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MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 25553

Ageing Societies — Framework for smart multigenerational neighbourhoods — Requirements and recommendations

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 314 Ageing Societies, curated by Professor Ian Spero, Founder of the Agile Ageing Alliance (AAA).

Any feedback or questions on this document shall be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

In 1929, Clarence A. Perry's Neighbourhood Unit Concept reimagined urban living for an era focused on walkability, local services, and community connection. Nearly a century later, new challenges are reshaping how we live: rapidly ageing populations, escalating care needs, growing social isolation, unprecedented technological change, and mounting environmental pressures.

The current systems of housing, healthcare, and community support are increasingly fragmented, leaving vulnerable individuals isolated and underserved. But this status quo can—and must—change.

This document introduces a transformative blueprint for “Smart Multigenerational Neighbourhoods”: inclusive, tech-enabled environments explicitly designed to foster health, wellbeing, and sustainability for people of all ages and abilities.

Initiated by the European Commission in 2015, with support from the EU's Horizon 2020 programme, this framework builds on a decade of international collaboration across policy, practice, industry, community, and research. It leverages significant advancements in digital technology, AI, and ethical service innovation—now globally accessible yet consistently underutilised—to deliver trusted, integrated care directly into homes and communities.

In practice, this means older adults won't be marginalised or forced into institutional care prematurely. Instead, comprehensive support and monitoring from doctors, nurses, specialists, and informal carers is coordinated seamlessly, proactively, and digitally—keeping individuals healthy, connected, and cared-for at home, significantly reducing hospitalisation, and ensuring continuous, dignified, and inclusive care.

At its core, this document provides:

- a structured pathway from isolated pilots to scalable, adaptable solutions;
- a model for neighbourhoods that are inclusive and enabling (supporting autonomy and social participation), resilient and future-ready (adaptable to technological and demographic change), and sustainable and equitable (reducing inequality and building collective responsibility).

Fundamentally, it articulates a vision for neighbourhoods where homes actively learn, neighbourhoods genuinely care, and environments continually evolve—anticipating changing needs, enabling independence, and fostering belonging across generations.

Grounded in global evidence and designed for diverse contexts, this document empowers stakeholders—government, industry, civil society, and communities—to co-create smart, multigenerational neighbourhoods that deliver lasting public benefit: embedding care, purpose, and dignity deeply into everyday life.

In practice, this means older adults won't be marginalised or forced into institutional care prematurely. Instead, comprehensive support and monitoring from doctors, nurses, specialists, and informal carers is coordinated seamlessly, proactively, and digitally—keeping individuals healthy, connected, and cared-for at home, significantly reducing hospitalisation, and ensuring continuous, dignified, and inclusive care.

Prepared by Professor Ian Spero, Convenor, ISO 25553: Smart Multigenerational Neighbourhoods Working Group 7.

0.1 Purpose and scope of this framework

Ensuring that communities are inclusive, adaptable, and responsive to demographic change requires a coordinated approach across housing, health, technology, and urban planning. While significant expertise exists across these fields, it is often fragmented, applied inconsistently, or siloed by sector.

This framework brings together those strands into a cohesive approach for the planning, design, and delivery of smart multigenerational neighbourhoods. It provides structure and clarity for stakeholders across government, industry, and civil society—supporting integrated action that reflects both global sustainability goals and local priorities.

Rather than prescribing a single model, the framework offers guiding principles and flexible parameters that can be adapted to different social, economic, and geographic contexts. Its aim is to help create environments that are inclusive by design, digitally enabled, and resilient to demographic and environmental change.

By establishing a shared reference point, this document supports more consistent planning, implementation, and evaluation across sectors and jurisdictions. It offers practical guidance to those involved in shaping the future of community living—enabling neighbourhoods that are more connected, equitable, and future-ready. These neighbourhoods are designed to deliver clear social, economic, and environmental benefits—enhancing quality of life, supporting sustainable development, and strengthening resilience across generations.

0.2 A flexible approach for global contexts

Smart multigenerational neighbourhoods can take many forms. Their success depends not on rigid templates, but on how well they respond to local needs, assets, and aspirations. This framework has been developed to support diverse applications—across urban-rural settings, different governance models, and varying levels of economic and technological maturity.

The approach aligns with international agendas such as the United Nations' New Urban Agenda and the World Health Organization's Housing and Health Guidelines. It supports inclusive, age-responsive, and climate-aware development while offering a practical structure for implementation at neighbourhood scale.

Flexibility is central to the framework. It is intended to be used in high-, middle-, and low-income contexts, with adaptability built in to reflect different starting points. Whether applied in long-established communities or new developments, the goal is the same: to create places where people of all ages and abilities can participate fully in community life, with systems that evolve as their needs change.

0.3 Key principles

This framework is grounded in the belief that communities should be designed to support people of all ages and abilities—ensuring that neighbourhoods are inclusive, adaptable, and resilient by default. The following principles provide the foundation for planning and delivering smart multigenerational neighbourhoods. They are not intended as prescriptive rules but as guiding values that shape the structure and intent of this document.

- Design for life: enable people to remain in their communities throughout different life stages, regardless of changes in health, mobility, or social circumstances.
- Adaptive housing: promote accessible and adaptable housing solutions that evolve with the needs of individuals and families over time.
- Social inclusivity and diversity: encourage environments that are accessible across income levels, geographies, and cultural contexts—ensuring equitable opportunities for participation.
- Holistic health focus: address the full spectrum of health, including physical, mental, social, and environmental wellbeing, through integrated planning and service provision.
- Digital integration and inclusion: embed interoperable digital technologies that support health, care, and connectivity—while ensuring equitable access to digital tools and services.
- Resource resilience and self-sufficiency: support decentralised energy systems, efficient resource use, and cost-effective operations to reduce environmental impact and increase neighbourhood-level independence.
- Community empowerment: enable residents to participate in decision-making, governance, and co-creation processes to shape their living environments.
- Scalability and adaptability: provide a flexible framework that can be applied in different regional, economic, and cultural settings.
- Economic viability and investment: support public-private partnerships, impact investments, and community-driven funding to ensure long-term sustainability.

- Knowledge sharing and continuous improvement: promote collaboration, shared learning, and ongoing evaluation to enhance the effectiveness of multigenerational neighbourhoods.
- Futureproofing: design infrastructure that is adaptable to emerging technologies, environmental shifts, and demographic change.
- Sustainability: integrate resource-efficient, climate-resilient practices aligned with international sustainability goals.
- Ethical standards and citizen rights protection: uphold ethical principles in urban planning, technology integration, and community governance—protecting individual rights and dignity.

A balanced approach that combines strategic planning with community-led initiatives helps ensure that smart multigenerational neighbourhoods remain inclusive, resilient, and responsive over time. This document supports both top-down and bottom-up strategies, offering guidance for policymakers while enabling communities to actively shape their environments.

0.4 How to use this document: requirements and recommendations

This document includes both requirements and recommendations to support the development of smart multigenerational neighbourhoods. Requirements are indicated by the use of “shall” and are intended to be applied consistently wherever the framework is adopted. These define essential features or actions needed to meet the objectives of the framework.

Recommendations are indicated by the use of “should” and offer flexible guidance that can be adapted to local context, resource availability, or stage of implementation. While not mandatory, they reflect established good practice and are informed by expert insight, research evidence, and existing standards.

The document draws on international frameworks including the World Health Organization’s Housing and Health Guidelines and the United Nations’ New Urban Agenda. It is designed to support practical application across a wide range of settings—whether planning new developments, retrofitting existing neighbourhoods, or guiding policy and investment decisions.

By clearly distinguishing between requirements and recommendations, the framework enables a consistent yet adaptable approach. This supports local decision-making while maintaining alignment with shared principles and objectives.

0.5 Target users of this document

This document is intended for a wide range of stakeholders involved in shaping, delivering, and sustaining multigenerational neighbourhoods. Its value lies in fostering collaboration across sectors, ensuring that individual efforts contribute to the creation of environments that are more than the sum of their parts.

The following groups represent some of the many users who may benefit from applying the framework:

- Public sector: local authorities, social housing providers, health and social care providers, and government bodies responsible for planning, implementing, and sustaining community support frameworks.
- Building industry and designers: developers, architects, urban planners, accessibility consultants, landscape architects, and contractors responsible for creating environments that are adaptable, inclusive, and responsive to diverse community needs.
- Industry and research: technology developers, digital health innovators, research institutions, universities, and professional bodies working on solutions that enhance accessibility, mobility, and independent living.
- Civic society organisations: non-governmental organisations, social enterprises, and community advocacy groups engaged in promoting social inclusion and community-led initiatives.
- Funders and investors: philanthropic foundations, public funding agencies, and impact investors supporting initiatives that advance social value, inclusion, and community resilience.

This document does not prescribe a single approach, as the needs and priorities of communities will differ. Instead, it provides a framework that can be adapted to different settings, ensuring that those involved—whether as policymakers, practitioners, or residents—can contribute to the creation of more inclusive, resilient, and connected neighbourhoods.

0.6 Primary beneficiaries

The principles outlined in this document support the creation of environments that enhance quality of life, accessibility, and resilience for a wide range of beneficiaries. By providing a shared reference point, the framework enables a common approach to planning and decision-making across sectors and geographies. These beneficiaries include:

- Individuals: older adults, people with disabilities, those with chronic health conditions, children and young people, and their families and carers—benefiting from improved accessibility, greater mobility, and opportunities for meaningful participation in community life.
- Communities: neighbourhoods and wider society—benefiting from stronger social ties, more efficient use of shared resources, and greater adaptability to demographic and environmental change.
- Service providers: while also key users of this document, healthcare professionals, social care workers, carers, and community organisations benefit from environments that improve accessibility and support more integrated, person-centred care.
- Governments and policymakers: public sector agencies responsible for urban planning, housing, health, and care—benefiting from a consistent, coordinated approach to designing built environments that reflect demographic realities and long-term societal needs.
- Businesses and industry innovators: including SMEs, startups, and large enterprises developing solutions for multigenerational neighbourhoods—benefiting from a structured foundation to test, refine, and scale innovation.
- Insurers and risk assessors: organisations involved in evaluating infrastructure resilience and managing long-term risk—benefiting from neighbourhoods that are more adaptable, preventative, and climate-resilient by design.
- Researchers and academia: universities, think tanks, and research institutions—benefiting from a shared framework to study, compare, and evaluate smart multigenerational neighbourhoods across regions and disciplines.

This document does not prescribe specific processes but offers a flexible foundation to design or adapt communities in ways that support long-term sustainability, inclusion, and wellbeing for people of all ages and abilities.

0.7 Summary: standardising the art of the possible

This document sets a new benchmark—turning radical possibility into structured reality. It offers a practical framework for neighbourhoods where digital infrastructure, inclusive design, and intergenerational living are not separate agendas, but fully integrated systems for long-term public good.

Smart multigenerational neighbourhoods are where data, design, and dignity converge. Homes that learn. Neighbourhoods that care. Systems that support human need in real time—enabling communities to live well together, across ages, stages, and circumstances. These are not speculative futures. They are real-world solutions, built to scale, and built to last.

At its core, this is a framework for investing in lifelong wellbeing. It creates the conditions for a more balanced society—where younger generations grow up with connection, where families are supported rather than stretched, and where older people remain active, valued, and visible. It strengthens communities while reducing long-term social, economic, and environmental costs.

This approach also sets a new standard for digital ethics and accountability. It shows how artificial intelligence and big data can serve society—securely, transparently, and with clear safeguards—when guided by inclusive design and public values.

This is not a blueprint for tomorrow. It is an invitation to build better today—across generations, across systems, and across the world.

Ageing Societies — Framework for smart multigenerational neighbourhoods — Requirements and recommendations

1 Scope

This document supports the development of smart multigenerational neighbourhoods (SMNs) – vibrant, human-centric communities where people of all ages and abilities can live, work, and play.

SMNs balance individual autonomy with shared responsibility, integrating advanced digital infrastructure, intelligent connectivity, and collaborative governance to transform essential services, strengthen community resilience and drive inclusive growth.

This framework enables participating neighbourhoods to evolve with changing social, economic, and environmental conditions – ensuring long-term sustainability and quality of life.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC/ITU Guide 71:2014, *CEN/CENELEC Guide 6:2014, Guide for addressing accessibility in standards*

ISO 9241-210:2019, *Ergonomics of human-system interaction — Part 210: Human-centred design for interactive systems*

ISO/IEEE 11073-10471:2024, *Health informatics — Device interoperability — Part 10471: Personal health device communication — Device specialization — Independent living activity hub*

ISO 12913-1:2014, *Acoustics — Soundscape — Part 1: Definition and conceptual framework*

ISO 14001:2015, *Environmental management systems — Requirements with guidance for use*

ISO 15928:2021, *Housing - Description of Performance, Accessibility and Usability*

EN 17161:2019, *Design for All - Accessibility following a Design for All approach in products, goods, and services - Extending the range of users*

ISO 21542:2021, *Building construction — Accessibility and usability of the built environment*

ISO 21929-1:2011, *Sustainability in building construction — Sustainability indicators — Part 1: Framework for the development of indicators and a core set of indicators for buildings*

ISO 22458:2022, *Consumer vulnerability — Requirements and guidelines for the design and delivery of inclusive service*

ISO/IEC 27001:2022, *Information security, cybersecurity and privacy protection — Information security management systems — Requirements*

ISO 31700-1:2023, *Consumer protection — Privacy by design for consumer goods and services — Part 1: High-level requirements*

ISO/TR 31700-2:2023, *Consumer protection — Privacy by design for consumer goods and services — Part 2: Use cases*

ISO 37101:2016, *Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use*

ISO 37105:2019, *Sustainable cities and communities — Descriptive framework for cities and communities*

ISO 37120:2018, *Sustainable cities and communities — Indicators for city services and quality of life*

ISO 37151:2024, *Smart community infrastructures — Principles and requirements for performance metrics*

ISO 44001:2017, *Collaborative business relationship management systems — Requirements and framework*

BS 7908:2013, *Design of Traffic Calming Measures*

BS 8300-1:2018, *Design of an accessible and inclusive built environment - Part 1: External environment*

BS 8300-2:2018, *Design of an accessible and inclusive built environment - Part 2: Buildings*

BSI PAS 6463:2022, *BSI - Design for the mind – Neurodiversity and the built environment – Guide*

EN 17210:2021, *Accessibility and Usability of the Built Environment. Functional Requirements*

WHO *International Classification of Functioning, Disability and Health (ICF)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 multigenerational

relating to or involving more than one generation, with approaches that promote inclusivity, accessibility, and active participation for people of all ages and abilities

3.2 neighbourhood

loosely defined geographical area where residents share proximity and common circumstances

Note 1 to entry: A neighbourhood often encompasses a sense of *community* (3.22) and typically contains key local facilities such as schools, healthcare facilities, shops, and public spaces, with boundaries that are locally and personally defined.

Note 2 to entry: Neighbourhoods are spatial units where face-to-face social interactions occur, providing opportunities for residents to realize common values, socialise, and foster a sense of community.

3.3 age-inclusive age-friendly

ensuring people of all ages are treated fairly, equally and included in all aspects of the *neighbourhood* (3.2)

3.4 accessibility accessible

the extent to which products, systems, services, buildings, facilities, and the built environment can be used by people with a wide range of needs, characteristics, and capabilities to achieve their goals in specific contexts of use

Note 1 to entry: Context of use includes direct use or use supported by assistive technologies.

[SOURCE: ISO 25550:2021, 3.2]

3.5

assistive technology

technology or equipment, including aids for daily living, hardware, software, or services, designed to increase, maintain, or improve the functional capabilities, independence, and safety of individuals, particularly those with disabilities or age-related impairments

Note 1 to entry: Assistive technology can include professional services for assessment, recommendation, and provision.

[SOURCE: ISO/IEC/ITU Guide 71:2014 / CEN/CENELEC Guide 71:2014, 2.16, modified — “and safety” has been added, Note 1 to entry has been removed, Note 2 to entry has become Note 1 to entry.]

3.6

smart technology

technology that incorporates automation, artificial intelligence, digital connectivity, or advanced sensors to enhance efficiency, adaptability, and user experience across various applications, including health, home, and mobility solutions

Note 1 to entry: Smart technology may include digital systems such as telehealth, telecare, and home automation, designed to support independent living and improve service delivery.

3.7

independent living

living independently

living in mainstream housing or a grouped community facility without requiring continuous help from another person, while maintaining a degree of autonomy and control over one's activities

Note 1 to entry: Independent living refers to housing and community arrangements that maximise independence and autonomy.

[SOURCE: WHO Ageing and Health Technical Report, Vol.5 and U.S. National Library of Medicine]

3.8

care

provision of what is necessary for health, well-being, personal care, and social welfare, including both formal and informal care

Note 1 to entry: Care includes the maintenance and protection of individuals to enhance their quality of life.

[SOURCE: ISO 25552:2022, 3.14 modified adding in “including both formal and informal care and added Note 1 to entry]

3.9

smart community infrastructure

a geographical or virtual community infrastructure, or both, with enhanced technological performance that is designed, operated and maintained to contribute to sustainable development and resilience of the *community* ([3.22](#))

Note 1 to entry: It is the infrastructure that is considered to be “smart” in this document, and not the community.

Note 2 to entry: Sustainable development tends to require community infrastructures that meet multiple, often contradictory, needs at the same time.

Note 3 to entry: Information and communication technologies (ICT) is an enabler but not a precondition for achieving smart community infrastructures.

[SOURCE: ISO 37100:2016, 3.6.2]

3.10

interoperability

ability of systems to provide services to and accept services from other systems and to use the services so exchanged to enable them to operate cost-effectively and care-efficiently together

[SOURCE: ISO 21007-1:2005, 2.30]

3.11

universal design

design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design

Note 1 to entry: Universal design does not exclude assistive devices for particular groups or persons with disabilities where this is needed.

Note 2 to entry: Terms such as universal design, accessible design, design for all, barrier-free design, inclusive design and transgenerational design are often used interchangeably with the same meaning.

Note 3 to entry: This document encourages the integration of universal and inclusive design principles to ensure that environments, products, and services are not only broadly accessible but also adaptable to diverse and evolving user needs through participatory and context-sensitive approaches.

3.12

inclusive design

design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible, without the need for special adaptation or specialised design

Note 1 to entry: While inclusive design shares principles with universal design, this document applies the term to emphasise adaptability and iterative co-creation with users, particularly in diverse settings and demographic contexts.

Note 2 to entry: The approach recommended in this document integrates both inclusive and universal design principles to ensure that environments, services, and technologies are broadly accessible, while also adaptable to the specific needs of people of all ages and abilities.

[SOURCE: Adapted from ISO/IEC/ITU Guide 71:2014 / CEN/CENELEC Guide 71:2014]

3.13

age-friendly communities

(AFC)

neighbourhoods (3.2) designed to be adaptable, accessible and robust in the face of various challenges and changes, which integrate flexible infrastructure, innovative technologies, and inclusive social practices to respond swiftly to evolving environmental, economic and social conditions

Note 1 to entry: AFC fosters a culture of continuous learning, collaboration, and proactive problem-solving.

Note 2 to entry: AFC aims to enhance the quality of life, ensure sustainability, and support the wellbeing of all residents across generations and abilities.

3.14

holistic neighbourhood development

(HND)

comprehensive, people-centred approach to *neighbourhood* (3.2) planning that integrates social, structural, and economic interventions to foster *community* (3.24) wellbeing

Note 1 to entry: HND prioritises local residents' empowerment and aims to overcome fragmented approaches by encouraging cohesive holistic development.

3.15

stateless edge computer

computing device that operates without retaining user session data, designed to function autonomously with minimal maintenance and automatic rebooting to ensure continuous operation

Note 1 to entry: Stateless edge computing enhances reliability by reducing system failures and minimising dependency on centralised data storage.

3.16

network overlays

virtual networking structures that operate on top of existing physical networks to enhance security, scalability, and data transmission efficiency

Note 1 to entry: Network overlays enable secure and efficient communication between smart devices, supporting advanced digital infrastructure in smart environments.

3.17

smart multigenerational neighbourhood (SMN)

a human-centric *community* ([3.24](#)) designed to support people of all ages and abilities. It integrates adaptable housing, interoperable digital infrastructure, and social innovation to foster independence, intergenerational engagement, and long-term resilience

3.18

intellectual property (IP)

creations of the mind, such as inventions, designs, and artistic works, that are protected by law and can be used to attract investment

3.19

open innovation

the practice of sharing ideas, research, and development to accelerate innovation and foster collaboration between various societal partners

3.20

data commercialisation

process of leveraging personal or organizational data to create economic value or business opportunities

3.21

public-private partnerships (PPP)

collaborative agreements between government entities and private sector companies to fund, build, and operate projects or services

3.22

social enterprises

businesses that prioritise social or environmental goals alongside profit, reinvesting earnings to benefit the *community* ([3.24](#))

3.23

ageing society

demographics of an older population that shifts overtime

[SOURCE: ISO 25550:2021, 3.1]

3.24

community

place or group of people with an arrangement of responsibilities, activities, and relationships

Note 1 to entry: A community can be a physical location such as a city, town, neighbourhood, village, or rural area, or it can consist of groups of people with shared interests or characteristics, such as professional groups, religious organizations, and businesses.

Note 2 to entry: In many, but not all, contexts, a community has a defined geographical boundary.

Note 3 to entry: The following are also considered actors in the community:

- authorities having jurisdiction within the community;
- organizations, congregations, and community groups;
- individuals, carers, and families;
- persons of interest in education, research, and development;

planners and providers of products, services, the built environment, and the community infrastructures.

[SOURCE: ISO 25552:2022, 3.3]

3.25

diversity

characteristics of differences and similarities between people

Note 1 to entry: Diversity includes factors that influence the identities and perspectives that people bring when interacting at work.

Note 2 to entry: Diversity can foster learning from others who are not the same, about dignity, respect and inclusiveness for everyone, and about creating workplace environments and practices that foster learning from others to gain advantages of diverse perspectives.

[SOURCE: ISO 30400:2016, 9.1; ISO 25550:2022, 3.10]

3.26

family

combination of two or more persons who are bound together over time by ties of mutual consent, birth, adoption or placement and who, together, assume responsibilities for various roles and functions

Note 1 to entry: This can include “chosen families,” such as strong friendships and communities where unrelated persons provide *care* (3.8) normally provided by nuclear family members.

[SOURCE: ISO 25552:2022, 3.22]

3.27

quality of life

product of the balance between social, spiritual, physical, and mental health, economic and environmental conditions that affect human and social development

Note 1 to entry: It is a broad-ranging concept, incorporating a person's physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to salient features in the environment.

[SOURCE: ISO 25552:2022, 3.11]

3.28

organization

person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

[SOURCE: ISO 14001:2015, 3.1.4, *modified — Note 1 to entry has been removed*]

3.29

societal partners

individuals or organizations that can affect, be affected by, or perceive themselves as affected by a decision or activity

Note 1 to entry: Examples are customers, owners, employees, suppliers, banks, unions, work councils, partners, broader society—including academia, activists, the media, and competitive or pressure groups.

3.30**life course**

the sequence of life stages and experiences an individual goes through, from childhood to old age, shaped by social, economic, and environmental factors

3.31**digital plumbing**

the underlying digital infrastructure and systems that connect and support smart technologies within a *community* (3.24), enabling seamless data flow, connectivity, and integrated services

3.32**cognitive environments**

digital infrastructure features in the built and natural environment that support how residents access information, navigate their surroundings, and engage with community resources

3.33**ageing in place**

the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level

[SOURCE: Centers for Disease Control (2017). 'Healthy Aging: Promoting Well-being in Older Adults' <https://www.cdc.gov/grand-rounds/pp/2017/20170919-senior-aging.html> (updated October 2018).]

3.34**multigenerational home**

a residence designed to accommodate two or more generations, featuring adaptable spaces that support accessibility, independence, and social interaction for all ages and abilities

Note 1 to entry: These homes are designed to balance privacy with opportunities for shared living. They provide flexible living areas that can be adapted over time, accommodating the evolving needs of different generations while ensuring accessibility for all mobility levels.

3.35**multigenerational neighbourhood****multigenerational community**

a residential environment where people of all ages are *living independently* (3.7) in their own homes, supported by shared amenities and spaces

Note 1 to entry: A variety of housing types creates a lifetime *community* (3.24), allowing for local movement through different life stages. Sociable design encourages interactions, reduces isolation for those living alone, and fosters a connected community.

3.36**multi-stakeholder collaboration models**

a model that brings together government, business, academia, civil society, and media to drive innovation, knowledge-sharing, and shared responsibility in community development

Note 1 to entry: Multi-stakeholder collaboration can take various forms, depending on the context and objectives of the initiative. The Penta Helix model, which includes government, business, academia, civil society, and media, is particularly relevant for smart multigenerational neighbourhoods as it fosters co-creation, ensures diverse expertise, and enhances long-term sustainability. Unlike narrower models, such as the Triple Helix (government, academia, and business), which focuses on research-driven innovation, or the Quadruple Helix, which integrates civil society, the Penta Helix explicitly incorporates media as a key driver for public engagement, policy influence, and awareness. This expanded framework strengthens the impact of collaborative efforts by promoting transparency, social innovation, and cross-sector commitment to inclusive and resilient communities.

3.37**virtual ward**

an evolving, technologically enabled approach that allows residents to receive medical care at home using assistive technologies

3.4 List of abbreviated terms

ADHD	attention deficit hyperactivity disorder
AFC	age-friendly communities
AI	artificial intelligence
APIs	application programming interfaces
DSCRs	digital social care records
GP	general practitioner
HND	holistic neighbourhood development
ID	Inclusive Design
IP	intellectual property
PoE	power over ethernet
PPP	public-private partnerships
PwD	persons with disabilities
SDGs	Sustainable Development Goals
SMNs	smart multigenerational neighbourhoods
SUS	system usability scale
TAM	technology acceptance model
UD	Universal Design
UNEP	United Nations Environment Programme
UX	user experience
WAPs	wireless access points
WHO	World Health Organization

4 Development of a smart multigenerational neighbourhood

4.1 General

The development of a smart multigenerational neighbourhood involves creating environments that foster inclusivity, adaptability, resilience, and sustainability for people of all ages and abilities. This approach integrates multiple strategies to enhance human wellbeing, social participation, and quality of life. It focuses on creating equitable, interconnected spaces that encourage positive intergenerational relationships and active involvement for all residents.

This document emphasises the thoughtful integration of various domains, including the built environment, digital infrastructure, health and care services, and community engagement. This human-centric approach ensures that environments and technologies are accessible, adaptable, and engaging for everyone, fostering social cohesion and active participation across all age groups and abilities. Dementia-inclusive design also plays a significant role, addressing cognitive impairments and incorporating neurodiversity considerations within the built environment.

By prioritising multigenerational active involvement, this document provides guidance on designing key spaces, services, and systems that facilitate meaningful interactions across generations. The aim is to

develop neighbourhoods that are adaptable, supportive, sustainable, and conducive to the wellbeing of all residents, ensuring that these environments are prepared to meet evolving needs through an integrated and inclusive approach.

4.2 Diversity of human characteristics and functions to be considered within the neighbourhood

Supporting quality of life, autonomy, physical activity, and social participation for diverse populations is central to smart multigenerational neighbourhoods. Therefore, any design shall consider diverse human characteristics and functions, including physical, sensory, mental/cognitive impairments, neurodiversity, and health conditions across all age groups and abilities.

While this document cannot detail all aspects of human diversity, the following characteristics and functions shall be considered as part of an SMN approach:

- Sensory: includes eyesight, hearing, touch, taste, and smell. These functions impact how people navigate and use the built environment, facilities, and receive information.
- Physical: involves movement and interaction with spaces and objects, encompassing body size, balance, coordination, strength, and endurance.
- Cognitive: relates to understanding, integrating, and processing information, including intellect, perception, memory, learning, reasoning, and decision-making. Cognitive functions can be impaired by neurological conditions such as Alzheimer's disease and other forms of dementia.
- Neurodiversity: describes the variation in neurocognitive profiles across the population, including people with learning disabilities, autistic individuals, ADHD, dyslexia, dyspraxia, or other conditions.
- Gender-neutral design: incorporate gender-neutral facilities, such as toilets, in line with individual city or nation's prevailing legal framework.
- Age-related factors: affect all functions mentioned above and change throughout the life course, from underdeveloped functions in infants to declining sensory and physical abilities or end-of-life care in older adults, along with age-related illnesses or comorbidities.
- Faith and spiritual sensitivity: recognize the importance of faith, spirituality, and cultural identity in shaping individuals' experiences. Environments shall be designed to respect and accommodate diverse spiritual practices and cultural needs, ensuring spaces for quiet reflection, worship, or community gatherings that are inclusive of different beliefs and practices. Specific emphasis shall be placed on understanding the needs of indigenous peoples, acknowledging their unique spiritual connection to the land, cultural traditions, and collective wellbeing.

Note For more information and guidance on faith and spiritual sensitivity, see ISO 25552:2022 *Ageing societies — Framework for dementia-inclusive communities* and ISO 25551:2021 *Ageing societies — General requirements and guidelines for carer-inclusive organizations*.

- Psychosocial factors: recognize that mental wellbeing, stress, and social relationships play a significant role in how individuals experience their environments. Factors such as social anxiety, trauma, or chronic stress may influence how a person interacts with spaces and communities.

A multigenerational approach shall fully consider this diversity to support the wide range of individuals living, visiting, learning, playing, or working in the neighbourhood.

Note For further details on human characteristics and functions, refer to EN 17161:2019 - Design for All, ThWHOInternational Classification of Functioning, Disability and Health (ICF), ISO 21542:2021, ISO/IEC/ITU Guide 71:2014/CEN/CENELEC Guide 6:2014, and BSI PAS 6463:2022.

4.3 Core elements of a thriving and resilient smart multigenerational neighbourhood

The success of smart multigenerational neighbourhoods depends on the seamless integration of diverse spaces, services, and infrastructure, structured under the following five core elements:

- Integrated urban, suburban, or rural neighbourhood development, planning and placemaking: Foster adaptability, inclusivity, and resilience by taking an integrated approach to neighbourhood development—whether in urban, suburban, or rural settings. The goal is to create cohesive environments that meet the needs of all residents, ensuring equity, participation, and sustainability in planning and placemaking efforts.
- Digital infrastructure and responsible use of technology: thoughtfully integrate digital tools and infrastructure to enhance accessibility, connectivity, and quality of life. The focus is on promoting digital inclusion, ensuring all residents can benefit from technology while safeguarding privacy and ethical use of digital solutions.
- Health, wellbeing, and care integration: embed health, wellbeing, and care into the fabric of the community, bridging the gap between home-based and institutional care. This approach focuses on proactive, preventative, and community-led health initiatives, ensuring holistic support for all residents.
- Public space, transport, and mobility: ensure public spaces, transportation systems, and mobility options are accessible, safe, and inclusive for everyone at all stages of life. Design should facilitate seamless movement, promote active travel, and incorporate sustainable solutions, future-proofing neighbourhoods for evolving needs.
- Community engagement and intergenerational empowerment: Emphasise active community engagement, economic empowerment, and opportunities for intergenerational learning. SMNs shall promote shared ownership, mentorship, and economic participation, ensuring all residents can contribute meaningfully and benefit from community resources.

4.4 Practical design considerations for smart multigenerational neighbourhoods

Smart multigenerational neighbourhoods should be designed with practical considerations that address the diverse needs of residents, enhancing autonomy, wellbeing, and community interaction.

Requirements:

- Design for autonomy: create flexible, private, and secure spaces that support autonomy and facilitate interactions across all ages and abilities.
- Design for smart infrastructure: integrate digital infrastructure that assists with wayfinding, health management, and connectivity, ensuring ease of use for residents of all ages.
- Design for social capital: foster social interactions and mutual support among residents to build a sense of community and encourage cross-generational connections.
- Design for sense of community: balance privacy with opportunities for social active involvement, ensuring environments support both individual needs and communal interactions.
- Design for retrofitting social space for therapeutic and sensory perception: transform design deficiencies into welcoming spaces that enhance social interactions and provide therapeutic benefits.
- Design to encourage intergenerational connection and emotional wellbeing by creating inclusive communal spaces such as shared gardens, storytelling areas, and activity zones that foster social interaction across age groups.
- Design for mindfulness: create spaces that support mental wellbeing and offer opportunities for engaging in hobbies and social activities, contributing to overall health. Such spaces shall be designed to encourage equal use across genders and ensure potential users feel safe and comfortable.
- Design should support place attachment and emotional wellbeing by ensuring environments feel welcoming, familiar, and responsive to the cultural and intergenerational needs of residents.

4.5 Summary of requirements and guidance

4.5.1 Universal Design (UD) and Inclusive Design (ID) principles

Requirement:

- Establish a foundation of accessibility using UD principles, designing for physical, sensory, cognitive, and neurodiverse characteristics to support autonomy, social participation, and wellbeing.

Recommendation:

- Apply UD to create environments that are accessible, usable, and inclusive for all individuals, regardless of age, size, or impairment. Complement this with ID to ensure these environments are responsive and adaptable, integrating the full spectrum of human diversity and evolving needs.

4.5.2 Integration of diverse domains

Requirement:

- Achieve integrated, connected, and equitable neighbourhoods by harmonising built environment, digital infrastructure, and services.

Recommendation:

- Incorporate ID across urban planning, digital health, AI, big data, resilient technologies, design, architecture, modern construction methods, and environmental sustainability.

4.5.3 Supporting intergenerational active involvement

Requirement:

- Ensure public spaces, residential areas, health and social care facilities, and community centres promote social participation and intergenerational active involvement.

Recommendation:

- Design key spaces, services, and systems to foster interactions between different age groups.

4.5.4 Flexibility and adaptability

Households and neighbourhoods should be designed to accommodate changing needs across different life stages, promoting independent living while ensuring connectedness among residents of all ages, whether related or not.

Requirement:

- Ensure spaces within the neighbourhood are adaptable to evolving human needs and functional changes throughout the life course.

Recommendation:

- Create environments that can flexibly respond to the changing needs of residents over time, enabling people to remain in their communities as they age.

4.5.5 Quality of life and wellbeing

Requirement:

- Address diverse human characteristics, including physical, sensory, cognitive impairments, neurodiversity, and health conditions.

Recommendation:

- Design to enhance quality of life, physical activity, autonomy, and social participation for all age groups.

4.6 Requirements in other standards

The requirements in the following standards shall be applied:

- EN 17161:2019, *Design for All - Accessibility following a Design for All approach in products, goods, and services - Extending the range of users*
- WHO *International Classification of Functioning, Disability and Health (ICF)*
- ISO 21542:2021, *Building construction - Accessibility and usability of the built environment*
- BSI PAS 6463:2022, *BSI - Design for the mind – Neurodiversity and the built environment – Guide*
- ISO/IEC/ITU Guide 71:2014 / CEN/CENELEC Guide 6:2014, *Guide for addressing accessibility in standards*
- ISO/IEEE 11073-10471:2024, *Health informatics – Medical device communication – Part 10471: Health informatics – Application profile – Home and home healthcare*
- ISO 22458:2022, *Consumer vulnerability – Requirements and guidelines for the design and delivery of inclusive services*
- ISO 9241-210:2019, *Ergonomics of human-system interaction – Part 210: Human-centred design for interactive systems*
- ISO/IEC 27001:2022, *Information security management systems – Requirements*
- ISO 31700-1:2023 *Consumer protection — Privacy by design for consumer goods and services Part 1: High-level requirements*
- ISO/TR 31700-2:2023 *Consumer protection — Privacy by design for consumer goods and services — Part 2: Use cases*

5 Multi-stakeholder collaboration models

The development of smart multigenerational neighbourhoods should be supported by structured collaboration between public and private sectors, alongside civil society and other key stakeholders. Achieving this balance is complex, requiring careful coordination, shared objectives, and sustainable governance structures.

A widely recognised and tested approach is the Penta Helix model, which facilitates engagement between government, business, academia, civil society, and media to ensure that investment, policymaking, and innovation align effectively in areas such as housing, health, digital infrastructure, and mobility. The model provides a structured method for fostering cooperation, reducing silos, and ensuring that both public and private interests contribute to long-term, sustainable solutions.

However, the most suitable framework shall be determined based on the specific context, governance structures, and needs of each initiative.

Organisations developing smart multigenerational neighbourhoods should adopt a structured multi-stakeholder collaboration model that enables effective public-private partnerships and aligns expertise, perspectives, and resources. This may include, but is not limited to:

- the Penta Helix model (government, business, academia, civil society, and media);
- the Quadruple Helix model (government, business, academia, and civil society);
- the Triple Helix model (government, business, and academia);

- alternative approaches that ensure sustainable, transparent collaboration between public and private entities, tailored to specific regulatory and operational contexts.

Note In some cases, additional stakeholders such as health professionals, service providers, or community organisations may play a more central role than academia or media. The choice of collaboration model should be adapted to ensure practical, effective, and inclusive decision-making processes. By ensuring structured collaboration, organisations can improve coordination, de-risk investment, and create more sustainable, resilient smart multigenerational neighbourhoods.

5.1 Collective responsibility

This document has been developed through collaboration among domain experts and leading practitioners across multiple fields. A multidisciplinary approach ensures that the proposition is comprehensive and meets the needs of all stakeholders, including national and regional government, industry, academia, civil society, and local communities. Collaboration underpins the core values of smart multigenerational neighbourhoods (SMNs), enabling knowledge exchange and coordinated efforts to create resilient and adaptable environments.

5.2 Collaborative governance

Collaboration is essential to the development of SMNs, requiring structured engagement across multiple stakeholders. A widely recognised approach is the Penta Helix model, which brings together government, business, academia, civil society, and media to foster innovation and shared responsibility. This model has been successfully implemented in diverse contexts, offering a structured method for co-creating solutions. However, collaboration models shall be selected based on the specific needs of each initiative. The effectiveness of any approach depends on strong governance structures.

5.2.1 Economic feasibility and risk mitigation

Recommendations:

- Shared costs and risks: encourage stakeholders to adopt structured collaboration by proportionally sharing costs and risks based on resources and capabilities. Contributions can include financial investments, in-kind support, expertise, and infrastructure.

Public-private financing mechanisms: foster equitable funding models, including joint funding initiatives, matched contributions, and collaborative grants, to enhance financial sustainability.

5.2.2 Collaborative benefits

Recommendations:

- Public-private partnerships: strengthen public-private partnerships (PPPs) as part of collaborative governance models, ensuring that solutions are both technically and socially viable.
- Stakeholder involvement: engage a diverse range of stakeholders from the project's inception. Representatives from government, industry, academia, civil society, and communities should collaborate to develop adaptable and effective solutions.
- Knowledge sharing platforms: establish mechanisms for stakeholders to share knowledge, best practices, and lessons learned, promoting continuous innovation and improving long-term outcomes.

5.2.3 Adaptive approach to collaboration

Recommendations:

- Flexible stakeholder involvement: collaboration should be adaptable, recognising that different stages of SMN development may require varying levels of engagement from government, industry, academia, civil society, and media.

- Local and international alignment: encourage cross-sector collaboration that aligns with regional priorities while integrating international best practices.
- Demonstration projects: use pilot programmes and testbeds to evaluate the effectiveness of different governance models and financing mechanisms before wider implementation.

5.3 Community engagement and shared responsibility

Recommendations:

- Inclusive planning: ensure planning processes incorporate diverse perspectives, including older adults, families, and underrepresented groups, to create equitable neighbourhoods.
- Community involvement initiatives: establish participatory platforms, such as town halls and digital engagement forums, enabling residents to contribute insights, share feedback, and influence decision-making.

5.4 Consensus-building mechanisms

Recommendations:

- Public forums: organize open consultations that include residents, businesses, educational institutions, and local organisations. These should be communicated through multiple channels to ensure accessibility.
- Consensus mechanisms: design neighbourhoods where essential services, including healthcare, education, and community support, are easily accessible.

5.5 Planning for all ages

Recommendations:

- Integrated service provision: ensure urban planning accounts for multigenerational needs, balancing services for older adults, families, and young professionals within SMNs.
- Proximity-based services: design neighbourhoods where essential services, including healthcare, education, and community support, are easily accessible.

5.6 Global adaptability

SMNs shall be designed with flexibility to accommodate regional differences in policy, economy, and social structures. A structured but adaptable approach allows communities to tailor solutions to their specific needs.

Recommendations:

- Diverse stakeholder involvement: ensure planning includes government bodies, local businesses, academic institutions, and civil society organisations to create context-appropriate solutions.
- Adaptive planning: establish a dynamic planning process that evolves in response to ongoing community input. Regular forums and feedback sessions should be conducted to allow for adjustments and ensure that development remains relevant and responsive to the needs of all generations.
- Sustainable and accessible design: embed sustainability and accessibility into community planning through green spaces, pedestrian-friendly infrastructure, and energy-efficient developments, to create neighbourhoods that are environmentally sustainable and navigable for people of all abilities.

5.7 An accountability framework

To ensure the effective implementation of SMNs, a structured accountability framework shall be established. This framework should define governance responsibilities, evaluation criteria, and measurable outcomes.

Recommendations:

- Develop shared success metrics: establish a shared understanding of "what good looks like" through multi-stakeholder engagement, collective dialogue, and co-creation. This should align with the broader objectives of this document and be supported by measurable metrics.
- Older people at the heart: emphasise the value of older adults and PwD by promoting attitudes and behaviours that foster dignity, security, and a sense of being valued in a multigenerational society. This should be reflected in all governance, planning, and community engagement activities.
- Pooling expertise for impact: encourage stakeholders to pool research, expertise, and resources. The collaborative effort should support the technological enablement of communities to be more inclusive and resilient.

5.8 Implementing strategies

Recommendations:

- Implementation roadmaps: establish clear strategies with defined roles, responsibilities, and milestones to guide structured development.
- Monitoring and assessment: implement mechanisms to regularly evaluate project impact and identify areas for improvement, ensuring that goals are met effectively.

5.9 Summary

The Penta Helix model provides a structured yet adaptable framework to support the development of Smart Multigenerational Neighbourhoods. By fostering collaboration across government, industry, academia, civil society, and media, this model facilitates knowledge-sharing, shared responsibility, and financial sustainability. However, alternative collaboration models may be applied based on local context and stakeholder needs. Governance structures, risk-sharing mechanisms, and inclusive planning shall ensure the long-term viability of SMNs, creating environments that enhance quality of life for all generations.

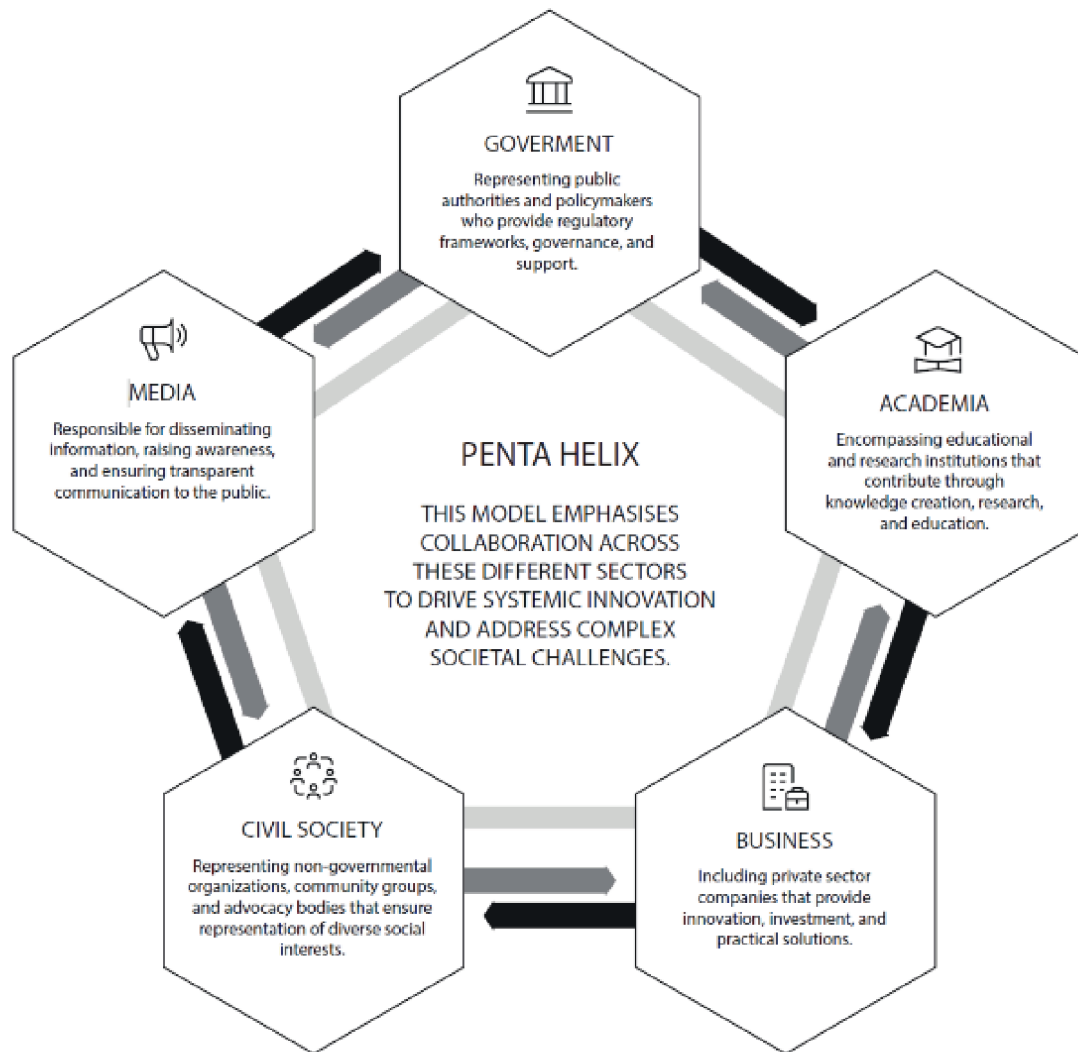


Figure 1 — Example of Penta Helix

5.10 Requirements in other standards

The requirements in the following standards shall be applied:

- ISO 37105:2019, *Sustainable Cities and Communities — Descriptive Framework for Cities and Communities*
- ISO 37120:2018, *Indicators for city services and quality of life*
- ISO 21542:2021, *Building construction - Accessibility and usability of the built environment*
- ISO 9241-210:2019, *Human-centred design for interactive systems*
- ISO/IEC/ITU Guide 71:2014 / CEN/CENELEC Guide 6:2014, *Guide for addressing accessibility in standards*
- BSI PAS 6463:2022, *Design for the mind – Neurodiversity and the built environment – Guide*

5.11 Guidelines and tools to consider

The guidelines and tools in the following documents shall be considered:

- *WHO Housing and Health Guidelines - Recommendations for healthy housing*
- *System Usability Scale (SUS) - Tool for usability measurement*

- *Technology Acceptance Model (TAM) - Measures technology acceptance*
- *Health-Related Quality of Life (HRQoL) Assessments - Tools for measuring health impacts*
- *The 15-Minute City Concept - Urban planning for proximity to amenities*
- *Universal Design Guidelines - Principles for accessibility*
- *UNEP Integrated Guidelines for Sustainable Neighbourhood Design*

6 Social Innovation

6.1 Introduction

Social innovation provides the cultural, institutional, and behavioural scaffolding that makes smart multigenerational neighbourhoods work in practice. It encompasses new ways of thinking, organising, and collaborating that challenge the status quo—empowering individuals and communities to respond to shared challenges with creativity, autonomy, and collective purpose.

Social innovation shifts power towards the community—enabling people of all ages and abilities to shape the systems, spaces, and services that impact their lives. It actively dismantles siloes, reframes outdated models of care and governance, and fosters conditions where collaboration becomes the default, not the exception.

By embedding principles such as digital inclusion, intergenerational knowledge exchange, and participatory governance, social innovation strengthens the social fabric and ensures planning, technology, and services are co-designed with the community—not imposed upon it.

At its core, social innovation transforms the built environment into a platform for shared agency, belonging, and opportunity.

Requirements:

- Neighbourhoods shall support digital inclusion across all age groups by enabling access to appropriate devices, connectivity, and tailored digital literacy programmes. These initiatives shall account for differences in confidence, experience, and needs—particularly within the older adult population—through inclusive design and age-responsive support.
- Service coordination;neighbourhoods shall promote coordination between health, social care, housing, and community services to foster integrated support systems. This coordination shall respect legal, professional, and ethical obligations while pursuing shared goals that enhance wellbeing across the community.
- Community participation: opportunities for residents to co-shape neighbourhood initiatives shall be embedded into local planning and development processes. This includes accessible channels for participation, co-design workshops, and support for community-led proposals.
- Intergenerational engagement: neighbourhoods shall enable intergenerational engagement by fostering the conditions and opportunities for residents of different age groups to connect—through shared spaces, storytelling, mentorship, and community-led initiatives. These efforts should promote mutual understanding, inclusion, and resilience, while empowering residents to shape activities that reflect their local culture and context.

Recommendations:

- Support the evolution of local traditions by encouraging younger generations to participate, reinterpret, and extend cultural practices—through creative programming, digital storytelling, and intergenerational collaboration.
- Use digital platforms not only to share knowledge, but to co-create new expressions of local identity—connecting neighbourhoods with one another while rooting innovation in place-based meaning.