunity – the Silver Economy. The project will focus on:

- Developing an *APEC Silver Economy Standards and Innovation Framework* to assist APEC member economies to realize the economic and social potential of the silver economy.
- Strengthening bilateral and regional innovative and industry driven approaches to standards collaboration;
- Identifying high priority initiatives and market based solutions that foster innovation through the development, adoption and use of standards and Good Regulatory Practices (GRPs);
- Identifying standards in priority work streams which may lead to the development of new standards that address the linkages of standards and innovation; and

Enhanced information sharing, exchange of know-how and experiences will undoubtedly deepen regional dialogue between APEC member economies. The outcomes based workshop will ultimately deliver actionable recommendations that promote further integration efforts, harmonisation of silver economy standards, promote innovation solutions and foster regulatory coherence across APEC. This will lay the foundations towards a standards and innovation framework and recommendations for APEC members. The project flow chart is outlined in “Figure 6 – Project Flow Chart” on page 23.

19 The APEC Project reference and number is SCSC 01 2016S.

Figure 6 – Project Flow Chart



Already, NSB's across APEC have a large footprint of available voluntary standards and lower consensus documents that support ageing societies and the growth of the silver economy. "Appendix A – Silver Economy Standards and Other Lower Consensus Documents" on page 43 lists the current standards in use. From an APEC perspective, this development is very encouraging and provides a solid baseline to support the possible future development of an APEC Silver Economy Standardisation and Innovation Roadmap.

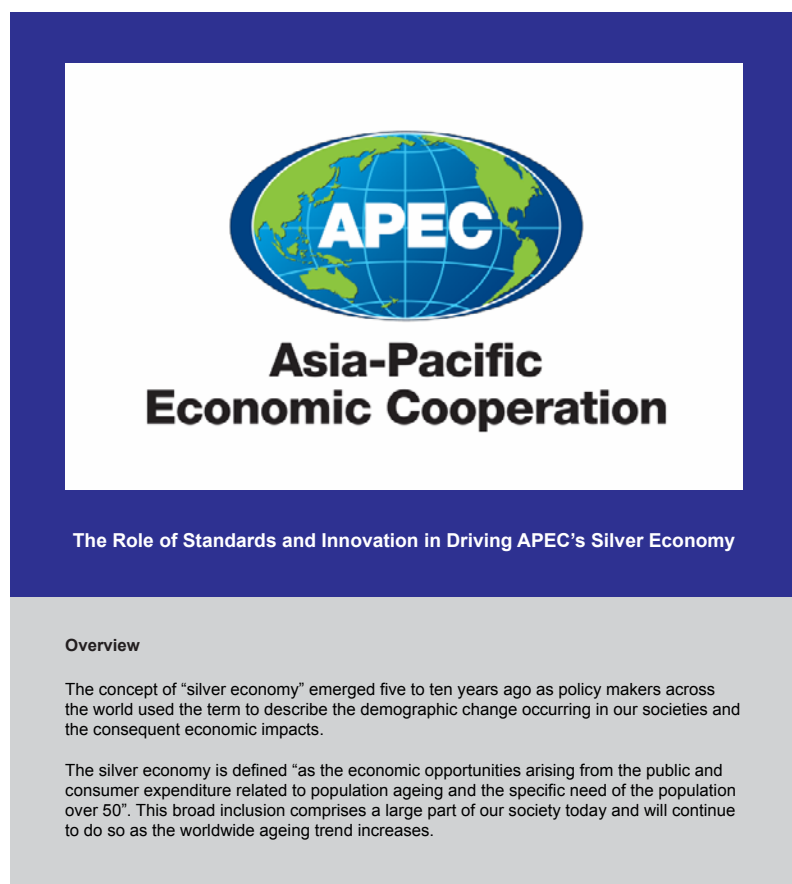
APEC Silver Economy Survey

An APEC wide survey on the *Role of Standards and Innovation in Driving APEC's Silver Economy* was conducted by Standards Australia with the support of the APEC SCSC and PASC secretariats. The survey was launched on 21st September and remained open until 18th November 2016. The survey was well supported with 230 responses from 19 member economies. The 48 survey questions were designed to gather qualitative data. The survey was actively promoted through APEC and PASC, NSBs and their respective stakeholders.

The survey was designed to generate and collect four sets of data:

- Organisational information- including the type, size and activity undertaken;
- Issues and challenges encountered with supporting ageing communities and the growth of silver economy;
- Prioritisation of sectors for possible standardisation work; and
- Opportunities and solutions to grow the silver economy through leveraging standards and innovation.

Figure 7 – APEC Silver Economy Survey



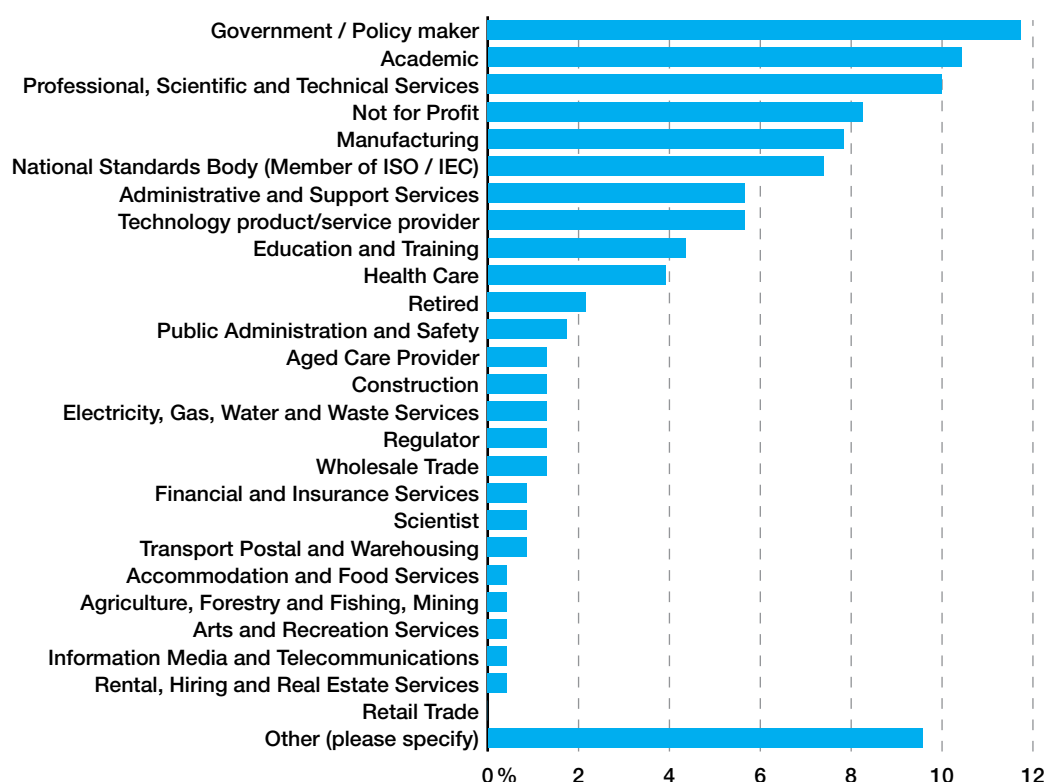
Source: Standards Australia

Key Findings

- **230** survey respondents from **19** APEC member economies participated in the survey demonstrating the importance of the silver economy/ageing agenda.
- **67%** of survey respondents were from an individual, with **33%** completed on behalf of an organisation.
- Over **70%** of the respondents recognised the growth of the silver economy as a business opportunity
- The optimum framework to foster innovation and entrepreneurship included a mix of standards, government regulation, industry guidelines and best practice guides.
- **41%** of respondents were unaware of any current initiatives that their governments and/or NSBs were undertaking to prepare their economy for the emerging silver economy.
- Survey respondents ranked Financial Security, Family Life and Strong Family Unit and Safe Housing as the three most important factors in contributing to quality of life for the ageing population.
- Managing the Health Sector was ranked as the greatest challenge for APEC societies, with Workforce Planning, Training and Employment ranked second.

This section of the Issues Paper briefly summarises the findings of the APEC silver economy survey around the twin themes of standards and innovation. In terms of the respondents by sector of employment, the following Figure 7 visibly demonstrates there was a diverse range of respondents. You can readily visualise that interest in ageing societies and silver economy is widespread across many employment domains. This is not surprising, given the enormous public policy implications and economic, political, business, social and cultural challenges associated with the silver economy. The largest group of respondents (12%) were from Government/Policy Makers followed by Academia (10%). Professional Scientific and Technical Services followed closely behind (10%). Also reflecting the interest and need for new market based solutions Technology Product and Service Providers (6%) contributed to the survey. We were apprehensive at the start of the survey that NSBs may be overweight in responding, but our concerns were not realized (7%).

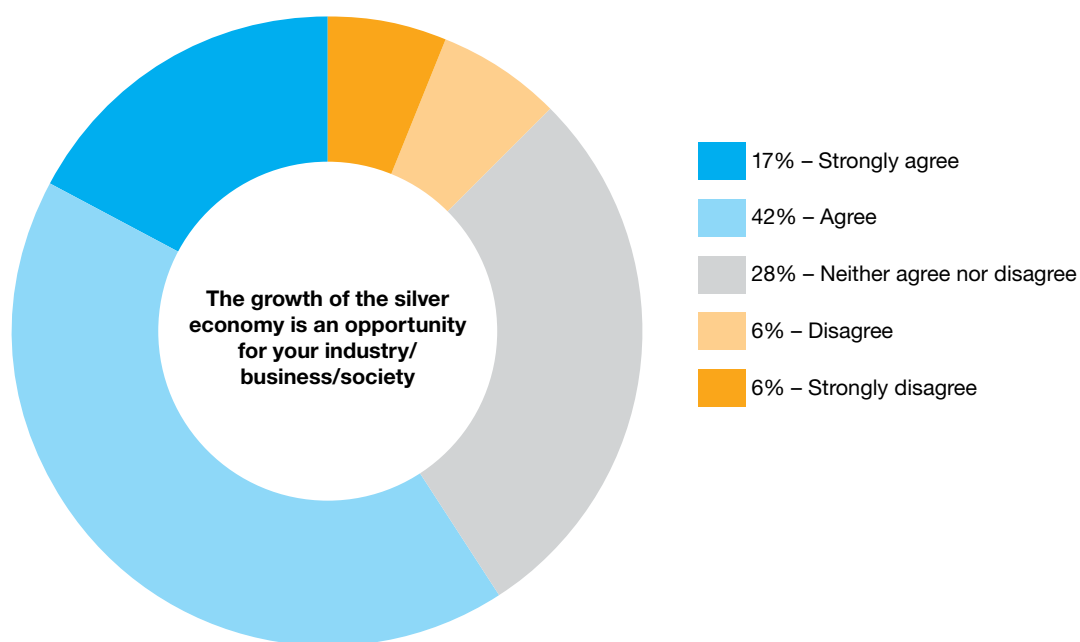
Figure 8 – Survey Respondents Field of Employment



Source: APEC Silver Economy Survey, Standards Australia Analysis

The following chart (Figure 8) indicates a majority opinion by respondents (59%) indicate that they either agree or strongly agree that the growth of the silver economy an opportunity for industry/business/society. The optimism behind this response is based on the understanding that ageing societies represent a largely untapped market of opportunity for businesses. Only a small number of respondents disagree (6%) or strongly disagree (6%) with this perspective.

Figure 9 – Assessing the Silver Economy as an Opportunity

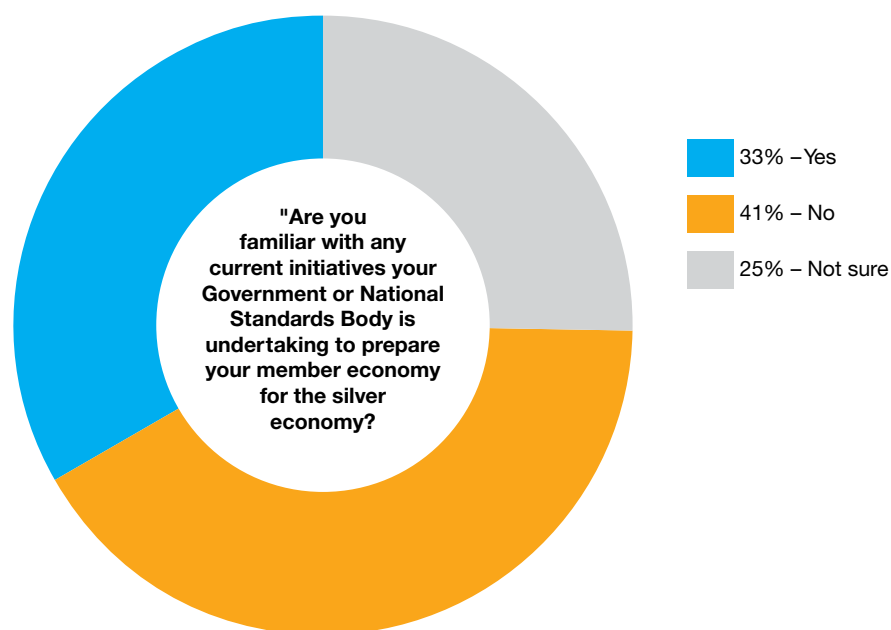


Source: APEC Silver Economy Survey, Standards Australia Analysis

The ageing population of APEC's member economies will constitute a growing market segment in terms of consumption, spending, wealth generation and workforce participation. This in turn underscores the need and importance for businesses in the Asia Pacific to be prepared. Yet, it is clear that many companies within APEC have not begun to fully understand or appreciate the implications of this global trend, or acknowledge it as a genuine market growth opportunity. Potentially, in the healthcare and financial services sectors the opportunity pipeline is more readily understood. Regardless, we know that the rapidly ageing population creates considerable business opportunities outside healthcare and financial services. Opportunities abound in diverse areas such as Active Assisted Living (AAL), seniors' tourism, smart homes and building systems, transport, ICT products and services, lifelong education and training, the list goes on. There is an opportunity for policy makers to work closely with ABAC, other APEC fora and NSBs to design a new approach that improves understanding of the benefits and opportunities for businesses, especially SMEs arising from the silver economy.

The following chart (Figure 9) indicates that just on two-thirds the respondents (67%) were either not aware or not sure of actions or initiatives by government or NSBs to prepare for the silver economy. This result highlights that much more needs to be done by APEC member economies, governments and NSBs to communicate current and future actions or strategies that support the growth of the silver economy. The APEC survey and Issues Paper identified that very few NSBs in APEC are currently developing, or taking steps to develop, a silver economy standardization strategy. SPRING Singapore is one of the exceptions. They have been working with their stakeholders on this topic since 2009 and have established a Silver Industry Standards Committee. SPRING Singapore is well down the track to develop a Silver Industry Standardization Roadmap. The Singapore experience to-date highlights, a wide variety of public and private organisations need to be actively involved if multiple challenges are to be adequately addressed and market opportunities are to be realized. While other member economies, such as Australia, have developed an Aged Care Roadmap in early 2016, it does not have an overarching silver economy standardization strategy in place.

Figure 10 – Awareness of Silver Economy Initiatives



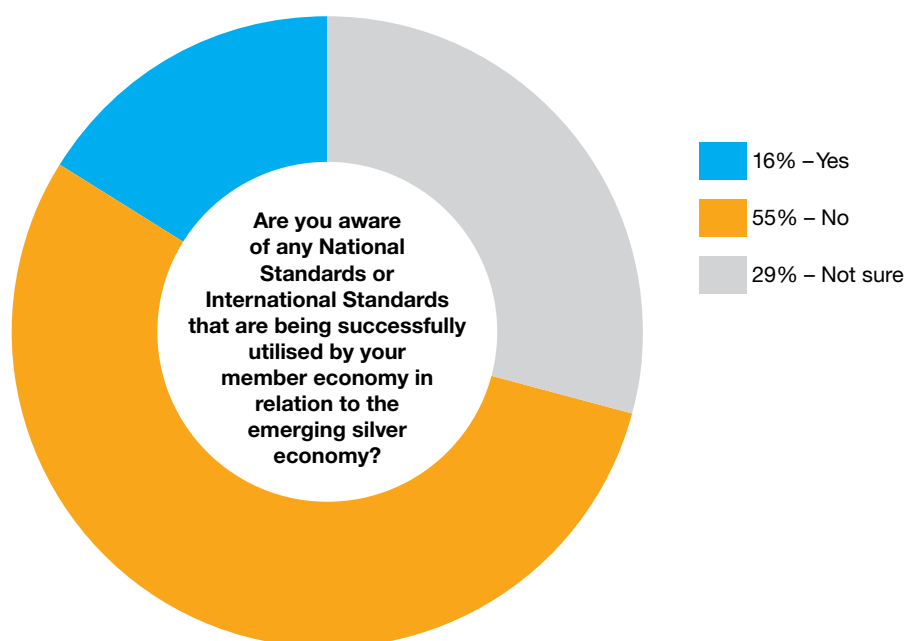
Source: APEC Silver Economy Survey, Standards Australia Analysis

The enormous task confronting NSBs and their stakeholders is illustrated in Figure 10 when considering the question 'are you aware of any member economy standards or international standards that are being successfully utilized by your member economy?' Over half (55%) of the respondents noted that they were not aware. Yet, a sizeable portion (29%) was also in the not sure category. Indeed, only a modest group (16%) of respondents could point to specific standards that are being utilized in their member economy. This feedback points to the lack of community awareness on the benefits and use of standards; the role and activities of NSBs to support ageing societies; and, possibly a poor understanding of the emerging silver economy. With this in mind, NSBs could build on ISO's SAG outcomes, identify high priority standards and develop case studies that can demonstrate best practices to assist silver economy stakeholders on how standards contribute to fostering innovation. An example highlighted by Canadian

stakeholders in the survey is work-taking place under ISO/TC 215 Health informatics²⁰. The growing role of health informatics standards has enabled the development of innovative solutions such as patient's electronic health records. This assists in the care of older people through different stages of the ageing process, especially in cases of patients with chronic illnesses such as Dementia and Alzheimer's disease. Health Informatics is also playing an important role in more efficiently and effectively treating older patients who visit more than one health provider and have complex medication management needs.

In addition, Japanese stakeholders also commented in the survey that it is important for standards developers to have a good working knowledge of ISO/IEC Guide 71:2014, *Guide for addressing accessibility in standards*. The point being that more often than not standards tend to be focused on main stream considerations rather than also take into account the needs of older consumers and persons with disabilities. Ageing considerations needs to be imbedded in a systematic manner when developing standards.

Figure 11 – Awareness of Silver Economy Standards



Source: APEC Silver Economy Survey, Standards Australia Analysis

"Appendix A – Silver Economy Standards and Other Lower Consensus Documents" on page 43 demonstrates the extensive list of member economy and international standards currently in use within APEC related to ageing societies.

Like standards, market based solutions are critical for helping address the challenges of ageing societies and fostering the silver economy. The survey found that only 14% of respondents are aware of market-based solutions being employed within their member economy.

²⁰ For further information on ISO/TC 215 Health informatics see http://www.iso.org/iso/home/standards_development/list_of_iso_technical_committees/iso_technical_committee_participation.htm?commid=54960 As at 30 January 2017 some 12 APEC members were either Participating or Observer members of ISO/TC 215.

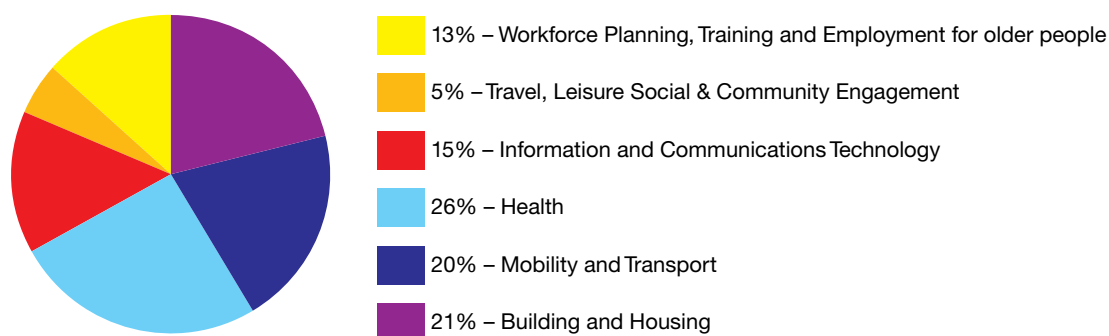
Sector Outcomes

The significant impact of the ageing society will require a systematic approach to introduce policy, which protects citizens, whilst enabling, and encouraging innovation. The survey respondents identified that the optimum framework to foster innovation and entrepreneurship in APEC included a mix of standards, government regulation, industry guidelines and best practice guides.

The survey outlined six key silver economy sectors that require further analysis and prioritisation for standards, conformity assessment and regulatory development. Survey respondents identified the Health, Building and Housing, and Mobility and Transport sectors as the priority areas. The sectors were selected based on desktop research of various studies and materials widely available. The sector categorisations are not intended to be exhaustive, simply aiming to outline a framework and basis from which to start our dialogue.

- Health
- Building and Housing
- Mobility and Transport
- Information and Communications Technology
- Travel, Leisure, Social and Community Engagement
- Workforce Planning, Training and Employment for older people

Figure 12 – Priority Sectors for Standards, Conformity Assessment and Regulatory Development in APEC



Source: APEC Silver Economy Survey, Standards Australia Analysis

HEALTH

The Health sector has always been at the forefront of innovation and entrepreneurship. The push towards 'ageing well' is growing momentum and the industry is taking advantage of increased consumer and government support, interest and funding. There is a strong uptake of medical products and services, which is predicted to grow exponentially. We all recognise the need to find solutions to improve the health and quality of life, while reducing costs. Emerging health markets, products, services and care initiatives come with the need for policy settings to protect the individual and communities at large. Therefore, unsurprisingly, the sector was identified by APEC survey respondents as the most in need for standard developments, conformity assessment and regulation.

Survey respondents commented on the overall importance of this sector, focusing on e-health, assistive health technologies and training for clinical and health care staff. As society is shifting towards more home care options for older people, respondents were mindful of ensuring that home care is regulated and standardised. Many APEC member economies are working towards implementing and managing e-health solutions, e.g. electronic health records. Although the high percentage requesting further standards development suggests that member economies still have considerable work to do overseeing this growth area.

Figure 13 – Which Health Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?



Source: APEC Silver Economy Survey, Standards Australia Analysis

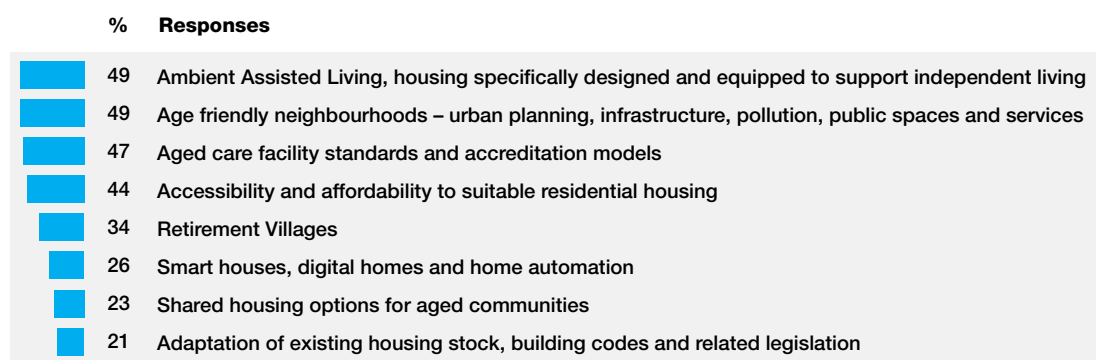
BUILDING AND HOUSING

Homes and communities have a vital role to play in the quality of life for older people. The growth of the silver economy is an exciting time for the building and construction sector with advances in technology and new housing designs specifically equipped to support independent living. Huge progress has been made in recent years in relation to smart houses and home automation technologies. New and innovative thinking on neighborhood designs are transforming urban planning requirements and the development of public spaces. Planning for the housing sector is complex and includes mainstream home adaptation, new houses specialized towards older people and residential care homes. High quality and innovative housing is emphasised as an important focus for our future communities.

Survey respondents expressed the need for better-aged care facility standards and accreditation, and raised the issue of affordability and access to suitable housing for older persons. Many respondents also focused on the importance of age-friendly neighborhood design, AAL technology and the requirement for adaptation of existing housing stock.

“To achieve the policy objective of “Ageing in Place”, the HKSAR Government has been providing community support services to elderly persons and their carers through 210 elderly centres set up at district and neighborhood levels throughout the territory. To enhance the attractiveness of our elderly centres and encourage active participation of the elderly in community activities, the Improvement Programme of Elderly Centres with an allocation of \$900 million was launched in 2012 to uplift their physical set-up such as acquiring computer equipment for lifelong learning and fitness exercise equipment for health. Government funding has also been used to support district organisations to run activities which promote a sense of worthiness among the elderly and nurture the spirit of caring for our elderly citizens.”

Figure 14 – Which Building Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?



Source: APEC Silver Economy Survey, Standards Australia Analysis

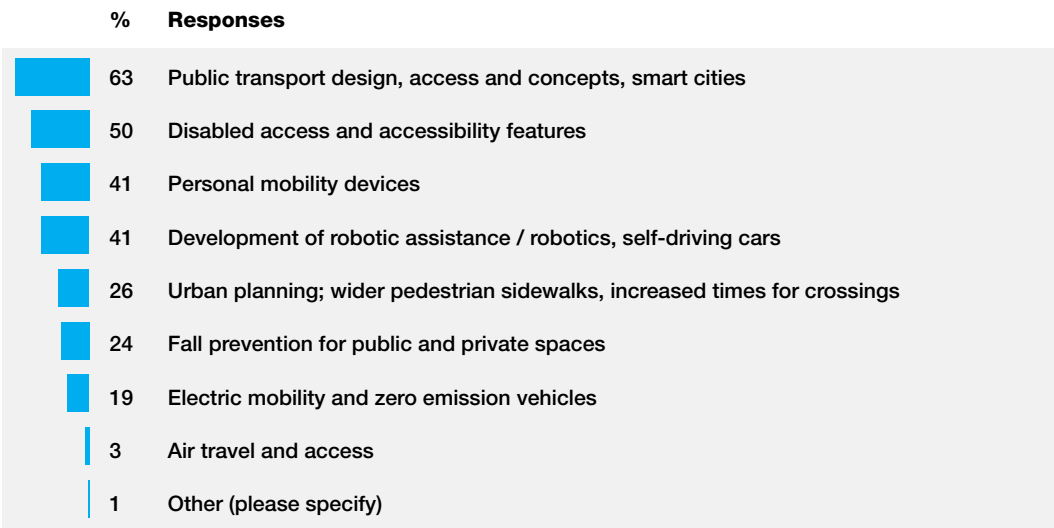
TRANSPORT AND MOBILITY

Access to transport and personal mobility is considered crucial to effectively enable an active and healthy ageing society. The reality is that older people are at a much higher risk of chronic conditions and diminishing physical capabilities, including mobility. Exciting technologies and public transport initiatives are finding solutions to these challenges. Smart city designs and concepts, self-driving cars, and robotics will all play a role in the future. Respondents commented that work towards greater fall prevention designs and improved disabled access options are an imperative factor to ensuring a better quality of life for our ageing demographic.

Survey respondents were most concerned with development of standards in public transport design, access and concepts to increase the mobility and accessibility of the older generation in the community. The importance of free movement by this segment of the population is a high priority and of great concern across APEC member economies.

Singapore has established the ‘Silver Zones Program’, the improvements include measures such as special road signs and markings to determine the Silver Zones, traffic calming measures, ramp-downs for barrier-free access; chicanes to create curves along straight roads; and centre dividers to create two-stage crossings.

Figure 15 – Which Transport and Mobility Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?

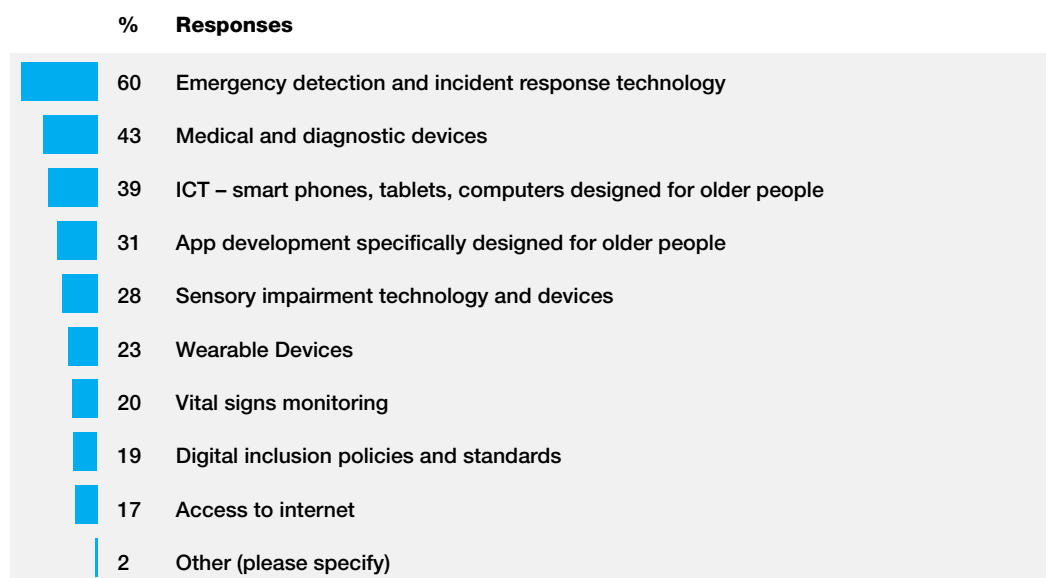


Source: APEC Silver Economy Survey, Standards Australia Analysis

INFORMATION AND COMMUNICATIONS TECHNOLOGY

Survey respondents agreed on the positive impact that technology solutions can have to empower the elderly. Wearable devices, emergency detection and sensory impairment technology are exciting developments that will change how older people can live their lives. For example, medical monitoring does not require hospitalization or institutionalization anymore. New Information and Communications Technology (ICT) markets are fast developing, aimed specifically at the silver economy. ICT will help people stay independent longer, assist people manage age related impairments remotely and monitor chronic diseases. Apps are being specifically designed for older people with memory games, medical reminders, magnifying glass amongst notable examples. Survey respondents prioritised the need for standards and conformity assessment for emergency detection and incident response devices, followed by medical and diagnostic devices. Quality control and consumer confidence is of paramount importance.

Figure 16 – Which Information and Communication Technology Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?

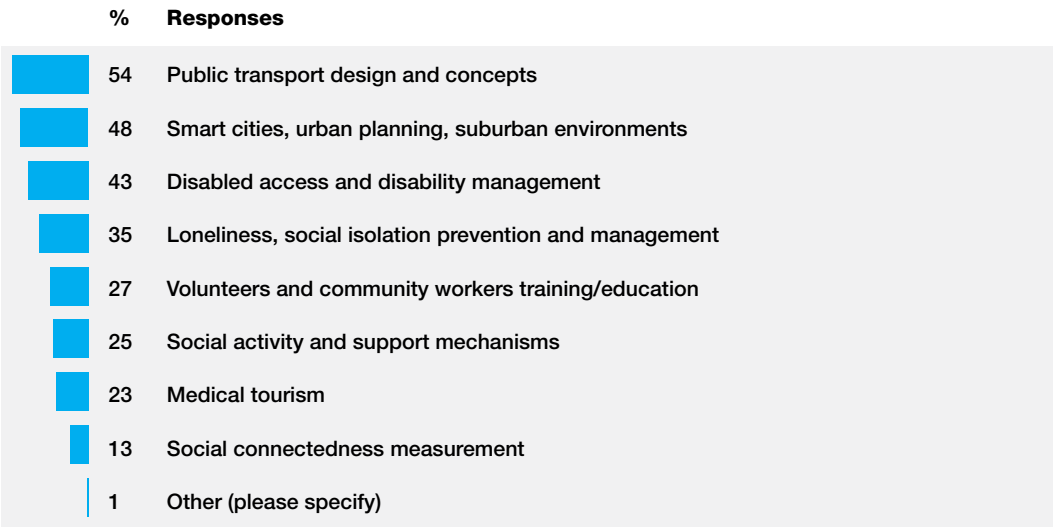


Source: APEC Silver Economy Survey, Standards Australia Analysis

TRAVEL, LEISURE, SOCIAL AND COMMUNITY ENGAGEMENT

Survey respondents stressed the importance of strong family units and older people building personal connections as contributing to a greater quality of life. It is important that societies work towards breaking down the barriers to social and community engagement for older people. Whilst the increasing trend is to live alone, respondents noted that care must be taken not to allow social isolation and loneliness. Within this sector, respondents focused on the pressing issue of urban design, smart cities, public transport design and disabled access as priority standards development areas. Regional cooperation, information sharing, standards development and best practice examples are approaches that APEC can explore to make positive advances in this sector.

Figure 17 – Which Travel, Leisure, Social and Community Engagement Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?



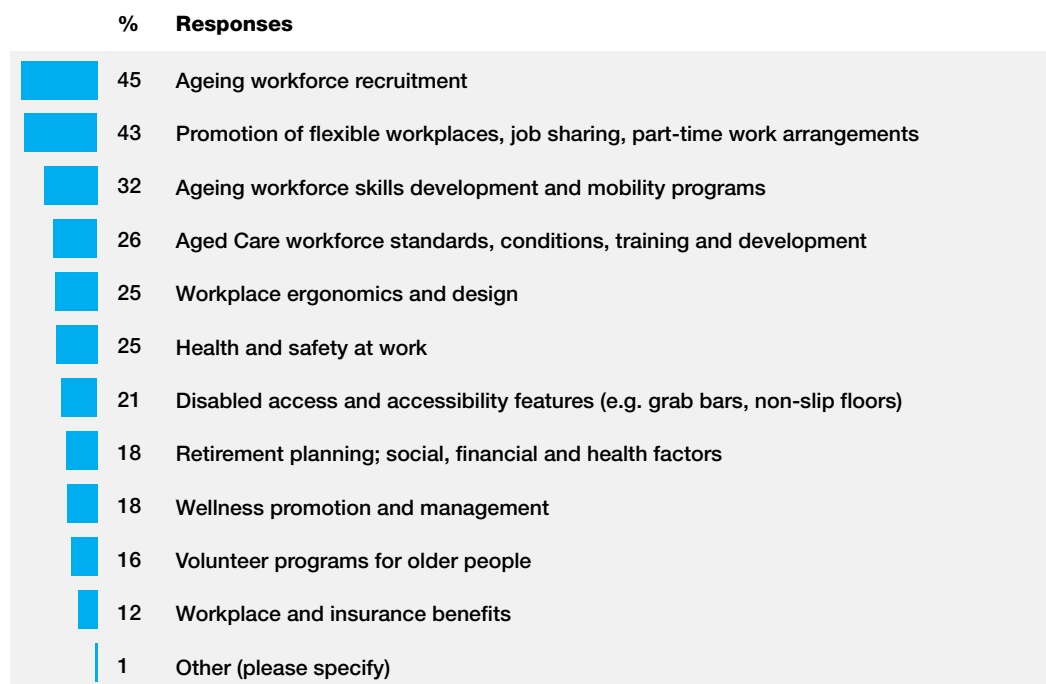
Source: APEC Silver Economy Survey, Standards Australia Analysis

WORKFORCE PLANNING

Workforce planning for the ageing population was identified by survey respondents as one of the most pressing challenges facing APEC member economies. A new way of thinking will be required in most of our societies to address the issues of labour shortage, re-skilling and flexible workplaces. APEC member economies need to encourage people to work longer and plan better for the future, whilst encouraging businesses to embrace the changing demographic of their workforce. Recent research by the Australian Institute of Management indicates that adoption of smart work practices and processes can lead to greater productivity in the work place, increased employment and economic growth²¹. Survey respondents prioritised the development of ageing workforce skills and the promotion of flexible workplaces as in need of regional cooperation and standards development. Best practice standards advocating workforce standards, conditions, discrimination, training and development were highly regarded by survey respondents. Perhaps APEC could propose and lead the development of a New Work Item Proposal (NWIP) under ISO/TC 260 Human resource management.

“Promotion of flexible workplaces, job sharing, part-time work arrangement to enhance employment of elderly persons is the highest priority”.

Figure 18 – Which Workforce Planning Subsectors can benefit most from Regional Cooperation, Standards Harmonisation and Conformity Assessment?



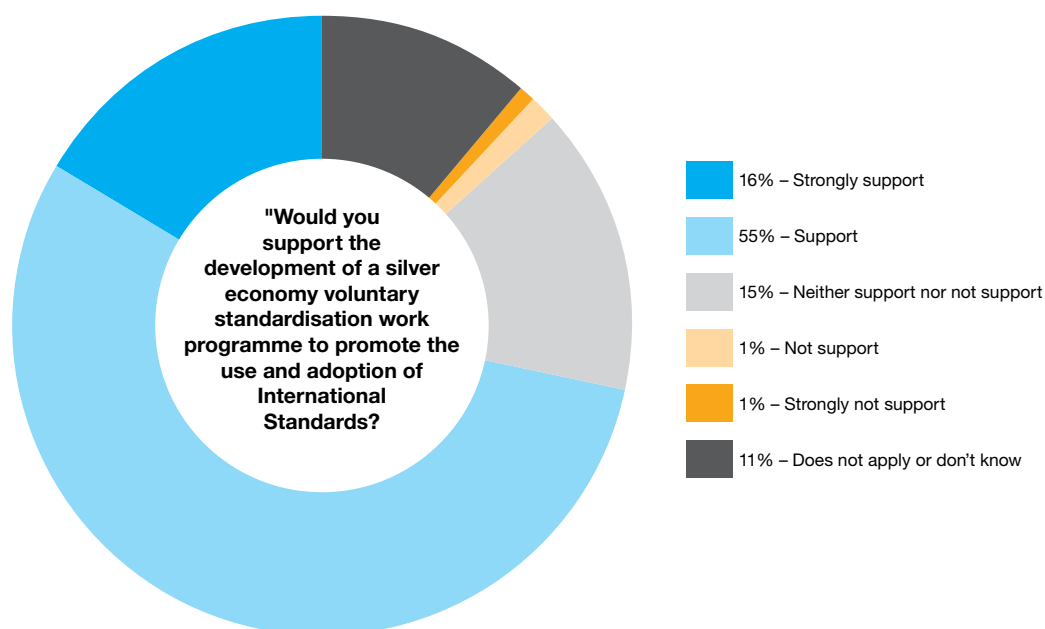
Source: APEC Silver Economy Survey, Standards Australia Analysis

21 Dr Lucy Burgmann, 'Engaging And Retaining Older Workers,' AIM Insights, DISCUSSION PAPER, February 2013 pg. 9f.

Preparing for the Future – Further Insights from the APEC Survey

- Mainstreaming the silver economy in APEC's agenda is not only a strategic necessity but also offers the prospect for enormous business growth opportunities that governments and civil society can readily benefit. The prospect of increasing retirement ages; older persons constituting an increasingly large share of the overall workforce participation in future years; and the growing expectations of ageing consumers – will open up new markets. Ageing societies can be seen a driver of future value, rather than being considered a cost burden.
- A large proportion of respondents support (55%) or strongly support (16%) the development of a silver economy voluntary standardization program to promote the use and adoption of international standards to benefit member economies. Figure 18 indicates that there is a unique opportunity for NSBs to bring key stakeholders from government, industry, academia, trade unions, consumers and innovation organisations together to jointly develop and promote market based standardization solutions. Cooperation and coordination between NSBs across APEC is fundamental to ensuring that innovation breakthroughs can be realized and brought to market effectively.

Figure 19 – Support for a Voluntary Standardisation Work Program



Source: APEC Silver Economy Survey, Standards Australia Analysis

- Respondents would like to see APEC work proactively towards standardization, harmonization, information sharing and knowledge transfer to ensure that APEC member economies maximise opportunities and minimize risks. Strong consideration should be given towards the development of an APEC five-year silver economy roadmap, supported by a NSB led Voluntary Action Plan for the adoption

and use of international standards, to support innovation solutions and facilitate cross border products and services.

- To assist APEC, international standards setting bodies such as ISO, IEC and ITU could consider introducing the concept of international (and member economy) standards as being 'silver economy/age-friendly' supportive. This means that any relevant standards that are developed by these organisations also identify and take into account any age-friendly requirements in their development and use.
- Based on survey feedback, APEC should also consider funding pilot projects that specifically link innovation and standards to create new silver economy products/ services and technology offerings. Innovation led companies can partner with NSBs to ensure that their common interests are best represented at the regional (ABAC/ APEC SMEWG and APEC SCSC etc) and international levels i.e. ISO and IEC. This provides another platform to boost APEC's global competitiveness by enabling active participation of the whole business sector.

Notable Feedback from Survey Respondents

"Develop a framework for the silver economy, to be adopted by APEC Member Economies."

"Training and workshops to raise awareness and understanding about the silver economy."

"Sharing the best practices, develop international/regional standards and conformity assessment to the products, service related to silver economy age."

"To cut through red tape and make the silver roadmap accessible and user friendly to all relevant industries."

"Develop an information portal on standards and innovation to support the growth of the silver economy."

"I would love to see standards adopted for the aging society to help in all areas in the survey."

"Funding of knowledgeable and innovative seniors to participate in developing the umbrella framework for co-ordinating various system specific topical roadmaps."

Conclusion

This Issues Paper sets out background, context and some of the key discussion points for APEC to take into consideration for the April 2017 APEC *Role of Standards and Innovation in Driving APEC's Silver Economy* workshop and any subsequent agreed outcomes and actions.

Staring down the prospect of an unprecedented pace of ageing populations and increased longevity, APEC's member economies must urgently plan to tackle this important societal issue and related challenges. Indeed, there is a need to consider in more detail how voluntary standards and innovation can collectively contribute to the silver economy and ensure that governments, industry and communities across APEC are better placed to meet this societal challenge. The emerging silver economy presents considerable upside for consumers through greater choices, access to new enabling assistive technologies in aged care and the prospect of enhanced active assisted living environments. Whilst the challenges ahead for all stakeholders are significant, there are also nevertheless substantial business opportunities for those firms that are willing to adapt and respond to meet the evolving needs of the silver economy.

The Issues Paper reveals the need for new thinking about the proactive role that NSBs can play in designing and developing an APEC Silver Economy Standardisation and Innovation Roadmap. Currently, APEC does not have an overall silver economy agenda or policy and further consideration should be invested to explore the market potential for products, services and technologies. The development of a roadmap would serve as a key planning and resource tool to raise market awareness at the member economy and regional levels. It would also importantly provide a shared vision for APEC's stakeholders that documents agreed market priorities, strategies and actions over the medium to long-term to help make the silver economy a reality.

APEC has much to learn from the European Union, which is heavily investing in mobilising the potential of active ageing through targeted research and development, innovation and standards. Based on APEC's prior silver economy related activities, NSB's work program, analysis of the APEC survey and project research; policy makers, regulators, civil society and industry should harness and embrace the silver economy as a source of new economic growth and value creation over the next fifty years and beyond.

APEC is an economic forum that has the opportunity to take the lead in mainstreaming ageing considerations into standards development, and encourage innovation at the member economy and international levels. The future of the silver economy is in all our hands!

Main References and Further Reading

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Appendix A – Silver Economy Standards and Other Lower Consensus Documents

Australia	
AS 4694-2007	Glycaemic index of foods
AS 1428.1-1993	Design for access and mobility—General requirements for access—Buildings
AS 1428.1-2009	Design for access and mobility, Part 1: General requirements for access—New building work
AS 1428.2-1992	Design for access and mobility, Part 2: Enhanced and additional requirements—Buildings and facilities
AS 1428.3-1992	Design for access and mobility—Requirements for children and adolescents with physical disabilities
AS 1428.5-2010	Design for access and mobility—Communication for people who are deaf or hearing impaired
AS 1670.5:2016	Fire detection, warning, control and intercom systems—System design, installation and commissioning—Part 5: Special hazards systems
AS 1735.12-1999	Lifts, escalators and moving walks—Facilities for persons with disabilities
AS 2118.4-2012	Automatic fire sprinkler systems, Part 4: Sprinkler protection for accommodation buildings not exceeding four storeys in height
AS 2293.3-2005	Emergency lighting and exit signs for buildings, Part 3: Emergency luminaires and exit signs. (Revision released for Public comment as DR AS/NZS 2293.3:2016)
AS 2444-2001	Portable fire extinguishers and fire blankets—Selection and location
AS 3979-2006	Hydrotherapy pools
AS 4428.16:2015	Fire detection and alarm systems, Part 16: Emergency warning control and indicating equipment
AS 4586-2013	Slip resistance classification of new pedestrian surface materials
AS 4663-2013	Slip resistance measurement of existing pedestrian surfaces
AS 5007-2007	Powered doors for pedestrian access and egress
AS 5203:2016	Protection of openable windows/fall prevention—Test sequence and compliance method
AS 5637.1:2015	Determination of fire hazard properties
AS ISO 22559.2:2015	Safety requirements for lifts (elevators), Part 2: Safety parameters meeting the global essential safety requirements (GESRs)
AS ISO 22559.3:2016	Safety requirements for lifts (elevators), Part 3: Global conformity assessment procedures (GCAP)—Prerequisites for certification of conformity of lift systems, lift components and lift functions
AS ISO 25740.1:2015	Safety requirements for escalators and moving walks, Part 1: Global essential safety requirements (GESR)
AS ISO 7240.17:2015	Fire detection and fire alarm systems, Part 17: Short-circuit isolators
AS ISO 7240.18:2015	Fire detection and alarm systems, Part 18: Input/output devices
AS ISO 7240.27:2016	Fire detection and alarm systems, Part 27: Point-type fire detectors using a scattered-light, transmitted-light or ionization smoke sensor, an electrochemical-cell carbon-monoxide sensor and a heat sensor
AS/NZS 1428.4.1:2009	Design for access and mobility—Means to assist the orientation of people with vision impairment, Part 1: Tactile ground surface indicators

Australia – continued	
AS/NZS 1680.1-2006	Interior and workplace lighting, Part 1: General principles and recommendations
AS/NZS 2293.2-1995	Emergency evacuation lighting for buildings—Inspection and maintenance
AS/NZS 2890.6-2009	Parking facilities—Off-street parking for people with disabilities
DR AS 1428.4.2:2016	Design for access and mobility—Wayfinding
HB 46-2010	Fire Safety in the Home
SA HB 198:2014	Guide to the specification and testing of slip resistance of pedestrian surfaces
AS/NZS 5116:2016	Microwavable heat packs—Wheat and other organic filling materials
SA HB 295.4.3:2016	Product safety framework, Part 4.3: Informative guides—Chemical toxicity hazard for apparel
AS/NZS 5116:2016	Microwavable heat packs—Wheat bags and other organic contents
AS 2293.1-2005	Emergency escape lighting and exit signs for buildings—System design, installation and operation
AS 4607-1999	Personal response systems
AS 5711-2013	Smart grid vocabulary
AS/NZS 1158.4:2015	Lighting for roads and public spaces, Part 4: Lighting of pedestrian crossings
AS/NZS 3823.1.5:2015	Performance of electrical appliances—Air conditioners and heat pumps, Part 1.5: Non-ducted portable air-cooled air conditioners and air-to-air heat pumps having a single exhaust duct—Testing and rating for performance
AS/NZS 60335.2.111:2015	Household and similar electrical appliances—Safety, Part 2.111: Particular requirements for ondol mattress with a non-flexible heated part
AS/NZS 60335.2.201:2016	Household and similar electrical appliances—Safety, Part 2.201: Particular requirements for battery powered self-balancing personal transport devices
AS/NZS 60335.2.58:2015	Household and similar electrical appliances—Safety, Part 2.58: Particular requirements for commercial electric dishwashing machines
AS/NZS 62841.3.10:2017	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery—Safety, Part 3.10: Particular requirements for transportable cut-off machines
AS/NZS 62841.3.4:2017	Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery—Safety, Part 3.4: Particular requirements for transportable bench grinders
AS 1071:2015	Placement and presentation of hand hygiene materials in health care settings
AS 1094.1-2004	Sterile hypodermic syringes for single use—Syringes for manual use
AS 1600.1-2004	Medical equipment—Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment—General requirements
AS 1600.2-2003	Medical equipment—Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment—Lock fittings
AS 1679.1-2005	Reusable all-glass or metal-and-glass syringes for medical use—Dimensions
AS 1679.2-2005	Reusable all-glass or metal-and-glass syringes for medical use—Design, performance requirements and tests
AS 1946-2002	Sterile hypodermic needles for single use
AS 2145-2002	Stainless steel needle tubing for manufacture of medical devices

Australia – continued	
AS 3696.5-1989 Rec:2014	Wheelchairs, Part 5: Determination of overall dimensions, mass and turning space
AS 3954.1-1991 Rec:2014	Motor vehicle controls—Adaptive systems for people with disabilities, Part 1: General requirements
AS 4031-1992 AMDT 1	Non-reusable containers for the collection of sharp medical items used in health care areas
AS 4083-2010	Planning for emergencies—Health care facilities
AS 4485.1-1997	Security for health care facilities—General requirements
AS 4834-2007	Packaging for surface transport of biological material that may cause disease in humans, animals and plants
AS 4846:2014	Person and provider identification in healthcare
AS 60118.0-2007	Hearing aids—Measurement of electroacoustical characteristics
AS EN 12182:2015	Assistive products for persons with disability—General requirements and test methods
AS IEC 60601.2.22:2014	Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment
AS ISO 10651.1-2004	Lung ventilators for medical use—Requirements
AS ISO 10651.2-2004	Lung ventilators for medical use, Part 2: Particular requirements for home care ventilators
AS ISO 10651.3-2004	Lung ventilators for medical use—Particular requirements for emergency and transport ventilators
AS ISO 10651.4-2004	Lung ventilators for medical use, Part 4: Particular requirements for operator-powered resuscitators
AS ISO 14708.1:2015	Implants for surgery—Active implantable medical devices, Part 1: General requirements for safety, marking and for information to be provided by the manufacturer
AS ISO 17090.1-2003	Health informatics—Public key infrastructure—Framework and overview
AS ISO 5361-2004	Anaesthetic and respiratory equipment—Tracheal tubes and connectors
AS ISO 5366.1-2004	Anaesthetic respiratory equipment—Tracheostomy tubes—Tubes and connectors for use in adults (ISO 5366-1:2000, MOD)
AS ISO 7029-2003	Acoustics—Statistical distribution of hearing thresholds as a function of age
AS ISO 7740-2004	Instruments for surgery—Scalpels with detachable blades—Fitting dimensions
AS ISO 8828:2015	Implants for surgery—Guidance on care and handling of orthopaedic implants
AS ISO 9919-2004	Pulse oximeters for medical use—Requirements
AS/NZS 10542.1:2015	Technical systems and aids for people with disability—Wheelchair tiedown and occupant-restraint systems, Part 1: Requirements and test methods for all systems (ISO 10542-1:2012, MOD)
AS/NZS 2394-1994	Conditioning equipment for the treatment of nocturnal enuresis (bedwetting)
AS/NZS 2485-1995	Medical equipment—Single-use winged intravenous devices (sterile) for general medical use
AS/NZS 2500-2004	Guide to the safe use of electricity in patient care
AS/NZS 3009-1998	Electric installations—Emergency power supplies in hospitals
AS/NZS 3200.1.1-1995 AMDT 1	Approval and test specification—Medical electrical equipment—General requirements for safety—Collateral Standard: Safety requirements for medical electrical systems

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AS/NZS 3200.1.2-2005	Medical electrical equipment—General requirements for safety—Collateral standard: Electromagnetic compatibility—Requirements and tests
AS/NZS 3200.1.4-1997	Approval and test specification—Medical electrical equipment—General requirements for safety—Collateral Standard: Programmable electrical medical systems
AS/NZS 3200.1.8-2005	Medical electrical equipment—General requirements for safety—Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems
AS/NZS 3200.2.11-1999	Medical electrical equipment, Part 2.11: Particular requirements for safety—Gamma beam therapy equipment
AS/NZS 3200.2.13-2005	Medical electrical equipment, Part 2.13: Particular requirements for safety—Anaesthetic systems
AS/NZS 3200.2.200-2005	Medical electrical equipment, Part 2.200: Particular requirements for safety—Oxygen concentrators for individual patient use
AS/NZS 3200.2.201-2000	Medical electrical equipment, Part 2.201: Particular requirements for safety—Dento-maxillofacial X-ray equipment
AS/NZS 3200.2.23-2001	Medical electrical equipment, Part 2.23: Particular requirements for safety—Transcutaneous partial pressure monitoring equipment
AS/NZS 3200.2.25-1993	Approval and test specification, Part 2.25: Medical electrical equipment—Particular requirements for safety—Electrocardiographs
AS/NZS 3200.2.26-2005	Medical electrical equipment, Part 2.26: Particular requirements for safety—Electroencephalographs
AS/NZS 3200.2.30-2001	Medical electrical equipment, Part 2.30: Particular requirements for safety—Automatic cycling non-invasive blood pressure monitoring equipment
AS/NZS 3200.2.33-2005	Medical electrical equipment, Part 2.33: Particular requirements for safety—Magnetic resonance equipment for medical diagnosis
AS/NZS 3200.2.34-1996	Approval and test specification, Part 2.34: Medical electrical equipment—Particular requirements for safety—Direct blood-pressure monitoring equipment
AS/NZS 3200.2.35-1999	Medical electrical equipment, Part 2.35: Particular requirements for safety—Blankets, pads and mattresses intended for heating in medical use
AS/NZS 3200.2.36-1998	Approval and test specification, Part 2.36: Medical electrical equipment—Particular requirements for safety—Extracorporeally induced lithotripsy
AS/NZS 3200.2.38-2007	Medical electrical equipment, Part 2.38: Particular requirements for safety—Electrically and manually operated medical beds for adult use (IEC 60601-2-38, Ed.1.0(1996) MOD)
AS/NZS 3200.2.39-2001	Medical electrical equipment, Part 2.39: Particular requirements for safety—Peritoneal dialysis equipment
AS/NZS 3200.2.40-1999	Medical electrical equipment, Part 2.40: Particular requirements for safety—Electromyographs and evoked response equipment
AS/NZS 3200.2.41-2002	Medical electrical equipment, Part 2.41: Particular requirements for safety—Surgical luminaires and luminaires for diagnosis
AS/NZS 3200.2.4-2006	Medical electrical equipment, Part 2.4: Particular requirements for safety—Cardiac defibrillators
AS/NZS 3200.2.46-2003	Medical electrical equipment, Part 2.46: Particular requirements for the safety of operating tables
AS/NZS 3200.2.5-2002	Medical electrical equipment, Part 2.5: Particular requirements for safety—Ultrasonic physiotherapy equipment
AS/NZS 3200.2.6-2005	Medical electrical equipment, Part 2.6: Particular requirements for safety—Microwave therapy equipment (IEC 60601-2-6:1984, MOD)

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AS/NZS 3200.2.7-1999	Medical electrical equipment, Part 2.7: Particular requirements for safety—High voltage generators of diagnostic X-ray generators
AS/NZS 3551-2012	Management programs for medical equipment
AS/NZS 3551-2012 AMDT 1	Management programs for medical equipment
AS/NZS 3770-1993	Guide to the safe use of infusion pumps and controllers
AS/NZS 3816-1998	Management of clinical and related wastes
AS/NZS 3824-1998	Guidelines for radiotherapy treatment rooms design
AS/NZS 3856.1-1998	Hoists and ramps for people with disabilities—Vehicle-mounted, Part 1: Product requirements
AS/NZS 3973-2009	Shower/toilet chairs (mobile and static)
AS/NZS 4011.1:2014	Single-use medical examination gloves, Part 1: Specification for gloves made from rubber latex or rubber solution
AS/NZS 4011.2:2014	Single-use medical examination gloves, Part 2: Specification for gloves made from poly(vinyl chloride)
AS/NZS 4069-2013	Bath boards and seats—Product requirements
AS/NZS 4173-2004	Guide to the safe use of lasers in health care
AS/NZS 4179:2014	Single-use sterile rubber surgical gloves—Specification (ISO 10282:2014, MOD)
AS/NZS 4184.3.2-1998	Evaluation and routine testing in medical imaging departments—Acceptance tests—Imaging performance of mammographic X-ray equipment
AS/NZS 4187:2014	Reprocessing of reusable medical devices in health service organisations
AS/NZS 4213.1-1994	Radiotherapy simulators—Functional performance characteristics
AS/NZS 4261-1994	Reusable containers for the collection of sharp items used in human and animal medical applications
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AS/NZS 4274-1995	X-ray tube assemblies for medical diagnosis—Characteristics of focal spots
AS/NZS 4334-1995	Graphic symbols for use on medical electrical equipment
AS/NZS 4354-1995	Medical electrical equipment—Radionuclide calibrators—Particular methods for describing performance
AS/NZS 4358-1996	Medical diagnostic X-ray equipment—Radiation conditions for use in the determination of characteristics
AS/NZS 4434.1-1996	Medical electrical equipment—Medical electron accelerators—Functional performance characteristics
AS/NZS 4434.2-1996	Medical electrical equipment—Medical electron accelerators—Periodic function performance testing
AS/NZS 4478-1997	Guide to the reprocessing of reusable containers for the collection of sharp items used in human and animal clinical/medical applications
AS/NZS 4495-1997	Radiotherapy equipment—Coordinates, movements and scales
AS/NZS 4512-1999	Ultrasonics—Surgical systems—Measurement and declaration of the basic output characteristics
AS/NZS 4513-1995	Medical electrical equipment—Fundamental aspects of safety Standards
AS/NZS 4537-1999	Medical electrical equipment—Dosimeters with ionization chambers as used in radiotherapy
AS/NZS 4543.1-1999	Protective devices against diagnostic medical X-radiation—Determination of attenuation properties of materials

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AS/NZS 4543.3-2000	Protective devices against diagnostic medical X-radiation – Protective clothing and protective devices for gonads
AS/NZS 4545.1-1999	Radionuclide imaging devices – Characteristics and test conditions – Positron emission tomographs
AS/NZS 4545.2-1999	Radionuclide imaging devices – Characteristics and test conditions – Single photon emission computed tomographs
AS/NZS 4545.3-1999	Radionuclide imaging devices – Characteristics and test conditions – Gamma camera based wholebody imaging systems
AS/NZS 4580-1999	Medical electrical equipment – Digital imaging and communications in medicine (DICOM) – Radiotherapy objects
AS/NZS 4713-2002	Ultrasonics – Physiotherapy systems – Performance requirements and methods of measurement in the frequency range 0.5 MHz to 5 MHz
AS/NZS 4966-2002	Ultrasonics – Pulsed Doppler diagnostic systems – Test procedures to determine performance
AS/NZS IEC 60601.1:2015	Medical electrical equipment, Part 1: General requirements for basic safety and essential performance
AS/NZS IEC 60601.1.3:2015	Medical electrical equipment, Part 1.3: General requirements for basic safety and essential performance – Collateral Standard: Radiation protection in diagnostic X-ray equipment
AS/NZS IEC 60601.2.1:2015	Medical electrical equipment, Part 2.1: Particular requirements for the basic safety and essential performance of electron accelerators in the range 1 MeV to 50 MeV
AS/NZS IEC 60601.2.16:2015	Medical electrical equipment, Part 2.16: Particular requirements for the basic safety and essential performance of haemodialysis, haemodiafiltration and haemofiltration equipment
AS/NZS IEC 60601.2.17:2015	Medical electrical equipment, Part 2.17: Particular requirements for the basic safety and essential performance of automatically-controlled brachytherapy afterloading equipment
AS/NZS IEC 60601.2.18:2015	Medical electrical equipment, Part 2.18: Particular requirements for the basic safety and essential performance of endoscopic equipment
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AS/NZS IEC 60601.2.27:2016	Medical electrical equipment, Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment
AS/NZS IEC 60601.2.28:2015	Medical electrical equipment, Part 2.28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis
AS/NZS IEC 60601.2.29:2015	Medical electrical equipment, Part 2.29: Particular requirements for the basic safety and essential performance of radiotherapy simulators
AS/NZS IEC 60601.2.31:2016	Medical electrical equipment, Part 2.31: Particular requirements for the basic safety and essential performance of external cardiac pacemakers with internal power source
AS/NZS IEC 60601.2.45:2015	Medical electrical equipment, Part 2.45: Particular requirements for basic safety and essential performance of mammographic X-ray equipment and mammographic stereotactic devices
AS/NZS IEC 60601.2.8:2015	Medical electrical equipment, Part 2.8: Particular requirements for basic safety and essential performance of therapeutic X-ray equipment operating in the range 10 kV to 1 MV

Australia – continued	
AS/NZS ISO 10535-2011	Hoists for the transfer of disabled persons— Requirements and test methods
AS/NZS ISO 11334.1:2014	Assistive products for walking manipulated by one arm— Requirements and test methods, Part 1: Elbow crutches
AS/NZS ISO 11990-2002	Optics and optical instruments—Lasers and laser-related equipment—Determination of laser resistance of tracheal tube shafts
AS/NZS ISO 16840.10:2015	Wheelchairs—Resistance to ignition of non-integrated seat and back support cushions, Part 10: Requirements and test methods
AS/NZS ISO 16840.3:2015	Wheelchair seating, Part 3: Determination of static, impact and repetitive load strengths for postural support devices
AS/NZS ISO 16840.4:2014	Wheelchair seating, Part 4: Seating systems for use in motor vehicles
AS/NZS ISO 7176.3:2015	Wheelchairs, Part 3: Determination of effectiveness of brakes
AS/NZS ISO 9999-2011	Assistive products for persons with disability—Classification and terminology
ATS 4888.1-2013	Electronic transfer of prescriptions
ATS 5816-2013	Digital images for diagnostic and other clinical purposes: Presentation, communication, display and manipulation
ATS ISO 14265-2013	Health informatics—Classification of purposes for processing personal health information
HB 202-2000	A management system for clinical and related wastes—Guide to application of AS/NZS 3816-1998, Management of clinical and related wastes
HB 235-2007	Implementers guideline for HL7 referral, discharge and health record messaging
HB 304-2007	Guide to Australian electronic communication in health care
HB 59-1994	Ergonomics—The human factor—A practical approach to work systems design
MP 120-2012	Telehealth: Remote Patient Monitoring—Discussion Paper
SA HB 138-2013	E-health architecture principles
SA/SNZ TR ISO 16840.9:2015	Wheelchair seating, Part 9: Clinical interface pressure mapping guidelines for seating
SA/SNZ TS ISO 16840.12:2015	Wheelchair seating, Part 12: Apparatus and method for cushion envelopment testing
TR 2961-2007	Telehealth standards scoping study
AS ISO 14976-2006	Surface chemical analysis—Data transfer format
AS ISO 18118-2006	Surface chemical analysis—Auger electron spectroscopy and X-ray photoelectron spectroscopy—Guide to the use of experimentally determined relative sensitivity factors for the quantitative analysis of homogeneous materials
AS ISO 19319-2006	Surface chemical analysis—Auger electron spectroscopy and X-ray photoelectron spectroscopy—Determination of lateral resolution, analysis area and sample area viewed by the analyser
AS 2822-1985	Acoustics—Methods of assessing and predicting speech privacy and speech intelligibility
AS 3745-2010	Planning for emergencies in facilities
AS ISO 16900 (various ISO adoptions)	Respiratory protective devices—Methods of test and test equipment (series)
AS ISO 16972:2015	Respiratory protective devices—Terms, definitions, graphical symbols and units of measurement
AS/NZS ISO 2801:2008	Clothing for protection against heat and flame—General recommendations for election, care and use of protective clothing

Australia – continued	
HB 122.4.2.7-2000	The Workplace Manual— Model 4: Diversity — . — Element 4.2.7: Disability and the law
HB 122.4.4.2-2000	The Workplace Manual— Model 4: Diversity — Element 4.4.2: Disability as diversity
HB 90.4-2000	The Food Processing Industry— Guide to ISO 9001:2000
SA TS ISO 16976 (series)	Respiratory protective devices— Human factors (series)
AS 5620:2015	Workforce planning
AS 5732:2015	Electric vehicle operations— Maintenance and repair

Canada	
BNQ 1013-110	Ambulances - Vehicle Specifications
BNQ 9700-699	Professional Customer Service - Funeral Service Providers
BNQ 9700-820	Work-Family Balance
CAN/BNQ 9700-340	Charities – Governance and Best Management Practices
ASME A17.1-2013/CSA B44-13	Safety code for elevators and escalators (Bi-national standard, with ASME A17.1)
CAN/CSA-B651.2-07 (R2012)	Accessible Design for Self-Service Interactive Devices
CAN/CSA-B659-08 (R2013)	Inclusive Design for an Aging Population
CAN/CSA-ISO 14798:12 (R2016)	Lifts (elevators), escalators and moving walks - Risk assessment and reduction methodology (Adopted ISO 14798:2009, first edition, 2009-03-01)
CAN/CSA-Z10535.1:15	Hoists for the transfer of disabled persons — Requirements and test methods (Adopted ISO 10535:2006, second edition, 2006-12-15, with Canadian deviations)
CAN/CSA-Z317.2-15	Special requirements for heating, ventilation, and air-conditioning (HVAC) systems in health care facilities
CAN/CSA-Z8001-13	Commissioning of health care facilities
CSA B355-15	Lifts for persons with physical disabilities
CSA B480-02 (R2013)	Customer Service Standard for People with Disabilities
CSA B651.1-09 (R2015)	Accessible design for automated banking machines
CSA B651-12	Accessible design for the built environment
CSA D409-16	Motor vehicles for the transportation of persons with physical disabilities
CSA D435-16	Accessible transit buses
CSA D436-16	Accessible over-the-road buses
CSA Z305.12-06 (R2012)	Safe Storage, Handling, And Use Of Portable Oxygen Systems In Residential Buildings And Health Care Facilities
CSA Z317.10-15	Handling of health care waste materials
CSA Z317.1-09 (R2015)	Special Requirements for Plumbing Installations in Health Care Facilities
CSA Z317.5-98 (R2013)	Illumination systems in health care facilities
CSA Z32-15	Electrical safety and essential electrical systems in health care facilities
CSA Z605-16	Mobility aid securement and occupant restraint (MASOR) systems for motor vehicles
CSA Z8000-11(R2016)	Canadian health care facilities
CSA Z8002-14	Operation and maintenance of health care facilities
ANSI/CAN/UL 2272	Standard for Safety for Electrical Systems for Personal E-Mobility Devices

Canada – continued	
CAN/ULC-S132-07	Standard Method of Tests for Emergency Exit and Emergency Fire Exit Hardware
CAN/ULC-S524:2014	Installation of Fire Alarm Systems
CAN/ULC-S526:2016	Visible Signalling Devices for Fire Alarm Systems, Including Accessories
CAN/ULC-S525:2016	Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories
Accreditation Canada*	Infection Prevention and Control for Community-Based Organizations
Accreditation Canada*	Medication Management
Accreditation Canada*	Medication Management for Community-Based Organizations
Accreditation Canada*	Medication Management for Remote/Isolated Health Services
Accreditation Canada*	Ambulatory Care Services
Accreditation Canada*	Cancer Care
Accreditation Canada*	Case Management Services
Accreditation Canada*	Community Health Services
Accreditation Canada*	Community-Based Mental Health Services and Supports
Accreditation Canada*	Emergency Department Services
Accreditation Canada*	EMS and Interfacility
Accreditation Canada*	Home Care Services
Accreditation Canada*	Home Support Services
Accreditation Canada*	Hospice Palliative and End-Of-Life Services
Accreditation Canada*	Long-term Care Services
Accreditation Canada*	Rehabilitation Services
Accreditation Canada*	Remote/Isolated Health Services
Accreditation Canada*	Telehealth Services
* standards have not been accredited by Standards Council of Canada	

Chile	
NCh407:2012	Vitreous china sanitary ware - Requirements and test methods
NCh2760:2013	Classification, qualification and terminology of tourist accommodation establishments
NCh3027:2013	Tourist accommodation - Tourist apartments and executive apartments - Qualification requirements.
NCh3285:2013	Tourist accommodation - Boutique Hotels - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh2948:2012	Tourist accommodation - Camping or camp site - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh3009:2012	Tourist accommodation - Nature or lodge tourism center - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh2912:2012	Tourist accommodation - Hotels - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh2980:2012	Tourist accommodation - Apart hotels - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh3002:2007	Tourist accommodation - Farms or Ranches - Qualification requirements (Free download available at www.calidadturistica.cl)
NCh2963:2006	Tourist accommodation - Hostels - Qualification requirements (Free download available at www.calidadturistica.cl)

Chile – continued	
NCh3269:2013	Universal accessibility in building and public use spaces - General design criteria
NCh2526/1:2015	Guided walking aids - Requirements and test methods - Part 1: Elbow crutches
NCh2088:1999 ISO 9999	Technical aids for people with disabilities - Classification
NCh2525/1:1999 ISO 8670-1	Ostomy bags - Part 1: Vocabulary
NCh2525/2:1999 ISO 8670-2	Ostomy bags - Part 2: Requirements and test methods
NCh2077:2000 ISO/TR 9527:1994	Construction - Disabilities needs in buildings - Design guide
NCh3271:2012	DALCO criteria to facilitate universal accessibility
NCh3164:2008 ISO/IEC 71:2001	Guidelines for standards development to address the needs of older adults and persons with disabilities
NCh2523/1:1999 ISO 8549-1	Prosthesis and orthoses - Vocabulary - Part 1: General terms for external limb prostheses and external orthoses
NCh2523/2:1999 ISO 8549-2	Prostheses and orthotics - Vocabulary - Part 2: Terms related to the external limb prostheses and users of these prostheses
NCh2523/3:1999 ISO 8549-3	Prosthesis and orthoses - Vocabulary - Part 3: Terms related to external orthoses
NCh3270:2013	Accessibility requirements for web content
NCh2075:1999 ISO 7193	Wheelchairs - Overall Maximum Dimensions
NCh2076:1999	Wheelchairs - Nomenclature, terms and definitions
NCh2078/1:2015	Wheelchairs - Part 1: Determining Static Stability
NCh2078/5:2015	Wheelchairs - Part 5: Determination of dimensions, weight and maneuvering space
NCh-ISO16840/10:2015	Wheelchairs - Ignition resistance of non-integrated seat and back support cushions - Part 10: Requirements and test methods
NCh3267:2012	Management systems - Management of the inclusion of people with disabilities
NCh2077:2000 ISO/TR 9527:1994	Construction - Needs of people with disabilities in buildings - Design guide
NCh-ISO26000:2010	Social Responsibility Guide
NCh-ISO/IEC Guía37:2014	Instructions for use of products by consumers
NCh-ISO20121:2014	Event Sustainability Management Systems - Guidance Requirements for Use
NCh3185:2009	Development of service standards - Recommendations to address consumer issues
NCh-ISO13485:2013	Medical devices - Quality management systems - Requirements for regulatory purposes
NCh2524/1:1999 ISO 8669-1	Collecting bags for urine - Part 1: Vocabulary
NCh2524/2:1999 ISO 8669-2	Collecting urine bags - Part 2: Requirements and test methods
NCh3336:2013	Long Term Care Facilities Management - Requirements
NCh3337:2013	Services for the promotion of personal autonomy - Management of Day Centers - Requirements
NCh3338:2013	Services for the promotion of personal autonomy - Management of home help service - Requirements
NCh3338:2013	Services for the promotion of personal autonomy - Management of home help service - Requirements
NCh2728:2015	Technical training organizations - Requirements
NCh2647/14:2003	Ergonomic requirements for office work with data display screens (PVD) - Part 14: Menu dialogues
NCh-ISO22315:2015	Society Security - Mass evacuation - Planning Guidelines

Chile – continued	
NCh-ISO22399:2014	Society Security - Incident Preparedness and Operational Continuity Management Guide
NCh-ISO22313:2013	Society Security - Business continuity management systems - Guidance
NCh3377/7:2015	Installations for spectators - Part 7: Elements and routes of entry and exit
NCh-ISO17027:2015	Conformity assessment - Vocabulary relating to the competence of persons used for certification process
NCh-ISO/TR 37150:2016	Smart community infrastructures - Review of existing activities relevant to metrics
NCh-ISO37120:2015	Community sustainable development - Indicators for city services and quality of life
NCh345/1:2001	Door locks - Part 1: Terminology and classification
NCh1410/2:2012 ISO 3864-2:2004	Graphic symbols - Safety colors and safety signs - Part 2: Design principles for product safety labels
NCh3262:2012	Management systems - Management of gender equality and reconciliation of work, family and personal life - Requirements
NCh3150:2009	Ethics Guidelines for Public Interest Organizations
NCh3095:2007 ISO/IEC GUIDE-74:2004	Graphic Symbols - Technical Guidelines for Considering Consumer Needs
NCh2573/2:2000	Acoustics - Audiometric test methods - Part 2: Audible field audiometry with pure tone and narrowband test signals
NCh2573/3:2000 ISO 8253-3	Acoustics - Methods of audiometric tests - Part 3: Logoaudiometría
NCh2595:2000 ISO 1999	Acoustics - Determination of occupational noise exposure and estimation of noise-induced auditory damage

People's Republic of China	
GB/T 20002.2-2008	Drafting for special aspects in standards - Part 2: The needs of older persons and persons with disabilities
GB/T 29353-2012	Basic standard for senior care organization
GB/T 32417-2015	Information technology—Office equipment accessibility guidelines for elderly persons and persons with disabilities
GB/T 33168-2016	Basic requirements for services of community day-care centers for the elderly
GB/T 33169-2016	Configuration of facilities and equipment for community day-care centers for the elderly

Japan	
Z 8071	Guidelines for Standards Developers
S 0031	Luminance contrast for colored light
S 0032	Minimum legible size for a Japanese single character
S 0033	Color combination based on categories of fundamental colors
S 0013	Auditory signals for consumer products
S 0014	Sound pressure levels of auditory signals
S 0011	Tactile dots and bars on consumer products
S 0052	Basic design methods for tactile patterns
T 0921	Using methods of braille sign-Public facility
T 0922	Methods of displaying tactile guide maps
T 0923	Methods of displaying braille sign

Japan – continued	
T 9253	Performance and test method of ultraviolet ray hardening resinous braille
X 6302-9	Identification cards - tactile identifier mark
X 6310	Prepaid cards - General specifications
S 0042	Consideration and apparatus for accessible meetings
T 0103	Design principles of pictorial symbols for communication support
S 0021	General Requirements
S 0022	Test methods for opening
S 0022-3	Tactile indication for identification
S 0022-4	Evaluation method by user
S 0025	Tactile warnings of danger-Requirements
S 0012	Usability of consumer products
S 0023	Guidelines for designing of clothes in consideration of the elderly people
S 0023-2	How to use of button
S 0024	Housing equipment
S 0026	Shape, color, and arrangement of toilet operation equipment and appliance in public rest room
S 0041	Operability of vending machine
T 0901	Information presentation using electronic guiding and way finding system
T 0902	Auditory guides in public space for mobility assist
T 9251	Shapes, dimensions and patterns of raised parts of tactile walking surface indicators for persons who are blind or with seeing impairment
X 8341-1	Common Guidelines
X 8341-2	Personal computer hardware
X 8341-3	Web content
X 8341-4	Telecommunications equipment
X 8341-5	Office equipment
X 8341-6	Guidance on software accessibility
X 8341-7	Accessibility Settings

Republic of Korea	
KS S 2028-1	Elderly care facility services Part 1 Process
KS S 2028-2	Elderly care facility services Part 2 Infrastructure
KS S 2029-1	Senior welfare center services Part 1 : Process
KS S 2029-2	Senior welfare center services — Part 2: Infrastructure
KS S 2031	Exercise services for elderly persons General guidelines
KS S 2033-1	Elderly care facility services Part 1 Process
KS S 2033-2	Elderly care facility services Part 2 Infrastructure

Malaysia	
MS 1183:2015	Fire safety in the design, management and use of buildings - Code of practice (First revision)
MS 1184:2014	Universal design and accessibility in the built environment - Code of practice (Second revision)

Malaysia – continued	
MS 1732 : PART 3 : 2004	Acoustics – hearing protectors : part 3 : simplified method for the measurement of insertion loss of ear-muff type protectors for quality inspection purposes
MS 1732: PART 4:2004	Acoustics – hearing protectors: part 4: measurement of effective sound pressure levels for level-dependent sound-restoration ear-muffs
MS ISO 4869-2:2004 (CONFIRMED:2012)	Acoustics - hearing protectors: part 2: estimation of effective a-weighted sound pressure levels when hearing protectors are worn (iso 4869-2:1994, idt)
MS ISO 4869-1:2004 (CONFIRMED:2012)	Acoustics - hearing protectors: part 1: subjective method for the measurement of sound attenuation (iso 4869-1:1990, idt)
MS ISO 23600:2011	Assistive products for persons with vision impairments and persons with vision and hearing impairments - acoustic and tactile signals for pedestrian traffic lights (iso 23600:2007, idt)
MS 2504:2012	Ophthalmic optics - contact lenses - hygienic management of multipatient use trial contact lenses
MS 619-2-22:2005 (CONFIRMED:2013)	Luminaires - part 2-22: particular requirements - luminaires for emergency lighting (first revision) (iec 60598-2-22:1997 and amd. 1:2002, mod)
MS 1745 : PART 1 : 2004	Fire detection and alarm systems - part 1: introduction
MS 1745: PART 2:2004	Fire detection and fire alarm systems - part 2: control and indicating equipment
MS 1745: PART 3:2004	Fire detection and fire alarm systems – part 3: audible fire alarm devices
MS 1745: PART 4:2004	Fire detection and fire alarm systems – part 4: power supply equipment
MS 1745: PART 5:2005	Fire detection and fire alarm systems - part 5: heat detectors - point detectors
MS 1745: PART 7:2005	Fire detection and fire alarm systems - part 7: smoke detectors - point detectors using scattered light, transmitted light or ionisation
MS 1745: PART 10:2005	Fire detection and fire alarm systems - part 10: flame detectors - point detectors
MS 1745: PART 11:2004	Fire detection and fire alarm systems – part 11: manual call points
MS 1745: PART 12:2005	Fire detection and fire alarm systems - part 12: smoke detectors - line detectors using an optical light beam
MS 1745: PART 13:2006	Fire detection and fire alarm systems - part 13: compatibility assessment of systems components (iso 7240-13:2005, idt)
MS 1745-14:2009	Fire detection and fire alarm systems - part 14: guidelines for planning, design, installation, commissioning, use and maintenance
MS 1745: PART 15:2006	Fire detection and fire alarm systems – part 15: multisensor fire detectors (iso 7240-15:2004, idt)
MS 2436-1:2012	Alarm systems - intrusion and hold-up systems - part 1: system requirements
MS 2436-2-2:2013	Alarm systems - intrusion and hold-up systems - part 2-2: intrusion detectors - passive infrared detectors
MS 2436-2-4:2014	Alarm systems - intrusion and hold-up systems - part 2-4: requirements for combined passive infrared and microwave detectors
MS 2436-2-6:2014	Alarm systems - intrusion and hold-up systems - part 2-6: opening contacts (magnetic)
MS 2436-2-7-1:2014	Alarm systems - intrusion and hold-up systems - part 2-7-1: intrusion detectors - glass break detectors (acoustic)
MS 2436-4:2014	Alarm systems - intrusion and hold-up systems - part 4: warning devices

Malaysia – continued	
MS 2436-7:2012	Alarm systems - intrusion and hold-up systems - part 7: application guidelines
MS 2368-1:2010	Wheelchairs - part 1: guidelines for the application of the ms iso 7176 series on wheelchairs
MS ISO 7176-4:2010	Wheelchairs - part 4: energy consumption of electric wheelchairs and scooters for determination of theoretical distance range (iso 7176-4:2008, idt)
MS ISO 7176-5:2010	Wheelchairs - part 5: determination of dimensions, mass and manoeuvring space (iso 7176-5:2008, idt)
MS ISO 7176-9:2010	Wheelchairs - part 9: climatic tests for electric wheelchairs (iso 7176-9:2009, idt)
MS ISO 7176-10:2010	Wheelchairs - part 10: determination of obstacle-climbing ability of electrically powered wheelchairs (iso 7176-10:2008, idt)
MS ISO 7176-19:2010	Wheelchairs - part 19: wheeled mobility devices for use as seats in motor vehicles (iso 7176-19:2008, idt)
MS ISO 7176-21:2010	Wheelchairs - part 21: requirements and test methods for electromagnetic compatibility of electrically powered wheelchairs and scooters, and battery chargers (iso 7176-21:2009, idt)
MS ISO 7176-22:2011	Wheelchairs - part 22: set-up procedures (iso 7176-22:2000, idt)
MS ISO 7176-26:2010	Wheelchairs - part 26: vocabulary (iso 7176-26:2007, idt)
MS ISO 7193:2011	Wheelchairs - maximum overall dimensions (iso 7193:1985, idt)
MS ISO 16840-4:2011	Wheelchair seating - part 4: seating systems for use in motor vehicles (iso 16840-4:2009, idt)
MS ISO/IEC GUIDE 71:2012	Guidelines for standards developers to address the needs of older persons and persons with disabilities (iso/iec guide 71:2001, idt)
MS 2327:2010	Ergonomics of the thermal environment - application of malaysian standards to people with special requirements
MS ISO 7730:2007	Ergonomics of the thermal environment - analytical determination and interpretation of thermal comfort using calculation of the pmv and ppd indices and local thermal comfort criteria (iso 7730:2005, idt)
MS ISO 9241	Ergonomics of human-system interaction - part 303: requirements for electronic visual displays (iso 9241-303:2008, idt)
MS ISO 13732-1:2010	Ergonomics of the thermal environment - methods for the assessment of human responses to contact with surfaces - part 1: hot surfaces (iso 13732-1:2006, idt)
MS ISO 24503:2012	Ergonomics - accessible design - tactile dots and bars on consumer products (iso 24503:2011, idt)
MS 2326:2010	Ergonomics of the thermal environment - methods for the assessment of human responses to contact with surfaces at moderate temperature
MS 2284:2010	Domestic furniture - beds and mattresses - safety requirements and test methods
MS IEC 60335-2-51:2003 (CONFIRMED:2013)	Household and similar electrical appliances - safety - part 2-51: particular requirements for stationary circulation pumps for heating and service water installations (iec 60335-2-51:2002, idt)
MS 1581-1:2012	Furniture - storage units - part 1: safety requirements and test methods for domestic and kitchen storage units and worktops (first revision)
MS IEC 60335-2-14:2014	Household and similar electrical appliances - safety - part 2-14: particular requirements for kitchen machines (second revision) (iec 60335-2-14:2008, idt)
MS 2610:2015	Muslim friendly hospitality services - requirements
MS ISO 12052:2012	Health informatics - digital imaging and communication in medicine (dicom) including workflow and data management (iso 12052:2006, idt)

Malaysia – continued	
MS 2426:2011	Planning and designing for basement parking - code of practice
MS IEC 60598-2-13:2010	Luminaires - part 2-13: particular requirements - ground recessed luminaires (iec 60598-2-13:2006, idt)
MS ISO 9241-171:2010	Ergonomics of human-system interaction - part 171: guidance on software accessibility (iso 9241-171:2008, idt)
MS ISO 13856-2:2006	Safety of machinery – pressure – sensitive protective devices – part 2: general principles for the design and testing of pressure-sensitive edges and pressure-sensitive bars (iso 13856-2:2005, idt)
MS ISO 13856-3:2008	Safety of machinery - pressure-sensitive protective devices - part 3: general principle for the design and testing of pressure-sensitive bumpers, plates, wires and similar devices (iso 13856-3:2006, idt)
MS ISO/TS 16071:2007	Ergonomics of human-system interaction - guidance on accessibility for human-computer interfaces (iso/ts 16071:2003, idt)

Mexico	
NOM-031-SSA3-2012	Social care. Social care service provision for adults and seniors at risk and vulnerable.
NOM-167-SSA1-1997	Social care service provision for minors and seniors.
NOM-015-SSA3-2012	Integral care for people with disabilities.
NOM-030-SSA3-2013	Establishing the architectural characteristics to facilitate the access, transit, use and permanence of persons with disabilities in establishments for the outpatient medical assistance and hospital medical care of the national health system.
PROY-NOM-008-SEGOB-2015	People with disabilities. - prevention actions and civil protection safety conditions for their care and aid in emergency or disaster situations.
NOM-001-SSA3-2012	Health education. For the organization and functioning of medical residencies.
NOM-019-SSA3-2013	For nursing practice in the national health system.
NOM-024-SSA3-2012	Information systems for electronic registration in health. Information exchange in health.
NOM-025-SSA2-2014	For the provision of health services in medical-psychiatric health care integral units
NOM-028-SSA3-2012	Health services regulation. For the practice of diagnostic ultrasonography.
NOM-029-SSA3-2012	Health services regulation. For the practice of ophthalmological surgery with excimer laser.
NOM-016-SSA3-2012	Which establishes the minimum requirements of infrastructure and equipment for hospitals and specialized medical care surgeries.
NOM-005-SSA3-2010	Establishing the minimum requirements of infrastructure and equipment of establishments for the medical care of outpatients.
NOM 004-SSA3-2012	About the clinical record
NOM-197-SSA1-2000	Minimum requirements of infrastructure and equipment of hospitals and specialized medical care surgeries.
PROY-NOM-012-SSA2-1994	For the provision of primary health care services.
NOM-007-SSA3-2011	For the organization and functioning of clinical laboratories.
NOM-014-SSA3-2013	For food social assistance for risk groups.
NOM-017-SSA2-2012	For epidemiological surveillance.
NOM-008-SSA3-2010	For the integral treatment of overweight and obesity.
NMX-A-196-INNTEX-2001	Textil industry -fabrics used in the health sector - 100% cotton twine -specifications and testing methods.

Mexico – continued	
NMX-E-235-CNCP-2009	Plastic industry - polyethylene bags for use in cleaning, general applications, nursery schools, as nutrition and dietetics, that are used in the health sector-specifications and test methods.
NMX-A-038/1-INNTEX-2011	Dressing - clothing industry for health sector institutions -part 1-philippines and philippine set with pants and accessories, for hospital or medical-administrative use -specifications.
NMX-R-025-SCFI-2015	In labor equality and non-discrimination

New Zealand	
NZS 4304:2002	Management of Healthcare Waste
NZS 8134.0:2008	Health and disability services Standards - Health and disability services (general) Standard
SNZ HB 8134.1:2001	Health and Disability Sector Standards (Residential) Audit Workbook
NZS 8134.1:2008	Health and disability services Standards - Health and disability services (core) Standards
SNZ HB 8134.2:2001	Health and Disability Sector Standards (Hospital) Audit Workbook
NZS 8134.2:2008	Health and disability services Standards - Health and disability services (restraint minimisation and safe practice) Standards
NZS 8134.3:2008	Health and disability services Standards - Health and disability services (infection prevention and control) Standards
SNZ HB 8134.3:2004	Health and Disability Sector Standards (Intellectual Disability) Audit Workbook
SNZ HB 8134.5:2005	Health and Disability Sector Standards - Proposed Audit Workbook and Guidance for Residential Services for People with Dementia
SNZ HB 8134.6:2006	Health and Disability Sector Standards - Proposed Audit Workbook and Guidance for Residential Services for People with Dementia
NZS 8134.7:2010	Health and disability services Standards - Pharmacy services Standard
NZS 8135:2009	Non-therapeutic use of human tissue
SNZ HB 8141:2004	Restraint Minimization and Safe Practice Audit Workbook
SNZ HB 8142:2001	Infection Control Audit Workbook
SNZ HB 8143:2002	National Mental Health Sector Standard Audit Workbook
SNZ HB 8149:2001	Microbiological surveillance of flexible hollow endoscopes
NZS 8151:2004	Accident and Medical Clinic Standard
SNZ HB 8152:2001	Sentinel Events Workbook
NZS 8153:2002	Health records
SNZ HB 8156:2003	Ambulance Service Sector Standard Assessment Workbook
NZS 8156:2008	Ambulance and paramedical services
NZS 8157:2003	Alcohol and Other Drug Treatment Sector Standard
SNZ HB 8158:2004	Home and Community Support Sector Standard Audit Workbook
NZS 8158:2012	Home and community support sector Standard
SNZ HB 8163:2005	Indicators for safe aged-care and dementia-care for consumers
NZS 8164:2005	Day-stay surgery and procedures
NZS 8165:2005	Rooms/Office-based surgery and procedures
SNZ PAS 8170:2005	Primary Healthcare Practice Management Systems: Publicly Available Specification
SNZ HB 8171.1:2005	Allied health services sector Standard - Physiotherapy Services Audit Workbook
SNZ HB 8171.2:2005	Allied health services sector Standard - Chiropractic Services Audit Workbook

New Zealand – continued	
NZS 8171:2005	Allied health services sector Standard
NZMP 6004:1999	Safer electrical installations in homes for children, the elderly and people with disabilities

Peru	
NTP 231.167:2009	Cotton aseptic absorbent gauze and cotton sterile absorbent gauze for medicinal use. Requirements and methods of test.
NTP ISO 14937:2010	Sterilization of health care products. General requirements for characterization of a sterilizing agent and the development, validation and routine control of a sterilization process for medical devices
NTP ISO 10993-1:2011	Biological evaluation of medical devices -- part 1: evaluation and testing within a risk management process
NTP-IEC 60601-1:2010	Medical electrical equipment. Part 1: general requirements for basic safety and essential performance
NTP 231.216:1985 (reviewed 2012)	Nonwoven cloth for sanitary towels and disposable diapers. Requiriments
NTP 231.217:1985 (reviewed 2012)	Nonwoven cloth for sanitary towels and disposable diapers. Extraction and preparation of samples for tests and acceptance of lot
NTP 231.218:1985 (reviewed 2012)	Nonwoven cloth for sanitary towels and disposable diapers. Determination of weight and thickness
NTP 231.219:1985 (reviewed 2012)	Nonwoven cloth for disposal diapers. Determination of the absorption of unwoven cloth 100% rayon
NTP 231.220:1985 (reviewed 2012)	Nonwoven cloth for disposal diapers. Determination of penetration time of liquids in the disposal diapers.
NTP 231.221:1985 (reviewed 2012)	Nonwoven cloth for sanitary towel and disposal diapers. Determination of free formaldehyde
NTP 231.222:1985 (reviewed 2012)	Nonwoven cloth for sanitary towels and disposal diapers. Determination of transverse and longitudinal tension strength in dry and wet
NTP 231.223:1985 (reviewed 2012)	Nonwooven cloth for sanitary towels and disposal diapers. Abrasion resistance in wet nonwoven cloth 50 % rayon 50 % polyester and nonwoven cloth 100 % polyester
NTP 332.003:1974 (reviewed 2012)	Dropping bottles for pharmaceutical products
NTP 332.005:1974 (reviewed 2012)	Glass cannings for great-volume inyectables
NTP 332.020:1984 (reviewed 2012)	Glass cannings. Ampoules obtained from elongation tube
NTP 332.021:1980 (reviewed 2012)	Glass cannings. Hermeticity determination in ampoules.
NTP 332.022:1984 (reviewed 2012)	Glass cannings. Measurement of the resistance to the thermal shock in ampoules obtained from elongation tube
NTP 332.032:1988 (reviewed 2012)	Glass cannings. Standarized glass bottles of 100 ml for pharmaceutical industry for oral and external use
NTP 332.033:1988 (reviewed 2012)	Glass cannings. Standarized glass bottles of 180 ml for pharmaceutical industry for oral and external use
NTP 399.013:1974 (reviewed 2012)	Identification colors of industrial gases in containers to pressure such as cylinders, bottles and tanks
NTP 399.104:1985(reviewed 2012)	Flexible packing. Polyvinylchloride-aluminium blister container for pharmaceutical use
NTP 399.106:1985 (reviewed 2012)	Adhesive plastic medicated bandage. Determination of the tolerance on the skin
NTP 399.107:1985 (reviewed 2012)	Adhesive plastic medicated bandage. Determination of rest of adhesive on the skin.
NTP 399.108:1985 (reviewed 2012)	Adhesive plastic medicated bandage. Determination of the absorption velocity of custrionet

Peru – continued	
NTP 399.109:1985 (reviewed 2012)	Adhesive plastic medicated bandage. Determination of accelerated aging.
NTP 399.110:1985 (reviewed 2012)	Adhesive plastic medicated bandage. Determination of effective drilling or microdrilling
NTP ISO 9187-1:2012	Injection equipment for medical use. Part 1: ampoules for injectables
NTP 399.105:1985 (reviewed 2013)	Adhesive plastic medicated bandages. Requirements
NTP 399.112:1985 (reviewed 2013)	Adhesive plastic medicated bandages. Determination of the pollution to the pathogenic germs
NTP 399.111:1985 (reviewed 2013)	Adhesive plastic medicated bandages. Determination of adhesivity on skin
NTP 332.023:2013	Glass containers. Glass ampoules of pharmaceutical and cosmetic use. Packaging and labelling
NTP-ISO 10555-3:2014	Intravascular catheters sterile and single-use catheters. Part 3: central venous catheters
NTP-ISO 10555-5:2014	Intravascular catheters-sterile and single use catheters. Part 5: over-needle peripheral catheters
NTP-ISO 10282:2014	Single use sterile rubber surgical gloves. Specification
NTP-ISO 11193-1:2014	Single-use medical examination gloves. Part 1: specification for gloves made from rubber latex or rubber solution
NTP-ISO 1135-4:2014	Transfusion equipment for medical use. Part 4: transfusion sets for single use, gravity feed
NTP-ISO 3826-3:2014	Plastics collapsible containers for human blood and blood components - part 3: blood bag systems with integrated features
NTP-ISO 7864:2014	Sterile hypodermic needles for single use
NTP-ISO 7885:2014	Dentistry. Sterile injection needles for single use
NTP- ISO 8536-4:2014	Infusion equipment for medical use - part 4: infusion sets for single use, gravity feed
NTP-ISO 8536-8:2014	Infusion equipment for medical use - part 8: infusion sets for single use with pressure infusion apparatus
NTP-ISO 8669-2:2014	Urine collection bags. Part 2: requirements and test methods
NTP-ISO 8836:2014	Suction catheters for use in the respiratory tract
NTP 851.104:2014	Elastic bandages. Requirements and test methods
NTP-ISO 3826-1:2014	Plastics collapsible containers for human blood and blood components. Part 1: conventional containers
NTP 231.290:2014	Cotton absorbent non-sterile for medicinal use. Requirements and test methods
NTP 851.100:2014	Nasogastric catheter. Requirements and test method
NTP 319.203:1988 (reviewed 2014)	Rectified ethylic alcohol for medical use
NTP-ISO 7740:2014	Instruments for surgery. Scalpels with disposable blades - fitting dimensions
NTP-ISO 10555-1:2014	Intravascular catheters. Sterile and single use catheters. Part 1: general requirements
NTP-ISO 7153-1:2014	Surgical instruments. Metallic materials. Part 1: stainless steel
NTP-ISO 8670-2:2014	Ostomy collection bags. Part 2: requirements and test methods
NTP-ISO 10993-5:2015	Biological evaluation of medical devices. Part 5: tests for in vitro cytotoxicity
NTP ISO 14971:2010 (reviewed 2015)	Medical devices. Application of risk management to medical devices
NTP-ISO 10993-7: 2015	Biological evaluation of medical devices. Part 7: ethylene oxide sterilization residuals
NTP 851.105: 2015	Plaster bandages. Requirements and test methods

Peru – continued	
NTP-ISO 10993-7:2015/COR 1: 2015	Corrigendum 1. Biological evaluation of medical devices. Part 7: ethylene oxide sterilization residuals
NTP 851.106: 2016	Aerochambers adult, pediatric and neonatal. Requirements
NTP 325.001: 2016	Medical materials. Adult and pediatric tongue depressor. Requirements and test methods
NTP 399.119: 2016	Medical materials. Absorbable surgical suture and nonabsorbable for medical use
NTP-ISO 10993-11: 2016	Biological evaluation of medical devices. Part 11: tests for systemic toxicity
NTP-ISO 11138-1:2011 (reviewed 2016)	Sterilization of health care products. Biological indicators. Part 1: general requirements
NTP-ISO 11138-2:2011 (reviewed 2016)	Sterilization of health care products. Biological indicators. Part 2: biological indicators for ethylene oxide sterilization processes
NTP-ISO 7886-1:2011 (reviewed 2016)	Sterile hypodermic syringes for single use. Part 1: syringes for manual use

Singapore	
CP 15:2004	Code of practice for installation, operation and maintenance of escalators and passenger conveyors
SS 485:2011	Specification for slip resistance classification of pedestrian surface materials
SS 495:2001	Impact attenuation of surface systems under and around playground equipment
SS 514 : 2016	Code of practice for office ergonomics
SS 534:2007	Specification for outdoor fitness equipment for public use
SS 599: 2014	Guide for wayfinding signage in public areas
SS 604:2014	Guidelines on nutrition and food service for older adults
SS 605:2014	Guide for age-friendly homes
SS 618: 2016	Guidelines on user interface design for older adults
TR 40 : 2015	Technical Reference for sensor networks for smart nation (homes)
TR 42:2015	Technical Reference for facility design guidelines for acute general hospitals
TR 45 : 2016	Technical Reference for remote vital signs monitoring.
TR 54 : 2016	Technical Reference for smart plugs for homes
ISO/IEC Guide 71: 2014 (to be adopted as SS)	Guide for addressing accessibility in standards

Chinese Taipei	
15933	Assistive products for blind and vision impaired persons – Tactile walking surface indicators
15550	Guidelines for standards developers to address the needs of older persons and persons with disabilities
15551-1	Ergonomics-Accessible design-Auditory signals for consumer products
15551-2	Ergonomics-Accessible design -- Sound pressure levels of auditory signals for consumer products
15551-3	Ergonomics Accessible design Specification of age-related luminance contrast for coloured light
15551-4	Ergonomics-Accessible design-Tactile dots and bars on consumer products
15552	Packaging-Accessible design-General requirements

Chinese Taipei – continued	
15626-1	Ergonomic principles related to mental workload - Part 1: General terms and definitions
15626-2	Ergonomic principles related to mental workload - Part 2: Design principles
15626-3	Ergonomic principles related to mental workload - Part 3: Principles and requirements concerning methods for measuring and assessing mental workload
15718	Ergonomic principles in the design of work systems
15719	Ergonomics—General approach, principles and concepts
15743	Guidelines for older persons and persons with disabilities - Information presentation using electronic guiding and wayfinding system
15794	Accessible design - Application of braille on signage, equipment and appliances
15810	Guidelines for older persons and persons with disabilities - Housing equipments
15854	Information technology – Office equipment accessibility guidelines for elderly persons and persons with disabilities
15875-1	Ergonomics of the thermal environment – Methods for the assessment of human responses to contact with surfaces – Part 1: Hot surfaces
15875-2	Ergonomics of the thermal environment – Methods for the assessment of human responses to contact with surfaces – Part 2: Human contact with surfaces at moderate temperature
15875-3	Ergonomics of the thermal environment – Methods for the assessment of human responses to contact with surfaces – Part 3: Cold surfaces
14622-1	Sterilization of health care products - Biological indicators - Part 1: General requirements
14622-2	Sterilization of health care products - Biological indicators - Part 2: Biological indicators for ethylene oxide sterilization processes
14622-3	Sterilization of health care products - Biological indicators - Part 3: Biological indicators for moist heat sterilization processes
14622-4	Sterilization of health care products - Biological indicators - Part 4: Biological indicators for dry heat sterilization processes
14622-5	Sterilization of health care products - Biological indicators - Part 5: Biological indicators for low-temperature steam and formaldehyde sterilization processes
14623-1	Sterilization of health care products Chemical indicators Part 1: General requirements
14623-2	Sterilization of health care products Chemical indicators Part 2: Test equipment and methods
13575-1	Wheelchairs - Nomenclature, terms and definitions
13575-2	Wheelchairs - Maximum overall dimensions
13575-3	Wheelchairs Type classification based on appearance characteristics
13575-7	Wheelchairs - Determination of overall dimensions, mass and turning space
14353	Wheelchair occupant restraint assemblies for motor vehicles
14509-2-49	Medical electrical equipment - Particular Requirements for the safety of multifunction patient monitoring equipment
14709	Sterilization of health care products - requirements for validation and routine control - radiation sterilization
14964	Wheelchairs - Guidelines for the application

Chinese Taipei – continued	
14964-1	Wheelchairs - Part1 : Determination of static ability
14964-10	Wheelchairs - Part 10: Determination of obstacle-climbing ability of electric wheelchairs
14964-11	Wheelchairs – Part 11: Test dummies
14964-13	Wheelchairs - Part 13: Determination of coefficient of friction of test surfaces
14964-14	Wheelchairs - Part 14: Power and control systems for electric wheelchairs - Requirements and test methods
14964-15	Wheelchairs - Part 15 : Requirements for information disclosure, documentation and labelling
14964-16	Wheelchairs - Part 16: Resistance to ignition of postural support devices
14964-19	Wheelchairs - Part 19 : Wheeled mobility devices for use in motor vehicles
14964-2	Wheelchairs - Part 2 : Determination of dynamic stability of electric wheelchairs
14964-21	Wheelchairs - Part 21 : Requirements and test methods for electromagnetic compatibility of electrically powered wheelchairs and motorized scooters
14964-22	Wheelchairs - Part 22 : Setup procedures
14964-25	Wheelchairs – Part 25: Batteries and chargers for powered wheelchairs
14964-28	Wheelchairs – Part 28: Requirements and test methods for stair-climbing devices
14964-3	Wheelchairs – Part 3: Determination of effectiveness of brakes
14964-4	Wheelchairs - Part 4 : Energy consumption of electric wheelchairs and scooters for determination of theoretical distance range
14964-6	Wheelchairs - Part 6: Determination of maximum speed, acceleration and deceleration of electric wheelchairs
14964-7	Wheelchairs - Part 7: Measurement of seating and wheel dimensions
14964-8	Wheelchairs - Part 8: Requirements and test methods for static, impact and fatigue strengths
14964-9	Wheelchairs - Part 9: Climatic tests for electric wheelchairs
15024-1	Assistive products for walking manipulated by one arm – Requirements and test methods – Part 1: Elbow crutches
15042	Standard specification for infrared thermometers for intermittent determination of patient temperature
15043	Standard specification for electronic thermometer for intermittent determination of patient temperature
15390	Assistive products for persons with disabilities - Classification and terminology
15469-1	Tips for assistive products for walking - Requirements and test methods - Part 1: Friction of tips
15469-2	Tips for assistive products for walking—Requirements and test methods—Part 2: Durability of tips for crutches
15628-1	Wheelchair seating - Part 1: Vocabulary, reference axis convention and measures for body segments, posture and postural support surfaces
15628-2	Wheelchair seating — Part 2: Determination of physical and mechanical characteristics of devices intended to manage tissue integrity — Seat cushion

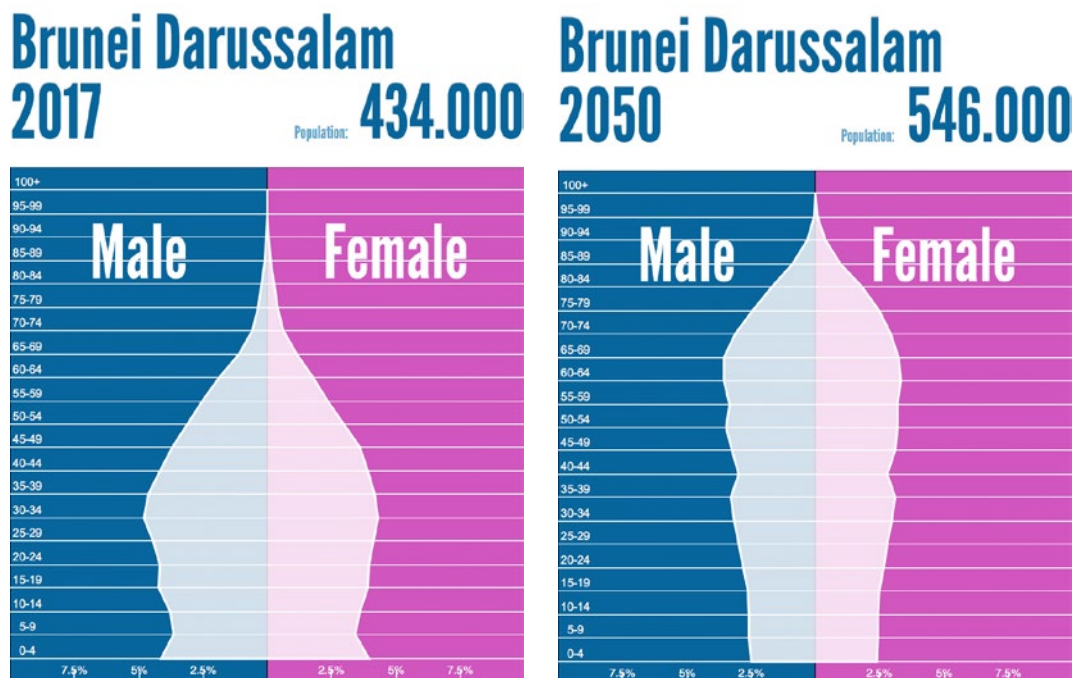
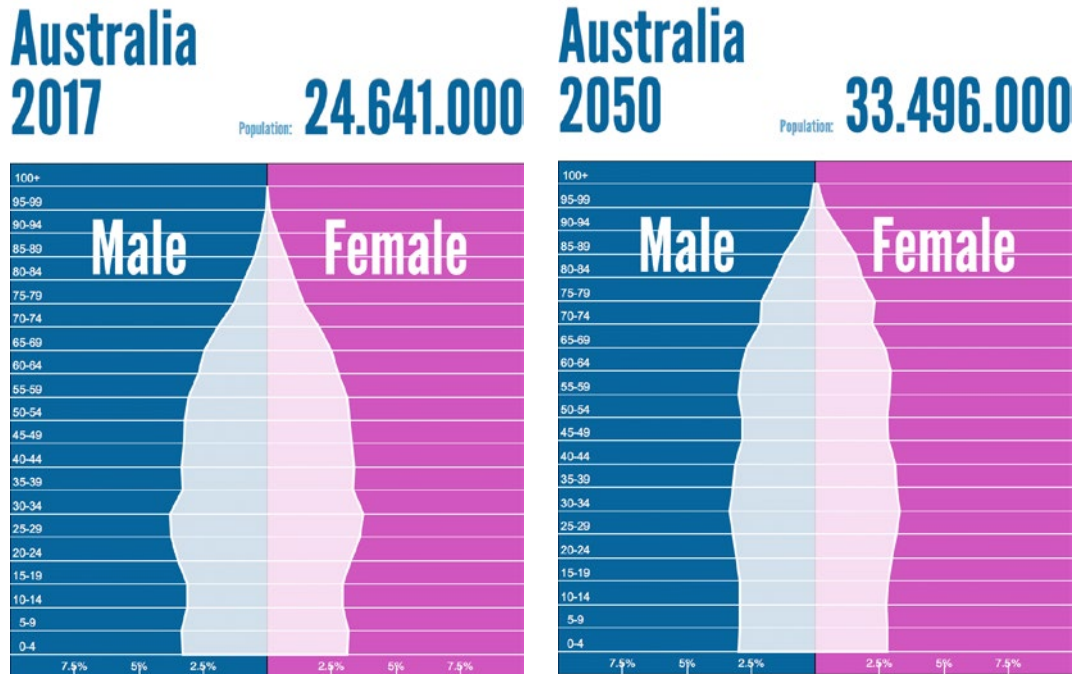
Chinese Taipei – continued	
15628-3	Wheelchair seating — Part 3 : Determination of static, impact and repetitive load strengths for posturalsupport device
15628-4	Wheelchair seating - Part 4: Seating systems for use in motor vehicles
15658	Technical aids for persons with disability — Environmental control systems for daily living
15677-1	Technical systems and aids for disabled or handicapped persons - Wheelchair tiedown and occupants - restraint systems - Part 1 : Requirements and test methods for all systems
15690	Sterilization of health care products - Vocabulary
15691-1	Aseptic processing of health care products - Part 1: General requirements
15691-2	Aseptic processing of health care products - Part 2: Filtration
15691-3	Aseptic processing of health care products - Part 3: Lyophilization
15691-4	Aseptic processing of health care products - Part 4 : Clean-in-place technologies
15691-5	Aseptic processing of health care products - Part 5: Sterilization in place
15691-6	Aseptic processing of health care products - Part 6: Isolator systems
15759	Portable ramps for wheelchairs
15830-2	Power-operated lifting platforms for persons with impaired mobility – Rules for safety, dimensions and functional operation – Part 2: Powered stairlifts for seated, standing and wheelchair users moving in an inclined plane
14232-1	Health Level Seven (HL7) - Part 1: Introduction
14232-10	Health Level Seven (HL7) - Part 10: Scheduling
14232-11	Health Level Seven (HL7) - Part 11: Patient referral
14232-12	Health Level Seven (HL7) - Part 12: Patient care
14232-13	Health Level Seven (HL7) - Part 13: Clinical laboratory automation
14232-14	Health Level Seven (HL7) - Part 14: Application management
14232-15	Health Level Seven (HL7) - Part 15: Personnel management
14232-16	Health Level Seven (HL7) - Part 16: Appendix
14232-2	Health Level Seven (HL7) - Part 2: Control
14232-3	Health Level Seven (HL7) - Part 3: Patient administration
14232-4	Health Level Seven (HL7) - Part 4: Order entry
14232-5	Health Level Seven (HL7) - Part 5: Query
14232-6	Health Level Seven (HL7) - Part 6: Financial management
14232-7	Health Level Seven (HL7) - Part 7: Observation reporting
14232-8	Health Level Seven (HL7) - Part 8: Master files
14232-9	Health Level Seven (HL7) - Part 9: Medical records/Information management
15211	Health informatics - Digital imaging and communication in medicine (DICOM) including workflow and data management
15321	Guide for information and communications accessibility technology - General
15897	Information technology – User interfaces – Accessible user interface for accessibility settings
15949-1	Information technology – Interoperability with assistive technology (AT) – Part 1: Requirements and recommendations for interoperability

Chinese Taipei – continued	
15830-1	Power-operated lifting platforms for persons with impaired mobility – Rules for safety, dimensions and functional operation – Part 1: Vertical lifting platforms

Thailand	
TIS 2207-2004	Folding patient wheelchairs
TIS 2570-2012	Electric wheelchair
TIS 2740 Part 1 - 2016	Assistive products for walking manipulated by one arm – Part 1: Elbow crutches
TIS 2740 Part 2 - 2016	Assistive products for walking manipulated by one arm – Part 2: Walking sticks with three or more legs
TIS 2751 Part 1 - 2016	Walking aids manipulated by both arms – Part 1: Walking frames
TIS 2751 Part 2 - 2016	Walking aids manipulated by both arms – Part 2: Rollators
TIS 2751 Part 3 - 2016	Walking aids manipulated by both arms – Part 3: Walking tables

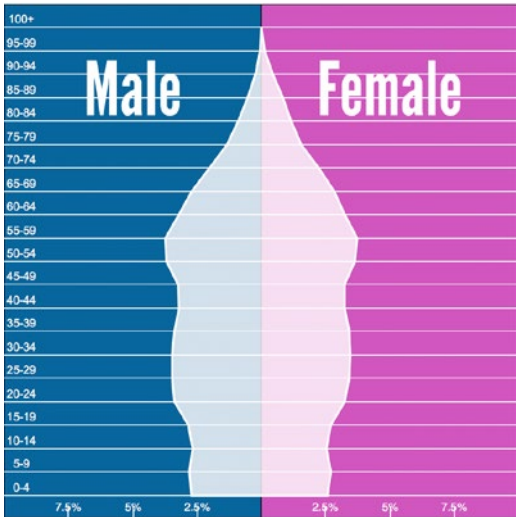
The United States	
ANSI	ANSI A117.1
US Government	Americans with Disabilities Act
Center for Health Design	Universal Design Strategies: Impact of Aging Considerations Checklist
isUD	Innovative Solutions for Universal Design
Center for Inclusive Design and Environmental Access	Multiple design resources
Center for Inclusive Design and Environmental Access	Multiple publications
AARP	HomeFit Guide
AARP	Network of Age-Friendly Communities
Abledata	Multiple publications
US Government	Affordable Care Act
AARP	Aging in place
UL	UL 2560 Standard for Safety of Emergency Call Systems for Assisted Living and Independent Living Facilities

Appendix B – APEC Member Economy Population Pyramids



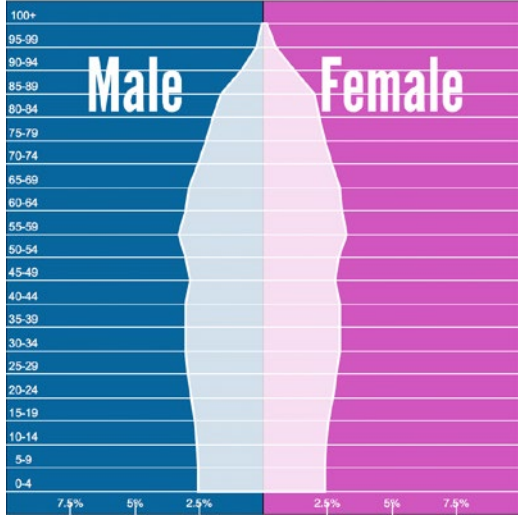
Canada 2017

Population: **36.626.000**



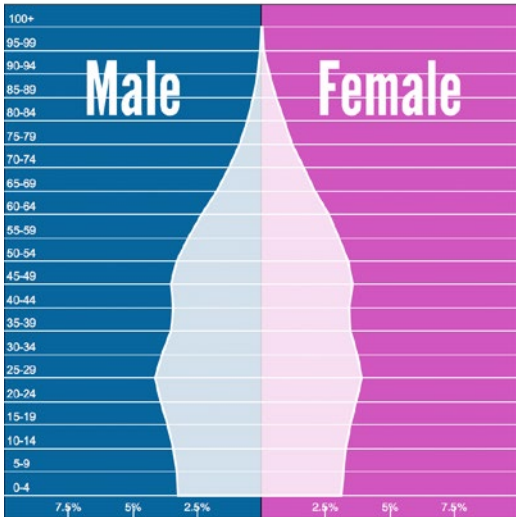
Canada 2050

Population: **44.135.000**



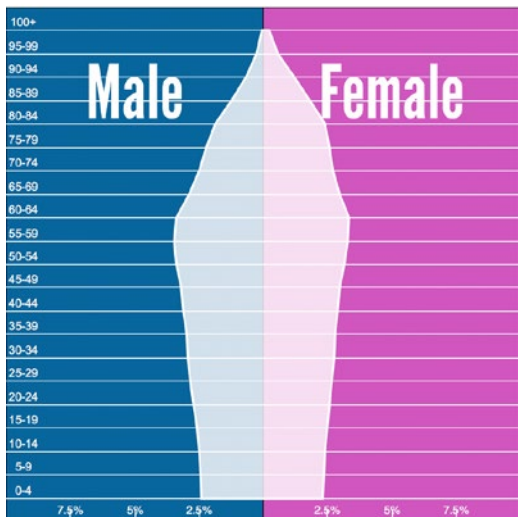
Chile 2017

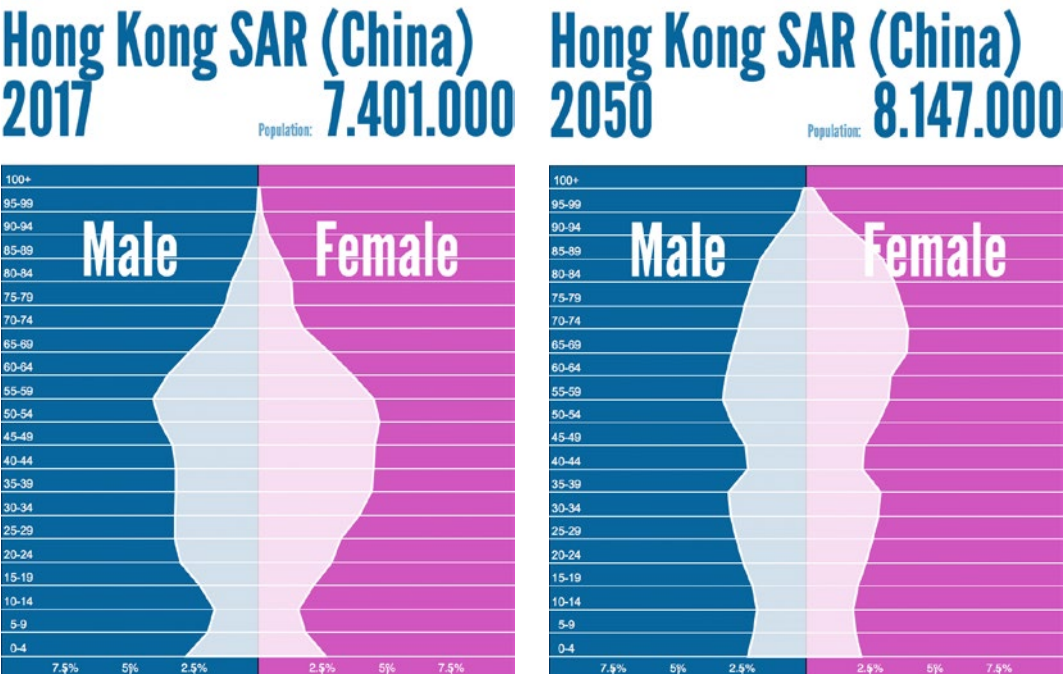
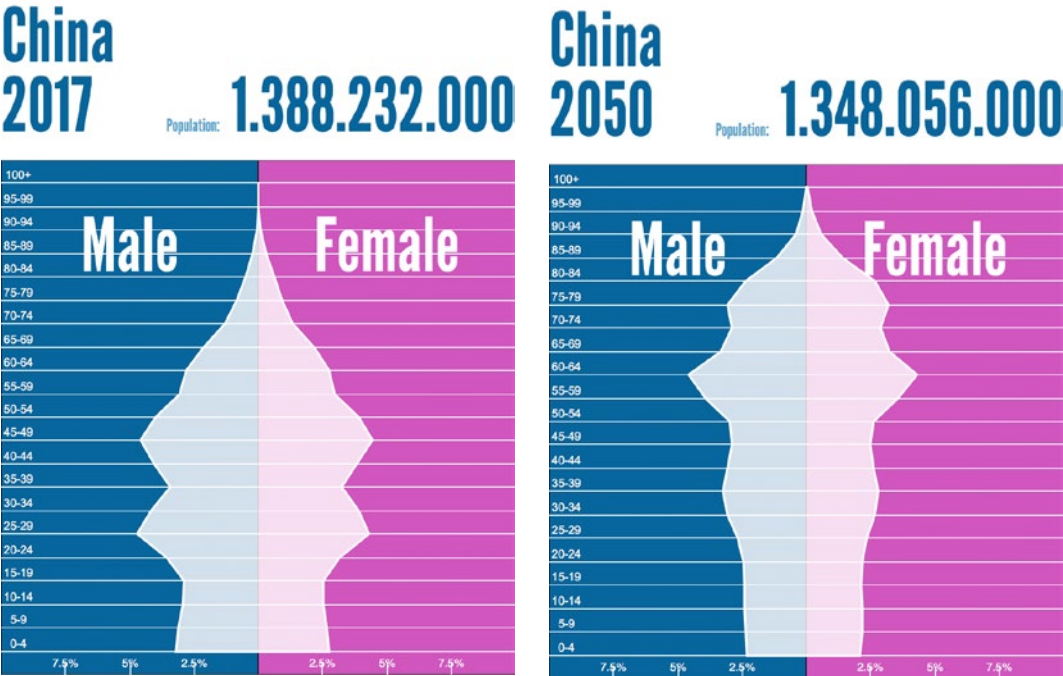
Population: **18.313.000**



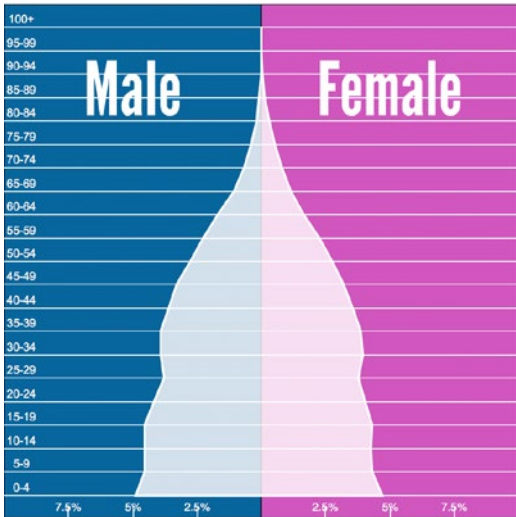
Chile 2050

Population: **21.600.000**

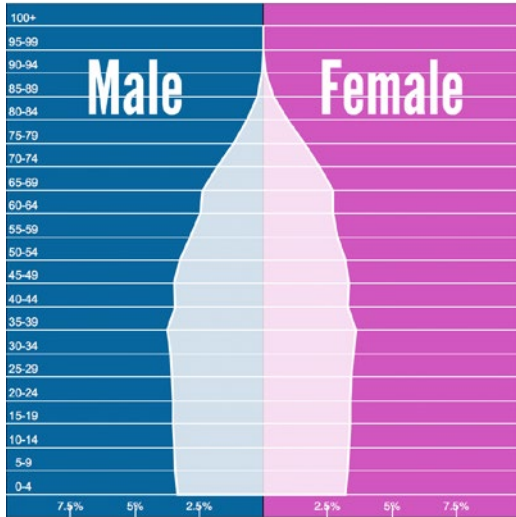




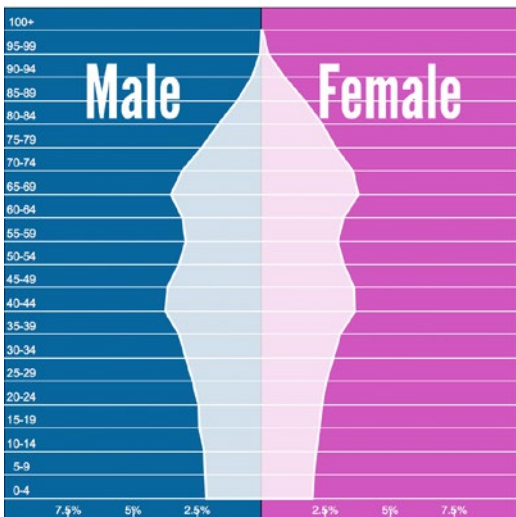
Indonesia
2017
Population: **263.510.000**



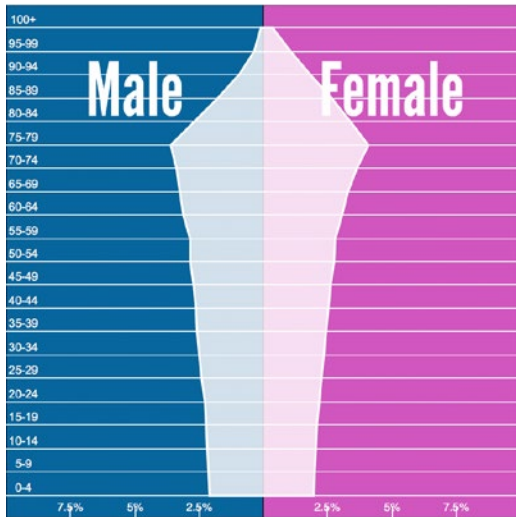
Indonesia
2050
Population: **322.237.000**



Japan
2017
Population: **126.045.000**

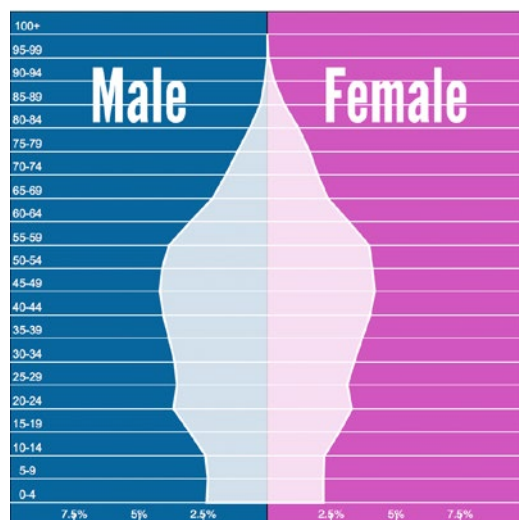


Japan
2050
Population: **107.411.000**



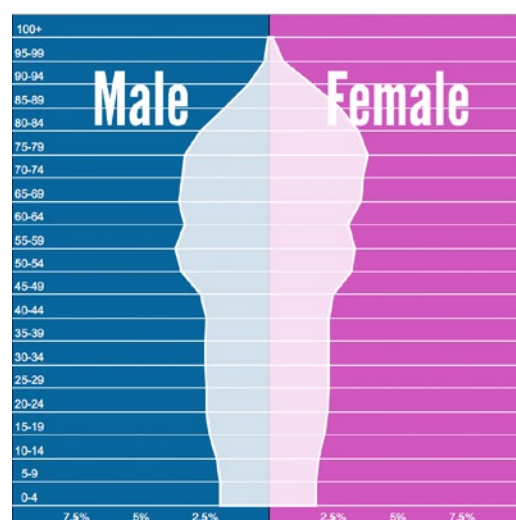
Republic of Korea 2017

Population: 50.704.000



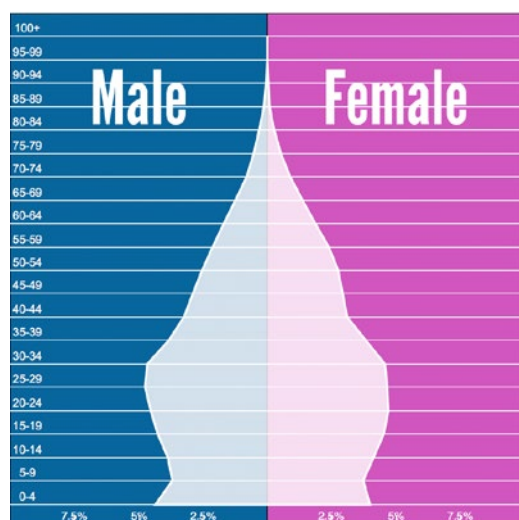
Republic of Korea 2050

Population: 50.593.000



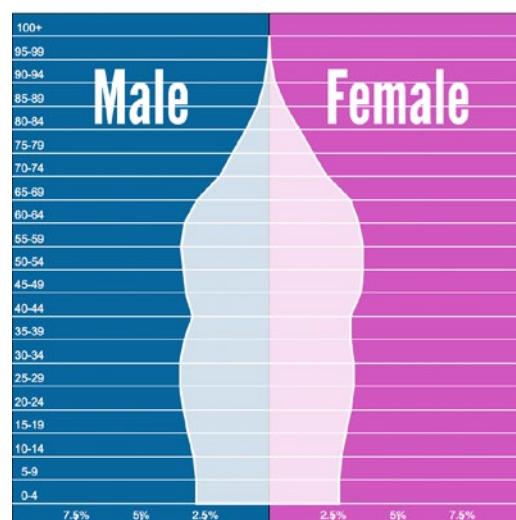
Malaysia 2017

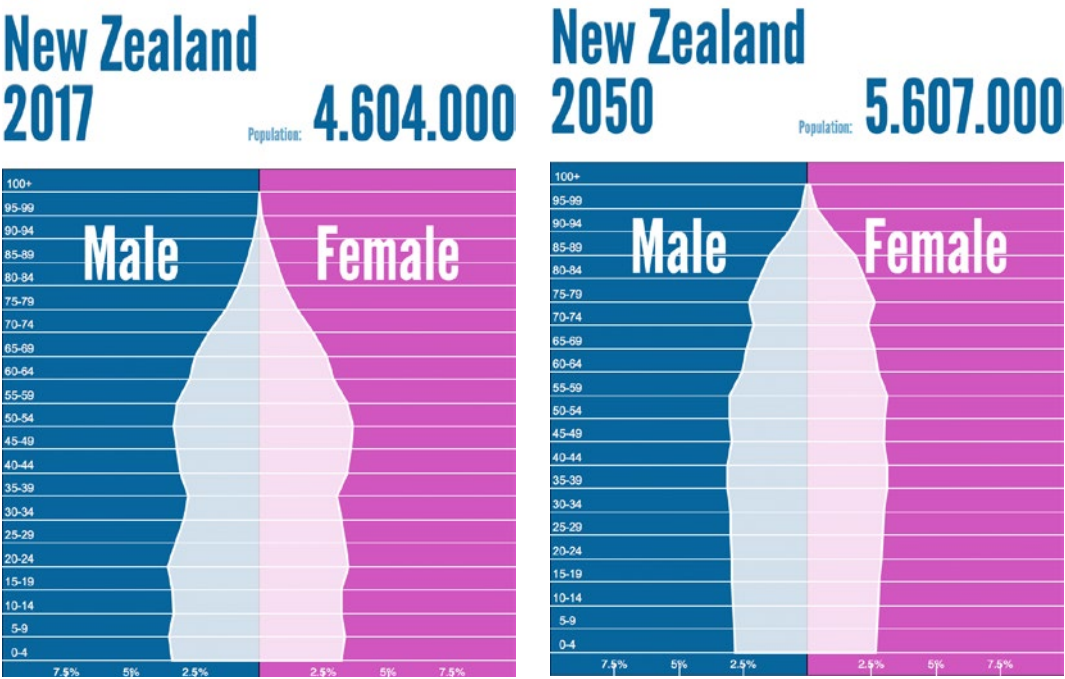
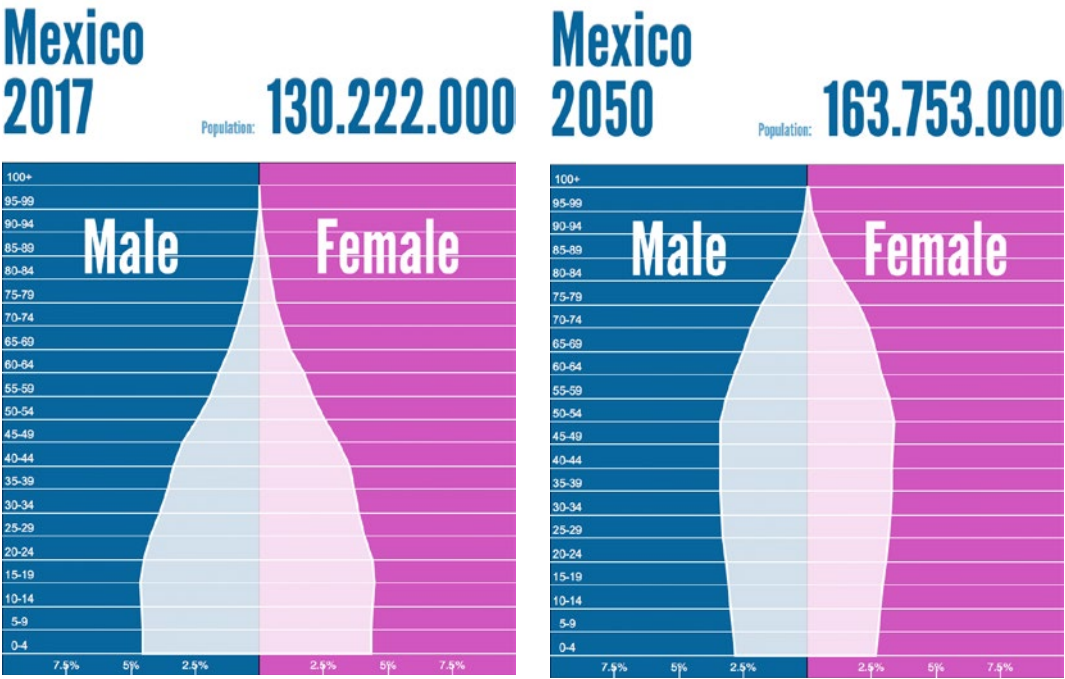
Population: 31.164.000



Malaysia 2050

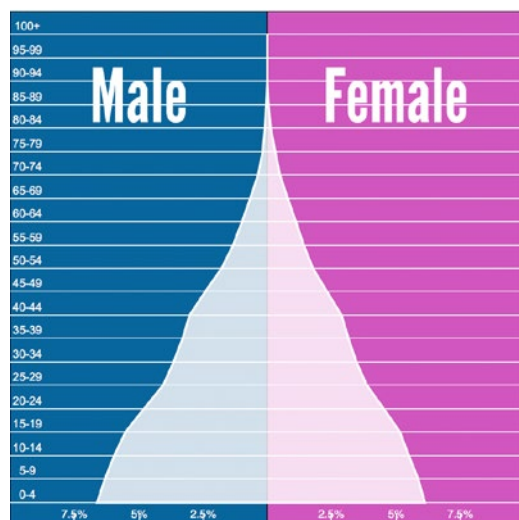
Population: 40.724.000





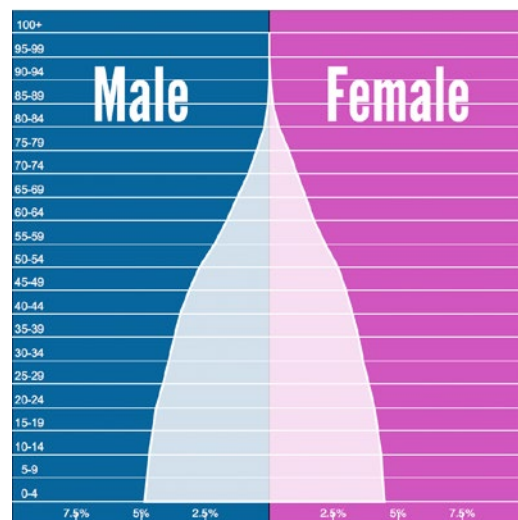
Papua New Guinea 2017

Population: 7.933.000



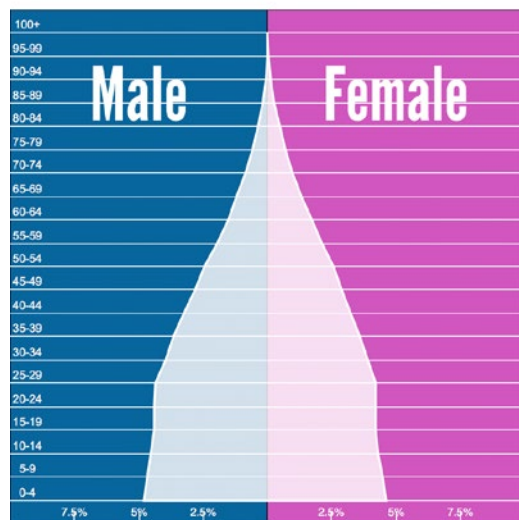
Papua New Guinea 2050

Population: 13.240.000



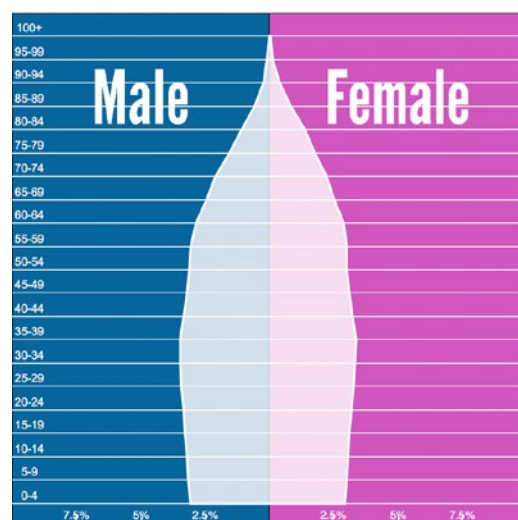
Peru 2017

Population: 32.166.000

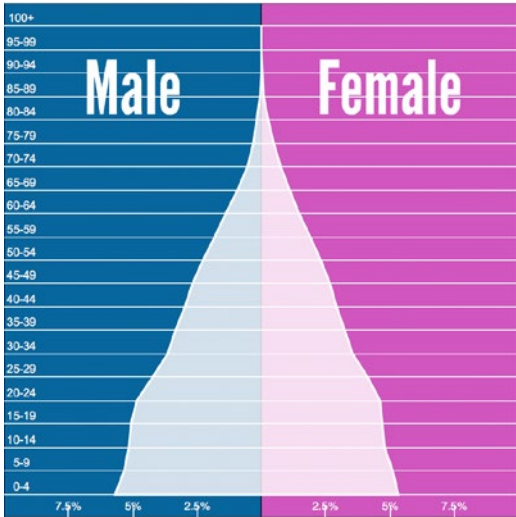


Peru 2050

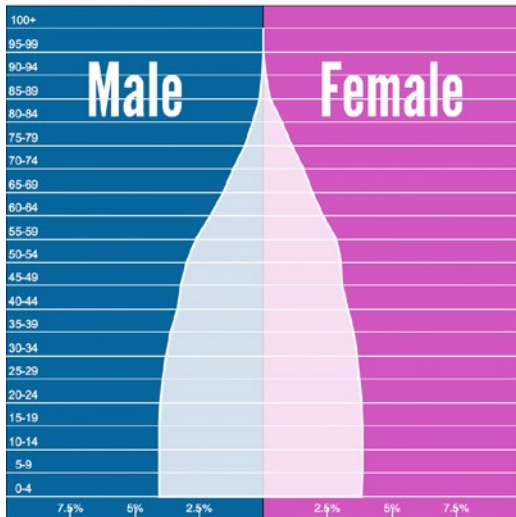
Population: 41.899.000



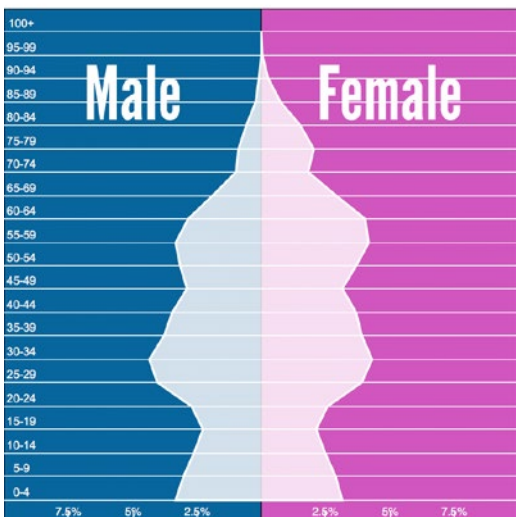
Philippines
2017
Population: **103.796.000**



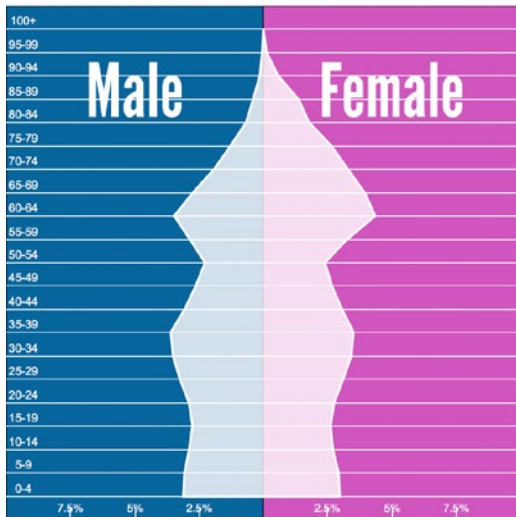
Philippines
2050
Population: **148.260.000**

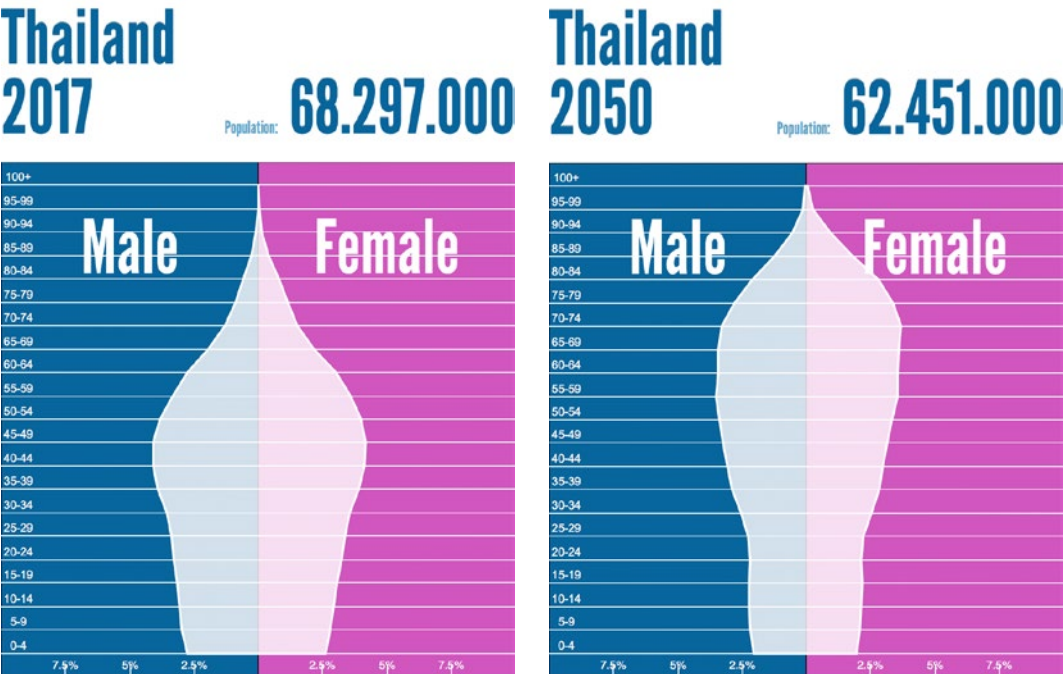
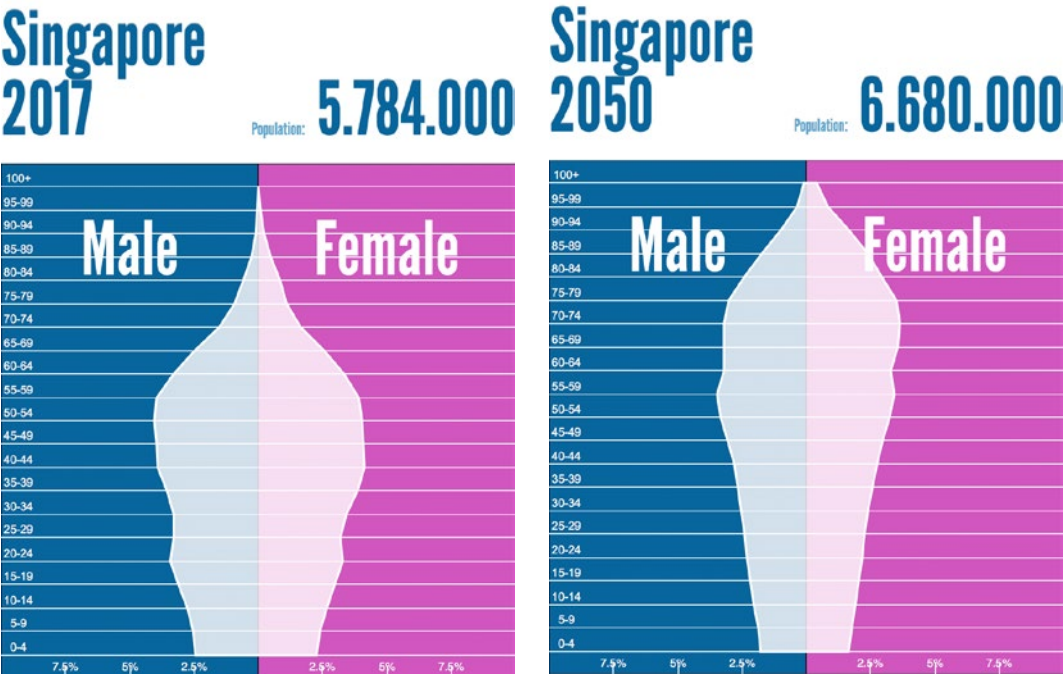


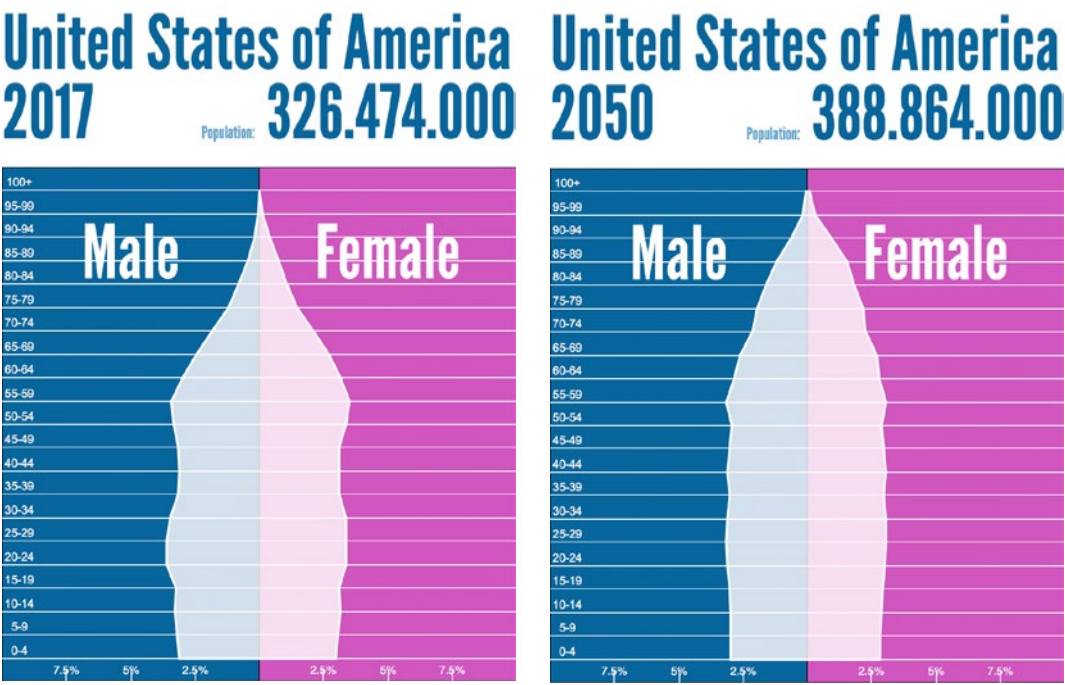
Russian Federation
2017
Population: **143.375.000**



Russian Federation
2050
Population: **128.599.000**









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