

# The digital divide and population aging in Chile: diagnosis, public policies, and intergenerational impact

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## Abstract

Chile is undergoing a rapid demographic transition, with projections indicating that by 2050, 24% of its population will be over 60 years old in the context of low fertility (1.4 children per woman). This article examines the digital divide from a multidimensional perspective, integrating demographic, economic, and technological data, emphasizing generational inequalities, particularly among older adults, and presents a preliminary diagnosis. Through a cross-sectional and comparative analysis of the Criteria Surveys, the National Socioeconomic Characterization Survey (CASEN), and reports from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Cooperation and Development (OECD), this report presents the state of the national digital ecosystem, which serves as input for future public policy studies and regional or global comparative initiatives. The results conclude that public policies in this area must integrate infrastructure, digital literacy, and technological security to mitigate socioeconomic risks and promote intergenerational inclusion through long-term planning.

**Keywords:** digital divide, population aging, intergenerational economy, public policies.



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## Brechas digitales y envejecimiento poblacional en Chile: diagnóstico, políticas públicas e impacto intergeneracional

### Abstract

Chile atraviesa una rápida transición demográfica, con proyecciones que indican que para 2050, el 24% de su población tendrá más de 60 años en un contexto de baja fecundidad (1,4 hijos por mujer). Este artículo examina la brecha digital desde una perspectiva multidimensional, integrando datos demográficos, económicos y tecnológicos, con énfasis en las desigualdades generacionales, particularmente entre los adultos mayores, y presenta un diagnóstico preliminar. Mediante un análisis transversal y comparativo de la Encuesta de Criterios, la Encuesta de Caracterización Socioeconómica Nacional (CASEN) e informes de la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO) y la Organización para la Cooperación y el Desarrollo Económicos (OCDE), este informe presenta el estado del ecosistema digital nacional, que sirve de insumo para futuros estudios de políticas públicas e iniciativas comparativas regionales o globales. Los resultados concluyen que las políticas públicas en este ámbito deben integrar la infraestructura, la alfabetización digital y la seguridad tecnológica para mitigar los riesgos socioeconómicos y promover la inclusión intergeneracional mediante la planificación a largo plazo.

**Palabras clave:** brechas digitales, envejecimiento poblacional, economía intergeneracional, políticas públicas.

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## Introduction: A Country Aging in the Digital Age

Chile is experiencing an unprecedented demographic transformation. With a fertility rate of 1.1 children per woman—the lowest in South America (United Nations [UN], 2025)—and an average life expectancy of 81.3 years (Rojas et al., 2022), it is projected that by 2050 one in four Chileans will be over 60 years old (Comisión Económica para América Latina y el Caribe [CEPAL], 2024). This phenomenon puts pressure on the intergenerational economy, reducing the proportion of active workers per older adult to 2.5 in 2050 from 8.3 in 2020 (The Organisation for Economic Co-operation and Development [OECD], 2023b; UN, 2022) and challenging the sustainability of pension, health, and employment systems.

This article is part of a more extensive study that analyzes digital gaps in Chile and the older age group. In this first phase, a preliminary diagnosis examines the current situation of the country and the region in terms of digital access, use, and appropriation, which demands a comprehensive response from the proper implementation of public policy and technological innovation.

The central objective of this first phase is to identify, in principle, several essential concepts such as:

a. Digital gaps: Inequalities in coverage, access, and use (appropriation) of digital technologies, which implies that certain groups or regions have fewer technological resources than others (OECD, 2021; Cabello, 2022).

The digital revolution is advancing unevenly. Although 93% of urban households have internet access (Fundación País Digital, 2024), critical gaps are evident in three fundamental dimensions (Digital Readiness Chile, 2023; OECD, 2021):

Access gap: Disparities in infrastructure and affordability, especially in rural areas (83.6% connectivity versus 94.2% in urban areas).

Use gap: Differences in the ability to use information and communications technology (ICT) effectively. Only 12% of older adults have advanced digital skills (Criteria Research, 2024), and factors such as lack of digital literacy prevent optimal use.

Appropriation gap: The integration of ICT in daily life (especially in educational, labor and economic-commercial aspects) is limited, reflected in high vulnerability rates to digital fraud with 29% of older adults affected (Ministerio de Desarrollo Social y Familia, 2022)

b. Digital literacy: The ability to identify, understand, interpret, create, communicate, and use digital technologies effectively, efficiently, and sustainably (Digital Readiness Chile, 2023; Wang et al., 2024).

c. Digital inclusion: Strategies and policies aimed at guaranteeing connectivity and active participation in the digital world, reducing the exclusion of vulnerable groups (Fundación País Digital, 2024; García Bernal, 2020; Deloitte, 2023).

d. Innovation: Incorporation of technological innovation solutions to address social and economic problems, facilitating the creation of value in the public and private sectors (Jin, 2024; Deloitte, 2023).

e. Population aging: Impact of demographic change on innovation and public policy formulation, especially in contexts of low birth rates and greater longevity (CEPAL, 2024; UN, 2025).

f. Sustainable digital transformation: The implementation of technologies with a social, intergenerational, and environmental perspective that guarantees continued development without compromising future resources (Digital Readiness Chile, 2023).

Along with the above, this paper analyzes the current situation and the global social context for the coming decades. That is, a society

with a longer life expectancy, an aging population, and a lower birth rate will generate greater fiscal pressures in the coming decades to cover aspects such as social security and healthcare in the future.

Subsequently, the article then presents a preliminary diagnosis of the digital divides surrounding technology, both at the national level (Chile), in Region V, and among older adults.

This paper concludes with a mention of the topics that will be addressed in a second installment of results, specifically public policies in the Americas and initiatives related to this thematic axis in an interdisciplinary, comparative, and transversal manner.

Therefore, this study establishes an updated initial diagnosis of digital divides at the national level, basing its analysis on key definitions such as digital readiness, literacy, and inclusion. While these broader concepts and ideas, such as the digital economy and the provision of all technology-centric services, offer a comprehensive perspective, we will only present them here in a context requiring more consolidated and phased approaches, given their complexity. Therefore, a more detailed explanation of these phenomena within an integrative thematic axis is envisioned in future research phases that will lead to a deeper understanding of these fundamental concepts to clarify the multidimensional nature of the digital divide, particularly at its intersection with population aging and the relationship between sociodemographic and digital change. This phased conceptual approach ensures that policy recommendations are relevant and systematically aligned with global digital and sociopolitical development best practices.

### **Methodology: Mixed Approach and Comparative Analysis**

The methodological approach of this research is predicated on an extensive review of national surveys, specifically CASEN of 2022 and Criteria of 2024, complemented by comprehensive reports from both

national entities and international organizations such as UNESCO and the OECD. Our criteria for selecting these data sources prioritized recency, national representativeness, and their direct relevance to digital access, usage patterns, and prevailing demographic trends. Moving beyond a mere quantification of connectivity, future analyses will delve into more granular details regarding adopting specific digital services, including e-government platforms, online banking, e-commerce, and various entertainment and social interaction tools. Comprehending the nuanced motivations underpinning (and barriers impeding) engagement with these diverse digital functionalities is pivotal for achieving a complete understanding of digital inclusion (e.g., Helsper, 2017; van Dijk, 2020), particularly in light of the significant projected impact of digital transformation on Chile's GDP, which warrants in-depth examination in a subsequent study.

This study's foundation is a systematic, cross-referenced, and comparative review of pivotal reports and documents published between 2013 and 2024. Data pertaining to connectivity indicators, ICT use, digital skills, and demographic trends were meticulously gathered from both national sources (Fundación País Digital, Subsecretaría de Telecomunicaciones de Chile [SUBTEL], Instituto Federal de Telecomunicaciones [IFT], García Bernal) and international organizations (OECD, CEPAL, UN, UNESCO). This data was subsequently triangulated to facilitate the development of comparative tables and to analyze the intricate relationship between technological and demographic variables. Furthermore, Chilean public policies were comparatively assessed against international best practices, drawing insights from models implemented in countries such as Estonia, Canada, and Singapore. This mixed, comparative approach proved instrumental in identifying critical gaps and formulating evidence-based recommendations, integrating quantitative and qualitative methods across two distinct phases.

### Phase 1: Document Review and Data Extraction

Two surveys were analyzed along with five key reports and documents published between 2013 and 2024, including:

1. *Hogares Conectados* (Connected Homes), 2024 (Fundación País Digital, 2024).
2. *Población mayor: ¿Hacia la superación de la brecha digital?* (Older population: Towards overcoming the digital divide?), 2024 (Observatorio del Envejecimiento UC-Confuturo, 2024).
3. *Radiografía Digital* (Digital Radiography), 2024 (Criteria Research, 2024)
4. *Reporte sobre iniciativas de apoyo para atracción de inversión en telecomunicaciones*, 2024 (Report on support initiatives to attract investment in telecommunications) (IFT, 2024).
5. *Evaluación del estadio de preparación en materia de Inteligencia Artificial* (Evaluation of the stage of readiness in terms of Artificial Intelligence), 2024 (UNESCO, 2024)
6. *Encuesta CASEN* (Survey CASEN 2022) (Ministerio de Desarrollo Social y Familia de Chile, 2022).
7. *Análisis de la preparación digital en Chile* (Analysis of digital readiness in Chile), 2023 (Digital Readiness Chile, 2023).
8. *Brecha Digital Cero* (Zero Digital Divide), 2020 (García Bernal, 2020).

Relevant indicators of connectivity, digital skills, infrastructure investments, and demographic data (aging, birth rates) were extracted. Subsequently, the surveys and reports were cross-referenced and compared for the respective analysis and construction of the tables.

### Phase 2: Cross-analysis and Data Triangulation

Comparative analysis was conducted, for illustrative purposes only, by creating a table relating technological indicators to

demographic and economic variables. National data were compared with international benchmarks (e.g., models from Estonia, Canada, and Singapore) to identify existing gaps and formulate evidence-based recommendations for a future study.

### **The Current State: Impact of Population Aging**

Population aging is a global phenomenon that will transform the demographic structure of the 21st century. Projections indicate a significant increase in the population over 65 years of age worldwide, with senior citizens representing an estimated 16% of the total population for 2050 (UN, 2022), 20-22% for 2075 (CEPAL, 2024; OECD, 2023b) and 30-35% for 2100, assuming low fertility ( $\leq 1.5$  children/woman). Latin America is no exception to this trend. The population over 65 is projected to reach 14-16% in 2050 (Economic Commission for Latin America and the Caribbean [ECLAC], 2024), 18-20% in 2075, and 28-32% in 2100, driven by low birth rates (OECD, 2023b).

Chile is a particularly relevant case in this context, surpassing projections not only for Latin America but worldwide. Projections suggest that the population over 65 years of age in Chile will reach 20-22% of the total in 2050, 25-28% in 2075, and 35-40% in 2100 (Rojas et al., 2022) due to high life expectancy and low birth rates<sup>1</sup>.

Population aging poses key implications for public policies. Fiscal pressure will increase as there are fewer active workers to support pension and health systems (OECD, 2023b). The digital inclusion of older adults, one of the largest age groups, will become critical, requiring technological literacy policies (Fundación País Digital, 2024).

1 These estimates are based on cohort projection models applied by the UN and CEPAL (ECLAC), which consider low fertility ( $\leq 1.5$  children/woman) and increasing life expectancy. Data from national surveys (Ministerio de Desarrollo Social y Familia, 2022) and OECD reports (2023) have been triangulated, with regional benchmarking performed to adjust projections to local contexts (CEPAL, 2024).

With its accelerated aging, Chile is positioned as a laboratory for developing innovative public policies in Latin America.

While the demographic shift towards an older population undeniably presents fiscal pressures on social security and healthcare systems (Rofman & Apella, 2021), it is vital to frame digital inclusion not merely as an expenditure but as a strategic economic enabler. Enhancing digital literacy and access for older adults can unlock substantial economic value. Their increased participation in the digital economy—through e-commerce, telework, or the consumption of online services—can contribute directly to national GDP, foster innovation, and create new entrepreneurial opportunities within the “silver economy” (World Economic Forum, 2020). Viewing investments in digital inclusion to stimulate economic growth provides a compelling counter-argument to the perceived sole burden of an aging society. It offers a more robust justification for sustained public policy commitment.

In short, these projections underline the need for anticipatory public policies that mitigate the socioeconomic risks associated with population aging while guaranteeing intergenerational equity.

One of these risks, directly related to the aforementioned projections on national demographics, aging and low fertility rates, will reduce the proportion of active workers, from 8.3 per older adult in 2020 to 2.5 in 2050 (OECD, 2023b; UN, 2022) (Table 1).

**Table 1. Proportion of Active Workers per Older Adult<sup>2</sup>**

Projected Year	Ratio (Active Workers/Older Adults)
2020	8.3
2050	2.5
2100	1.5

*Source:* Prepared by the author based on OECD (2023b), UN (2022), Rofman & Apella (2021), and Ferrer et al. (2021).

These demographic changes limit the digital inclusion capacity of older adults, who face barriers to accessing and using ICT, increasing intergenerational inequalities.

In particular, the decrease in the active workforce generates pressure on pension and health systems (Ferrer et al., 2021) and limits investment in digital training and the development of technological skills among the older population (García & López, 2020).

In concrete terms, the current situation (prospected to 2020) indicates that with 8.3 active workers for each older adult, the pension and social security system has broad support since each worker contributes to the financing of public services, retirement, and pensions for older adults (within a mixed and/or pay-as-you-go system; not in a totally private system). However, in future prospective scenarios where demographic projections and the observed decline in the proportion of active workers per older adult are maintained, together with a scenario of sustained low fertility and continuous increase in longevity, the projections are both drastic and alarming for maintaining a complete and stable social security system. We thus have:

<sup>2</sup> The figure of 8.3 active workers per older adult in 2020 and the projection of 2.5 for 2050 are derived from demographic and economic models used by international organizations, such as the OECD (2023) and the projections of the UN World Population Prospects (UN, 2022). These values are obtained by dividing the total number of economically active people (total working-age population or labor force: labor force participation rate of the working-age population, adjusted for current and future trends) by the number of older adults projected for each period (generally over 65 years of age, using cohort models that consider fertility, mortality, and migration rates).

i) Projection for 2050 (2.5 workers per older adult): Fewer active workers will support each older adult economically. In practical terms, each worker will be “bearing the burden” of approximately 0.4 older adults (1 divided by 2.5), which represents a significant decrease in the current situation of each worker supporting 0.12 older adults (1 divided by 8.3). This reduction implies that pension and retirement systems will face more significant fiscal pressure since there will be less income from labor contributions to finance benefits.

ii) Projection for 2100 (1.5 workers per older adult): Each active worker would have to bear the burden of approximately 0.67 older adults (1 divided by 1.5) an even more critical situation. The lower proportion of active workers implies that the resources allocated to pensions and retirement, health, and other social services will be reduced, which could lead to cuts in benefits, increases in contributions, and/or the need for deep reforms in the social security system.

The above will have a significant impact on pensions and retirement programs, with a progressive decrease in the proportion of active workers per older adult affecting the sustainability of the pension system. With fewer workers contributing, pension financing becomes more complex, which may result in higher costs for the State, cuts in benefits and/or the need to adopt new financing models. This will lead to the formulation and implementation of public policies adjusted to these new contexts (for example, the creation of policies to encourage the labor participation of older adults, or laws to gradually adjust the retirement age). In short, the gap between the labor force and the older adult population generates increasing pressure on the pension system, affecting the economic security and quality of life of older adults and the population in general.

This reduction in the number of active workers affects the intergenerational economy by reducing the resources available to finance essential public services, which in turn may negatively impact the

State's capacity to implement digital literacy and cybersecurity programs aimed at older adults (Rofman & Apella, 2021). Comparative studies have shown that countries with a larger working population, such as Germany and South Korea, invest more consistently in digital inclusion initiatives for older people, which reduces the usage gap and improves social integration (Pan et al., 2024; European Commission, 2018).

In the Chilean context, the limited capacity to invest in digital training programs for older adults, coupled with economic and cultural barriers, intensifies the digital exclusion of this group. This highlights the need for public policies and private and mixed initiatives, both intergenerational and designed in the medium and long term, that not only strengthen technological infrastructure but also promote continuous training in the use of ICT, thus allowing older adults to fully integrate into the digital economy, participating and positively increasing the demographic bonus (CEPAL, 2021; OECD, 2023b) while also taking into account that new digital and technological gaps may appear in the future (Babu & Mohan, 2022; Chu et al., 2022).

### **Analysis and Results (General Diagnosis): Results Stage 1**

This section goes beyond simply presenting the collected data to offer an initial assessment of the digital divide in Chile, with a particular focus on older adults. The Valparaíso Region is mentioned as a preliminary overview of the situation regarding this thematic axis for a more consolidated future regional analysis. By integrating information from national surveys (Ministerio de Desarrollo Social y Familia, 2022; Criteria Research, 2024) and reports, this analysis not only identifies current disparities in connectivity and digital use but also critically reflects on how these trends are influenced by demographic changes (UN, 2022). The interpretation of data, such as connectivity

rates by age group (see Table 6), is deliberately prospective, aiming to project how the digital competence of younger generations will influence the digital landscape of future older adults, thus reframing the challenges and opportunities for public policy.

The cross-analysis and comparison based on the triangulation of data from national reports resulted in the following:

*Connectivity and Internet Access*

Data from *Hogares Conectados* of 2024 (Fundación País Digital, 2024) and CASEN of 2022 (Ministerio de Desarrollo Social y Familia, 2022) indicate that 93% of households nationwide have internet access (Table 2), although with notable differences according to various dimensions:

Table 2. National Connectivity Indicators

Category	Connectivity (%)
Connected Homes (National)	93%
Homes without connection	7%
Urban areas	91–94.2%
Rural areas	76–83.6%

*Source:* Prepared by the author based on Fundación País Digital (2024), CASEN 2022 (Ministerio de Desarrollo Social y Familia, 2022), IFT (2024).

In addition, disparities have been identified based on: a) income: the digital connectivity gap increases with lower socioeconomic status (Table 3); b) similarly, the lower the educational level, the lower the connectivity (Table 4); c) the connectivity gap, which increases in single-person households and to a lesser extent in generational households - a fact to be taken into consideration, especially in the long term. This indicates that in households where multiple generations live together, there is increased connectivity (Table 5); and d) the older the age, the lower the connectivity, particularly with respect to groups of older people (Table 6).

Table 3. Connectivity according to Income Quintile (National)

Income quintile	Connectivity (%)
Q5	98%
Q4	95%
Q3	92%
Q2	86%
Q1	80%

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022) and Fundación País Digital (2024).

Table 4. Connectivity according to Education Level (National)

Educational level	Connectivity (%)
Incomplete higher technical education or less	99%
Complete secondary education or less	93%
Complete basic education or less	81%

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022) and Fundación País Digital (2024).

Table 5. Connectivity by Household Type (National)

Home typology	Connectivity (%)
Multigenerational homes	96%
Generational homes	82%
Single-person homes	71%

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022) and Fundación País Digital (2024).

Table 6. Connectivity by Age Group (National)

Age group (years)	Connectivity (%)
60–69	93%
70–79	86%
80 or more	79%

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022) and Observatorio del Envejecimiento UC-Confuturo (2024).

Use and Usage Gap in Older Adults

Although 88% of older adults have internet access, only 42% use it regularly, which shows a considerable gap in use. In addition, of those older adults using the internet, an intermediate to beginner level of use is mostly observed (Table 7).

Table 7. Internet Use in Older Adults (National)

Indicator	Percentage (%)
Internet access (adults)	88%
Regular internet use	42%
Intermediate level of use	59%
Beginner level of use	29%
Advanced level of use	12%
Expert level of use	1%

Source: Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022), Observatorio del Envejecimiento UC-Confuturo (2024) and Criteria Research (2024).

Connectivity in the Valparaíso Region

The V Region presents indicators similar to the national level but with some particularities, such as the decreasing gap between the urban and rural areas (Table 8) and less connectivity in households where the head of household is an older adult (Table 9):

Table 8. Connectivity Indicators in the Valparaíso Region

Indicator	Percentage (%)
Total connected homes	93.2%
Urban areas	93.7%
Rural areas	87.9%

Source: Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022) and Fundación País Digital (2024).

**Table 9. Connectivity by Age Group of the Head of Household in Valparaíso**

Age group of the head of household	Connectivity (%)
30–44 years	97.9%
15–29 years	97.5%
45–59 years	96.0%
More than 60 years	86.4%

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022); Fundación País Digital (2024).

### ***Critical Factors and ICT Use in Older Adults***

The analysis indicates that, although there is a high level of connectivity (93% at the national level and 88% in older adults), regular use is much lower (42%), evidencing a gap in digital skills.

Additionally, technological support is highlighted as essential in improving digital literacy. Considering that offspring most often are the ones who accompany older adults, it is imperative to establish scenarios, initiatives, projects, and public policies for the coming decades that are based on single-person or generational households composed solely of older adults (Table 10):

**Table 10. Modalities of Technological Support for Older Adults**

Accompaniment modality	Percentage (%)
Accompaniment of offspring	74
Using internet tutorials	26
Accompaniment of grandchild	26
Accompaniment of friends	18
Accompaniment of the partner/spouse	10
Online workshops	9
In-person workshops	9
Others	5

*Source:* Prepared by the author based on Criteria Survey of 2024.

Likewise, numbers regarding older adults’ employment status indicate that in Chile, currently, a high percentage is pensioned or retired without employment (46%). It is worth noting that this number is equaled when adding together the categories of those that have some type of employment (46%), which indicates a high rate of employability to consider for future scenarios (Table 11). Also, a high percentage of older adults working in an in-person format is observed. However, the hybrid and online formats comprise nearly a quarter of the total (24%), which represents an interesting use of digital technologies in the workplace (Table 12).

Table 11. Employment Situation of Older Adults

Category	Percentage (%)
Retired and pensioned without employment	46
Retired and pensioned with employment	23
Employed, dependent	16
Independently employed	7
Other	7

Source: Prepared by the author based on Criteria Survey of 2024.

Table 12. Working Modality for Older Adults

Modality	Percentage (%)
In-person	76
Hybrid	14
Online	10

Source: Prepared by the author based on Criteria Survey of 2024.

In addition, trends can be observed when it comes to what older adults use and search for regularly on the internet. This can provide key clues when it comes to targeting, considering, and implementing public policies and initiatives that acknowledge these preferences and practices (Table 13):

Table 13. Reason for Internet Use by Older Adults

Activity	Percentage (%)
Search for health information	29
Perform instrumental tasks	29
Learn	22
Communicate (Zoom, Meet, Skype, etc.)	13

*Source:* Prepared by the author based on Ministerio de Desarrollo Social y Familia (2022); Observatorio del Envejecimiento UC-Confuturo (2024).

Lastly, it’s crucial to contextualize the digital divide among older adults by considering the future generations entering this demographic. While contemporary older adults may face significant obstacles due to their limited prior exposure to digital technologies (e.g., Helsper, 2017), today’s young and middle-aged populations are already highly competent users (Subsecretaría de Telecomunicaciones de Chile [SUBTEL], 2024). As these digitally literate cohorts age, the nature of the digital divide is poised to evolve. Rather than being primarily a matter of basic access or initial adoption, future challenges will likely focus on ensuring advanced digital skills, addressing sophisticated cybersecurity threats, and facilitating ongoing adaptation to rapidly evolving technologies such as artificial intelligence, the metaverse, and virtual reality (e.g., Schwab, 2017; UNESCO, 2024). This forward-looking view underscores the need for forward-thinking public policies that anticipate these changes, ensuring sustained digital inclusion across the lifespan.

Public Policies and Digital Inclusion Strategies

The current research proposes a second phase in which to expand the diagnosis focused on a comparative model of local and national public policies with international experiences to explore the topic of public policies and initiatives more robustly. The following section

will briefly mention some strategies and promising practices applied at different levels.

One example is the agreement signed between Chile's Subsecretaría de Telecomunicaciones (SUBTEL) and the Corporación Andina de Fomento (CAF) that has promoted the *Zero Digital Gap Plan* (García Bernal, 2020) to finance infrastructure projects in vulnerable areas through the Telecommunications Development Fund (FDT). Among the highlighted initiatives are the Austral and National Fiber Optic projects, which extend connectivity in extreme and rural regions; the ChileGob WiFi Zones, which offer free internet access in areas at high risk of digital exclusion; and the Imagina Chile Digital Agenda 2013-2020 together with the Net Neutrality Law (2010), which guarantee non-discriminatory access and promote digital inclusion (Fundación País Digital, 2024; García Bernal, 2020). These actions are part of a public-private model that seeks to channel investments toward areas of low commercial profitability to close the digital divide.

At the same time, comparing these public policies with international examples reveals that comprehensive programs have been implemented in countries such as Estonia, Canada, and Singapore that combine intergenerational digital training, satellite technologies, and the promotion of cybersecurity. These models have achieved significant results - including 80% of older adults trained in Estonia and 98% coverage in remote areas in Canada - which offer important lessons for Chile regarding investment targeting and inclusion strategies (Deloitte, 2023; CEPAL, 2021).

This set of policies and initiatives demonstrates that, at the international level, integrating digital literacy programs and infrastructure subsidies can significantly reduce digital gaps (Table 14). In Chile, the FDT experience and the "Zero Digital Gap Plan" offer a model to follow. However, the strategy needs to be expanded to include intergenerational approaches, adapted to the particularities of regions such

as Valparaíso, and formulated with a view to long-term challenges and scenarios.

Table 14. Comparison of Public Policies in Chile vs. International Good Practices

Country	Program/Policy	Key Result
Chile	Telecommunications Development Fund	83.6% coverage in rural areas
Estonia	Digital Skills for Seniors	80% of older adults trained (2023)
Canada	Connect to Innovate	98% coverage in remote areas
Singapore	Smart Nation Initiatives	High level of digital integration in older adults

*Source:* Prepared by the author based on figures and results presented in reports by Fundación País Digital (2024), García Bernal (2020), Deloitte (2023), CEPAL (2021), and international references available in official sources.

Insights from international best practices are particularly valuable for shaping future policy in Chile. Estonia’s Digital Skills for Seniors program, which achieved an impressive 80% training rate among its older adult population, highlights the profound impact of well-structured intergenerational mentoring initiatives (OECD, 2023a). Canada’s Connect to Innovate program, which provides 98% coverage in remote regions through a strategic combination of satellite and fiber optic technologies, offers a compelling model for expanding digital infrastructure across complex geographies (Innovation, Science and Economic Development Canada, 2023). Similarly, Singapore’s comprehensive Smart Nation initiatives underscore the crucial importance of deep digital integration, coupled with sophisticated, age-appropriate cybersecurity policies (Ministry of Digital Development and Information, 2024). These successful international examples collectively demonstrate that the synergy of targeted digital literacy programs and strategic infrastructure investments can significantly reduce digital divides, providing a solid framework for Chile’s current efforts. This is especially true if comprehensive regional assessments are conducted

in Chile, comprehensively assessing their specificities, differences and similarities, challenges, and opportunities.

These comparisons show that, at an international level, comprehensive digital literacy programs have managed to significantly reduce digital gaps, which is a model to consider in Chile, taking into consideration the viability, contexts, and problems specific to each locality, region, and social group.

### Conclusions and Next Steps

Despite Chile's admirable progress in digital infrastructure, which ranks it favorably in global rankings of connectivity and quality (SUBTEL, 2024), this cross-reference analysis reveals persistent digital divides that disproportionately affect older adults. These disparities stem primarily from insufficient digital literacy and limited effective access to Information and Communication Technologies (ICTs), compounded by a lack of tailored and integrated public policies. These findings underscore how the digital divide perpetuates social exclusion and negatively impacts the intergenerational economy (Rofman & Apella, 2021), highlighting the urgent need for a more comprehensive and forward-looking approach to digital inclusion.

To effectively mitigate these complex challenges, moving beyond general prescriptions and toward implementing specific, evidence-based public policies complemented by robust inter-institutional and interdisciplinary cooperation is imperative. These initiatives must be underpinned by a transparent medium- and long-term outlook, actively seeking to generate verifiable data and innovative insights to inform policymakers and project stakeholders. Central to this approach is the implementation of intergenerational digital literacy programs, particularly those focused on effectively using and appropriating technologies. Concurrently, cybersecurity training and broader digital

skills development must be significantly strengthened to ensure robust digital inclusion amidst accelerated aging and evolving household typologies, thereby projecting strategic support modalities for future decades (Deloitte, 2023; CEPAL, 2021). Crucially, policy development must simultaneously anticipate and adapt to the ongoing evolution of the digital landscape, including transformative advances in artificial intelligence (UNESCO, 2024) and the pervasive role of mobile devices, to ensure sustained relevance and effectiveness (World Economic Forum, 2023).

Furthermore, a crucial area requiring further attention is comprehensive cybersecurity training and strengthening digital identity frameworks specifically designed for the aging population. Older adults increasingly rely on digital platforms for essential services such as banking, healthcare, and government transactions, and their vulnerability to digital fraud, cyberattacks, and misinformation intensifies (e.g. Organización Internacional de Policía Criminal [INTERPOL], 2023). Drawing on lessons learned from international experiences, such as Singapore's proactive efforts to combat cyber scams (Ministry of Digital Development and Information, 2024), Chile must strategically implement comprehensive cybersecurity policies and educational programs. This also requires a detailed prospective analysis and the development of secure, accessible, and reliable digital identity solutions for this demographic, fostering trust and enabling their full and safe participation in the digital economy, given, for example, the expected positive impact of 13% on Chilean GDP by 2030. (e.g., Comisión Nacional de Evaluación y Productividad [CNEP], 2024; OECD, 2024).

Finally, for future research, cross-analysis at the macroregional level in Chile (and within the same regions of the country) is recommended on the digital, sociodemographic, and economic situation and their specific characteristics. This will allow for formulating and

planning public policies and initiatives based on consolidated evidence and information. In this way, diagnostics are suggested to be generated at the local, regional, and macroregional levels to enrich a detailed analysis of the country's situation in Chile.

As for the future stages of this research project, a multi-phase action plan is proposed with respective delivery of results:

Phase 2: Obtaining additional results on public policies and innovative initiatives at the regional, national, and international levels.

Phase 3: Collection of qualitative data through interviews with older people and teaching and research staff in Region V. More specifically, data will be garnered from the “Universidad del Adulto Mayor” (UDAM program) of the Universidad Viña del Mar to analyze its interdisciplinary work and good practices.

Phase 4: Cross-reference quantitative and qualitative data to propose an analysis complementary to this initial assessment.

These actions will contribute to proposing a replicable framework for evidence-based public policies, stimulate academic debate on sustainability and digital inclusion in regional forums, and promote interinstitutional and interdisciplinary collaboration, generating strategic input for decision-makers and the productive sector (Deloitte, 2023; CEPAL, 2021).

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