

# TULE-MODEL

A model for the development and planning of  
future age-friendly living

Jaana Vanhatalo, Veronika Haukeland ja Jukka Puhto



TULE-model, 15.12.2025

Artificial intelligence (M365 Copilot) has been used in the translation of this document.

The TULE model and its concept tool have been created as part of the Future Senior Housing (TULE) project. The project was carried out at the Faculty of Built Environment at the Knowledge Centre for Real Estate Development (KCRED) at the University of Tampere. The project was led by Jukka Puhto, the project manager was Jaana Vanhatalo, and the researchers were Veronika Haukeland and Juha-Matti Junnonen. The project communications was managed by CoreLab (Alisa Hakola and Jaakko Kinnunen). The duration of the project was 3/2023-10/2025.

The project was a co-creation and research project in which the Centre for State-Subsidised Housing Construction (VARKE; formerly ARA) and 22 other organisations were involved as financiers and participants. Each organisation has been represented by 1-3 members. Project had also an expert member from the Ministry of the Environment.



Valtion tukeman  
asuntorakentamisen keskus



# Intro

- The TULE model is a process that aims to produce high-quality, age-friendly living for future needs. The assumption is that the recommendations and solutions from the previous phases will also follow into the next phases.
- The basic principles behind the model are design for all, sustainability, place-based solutions, communality, participation and diversity, as well as innovations and change in attitude (see page 5).
- In addition to the principles, the process itself and its phases, the model includes an intro, user role tables related to the different phases, and a concept tool. The structure of the model is presented in the diagrams on pages 6 and 7.
- The real estate development and construction phases of the model are based on textbook examples, and age-friendliness is not a new thing either. So, what's new in the model?
  - The model aims to provide an overall view of the entire process of developing, planning and designing age-friendly living, including its phases and stakeholder roles.
  - The model presents a regional discussion forum, regional development and the formation of a regional vision for age-friendly living at the beginning of the process. This responds to the cooperation and planning required by law.
  - Bringing age-friendly approach to housing development and design.
  - As part of the model, a concept tool has been developed for the real estate development phase.
  - The model summarises expert, research and analyses related to age-friendliness.
- The backgrounding of the model can be found in the final report of the Future Senior Housing (TULE) project (published in Finnish). Due to the extensive number of sources, the sources are mainly only included in the report. The sources mentioned in this model document are listed on page 48.

- The recommendations provided in the model are based on the research and analyses conducted during the project, but also on discussions, meetings, and data collected during site visits both in Finland and abroad.

## Model's applicability outside Finland

- The aim of the project was to develop Finnish age-friendly living and therefore the model was created to Finnish operational environment. However, it is applicable also elsewhere.
- What can be used as such?
  - Process description as a whole with the main phases is suitable everywhere as well as the guiding principles.
  - Recommendations for different phases are mostly suitable also elsewhere, except for example certain accessibility related measures which might vary according to national regulations.
- What has to be adapted to local operational environment?
  - Stakeholders and their roles might vary a lot country by country. For example the entities responsible for land use planning, planning for senior housing on general level and the one responsible for providing care vary. From these parts however the model can be finetuned to local conditions.
    - Pay attention to and modify if needed:
      - the diagram of involved stakeholders (p. 8),
      - the participants in the regional discussion forum (p. 11) and
      - the tables for stakeholder roles in each phase (p. 15-16, 23-24, 32, 40-41 and 46).
    - Certain parts of phases, especially the design and implementation phase of housing production, as the steps of planning and designing can vary locally.
    - Pay attention also to points including local regulations.

# Table of contents

Guiding principles	5
Model Structure	6-7
Stakeholders involved in the different phases	8
Flow of feedback and information	9
Regional development	10-17
Making existing housing age friendly (preparation and development of solutions & design and implementation)	18-25
Housing production	26-42
Real Estate Development and Concept design (preparation and development of solutions)	27-33
Building Design and Construction (design and implementation of solutions)	34-42
Usage and monitoring	43-47
Sources cited in the document	48
Concept Tool	49-70

# GUIDING PRINCIPLES

## DESIGN FOR ALL

**Age-friendly housing is suitable for everyone.** Homes and living environments must be functional, accessible and safe for different needs and functional abilities. Everything related to housing and the living environment should be designed so that everyday activities, social connections, and access to the local environment and nature can be maintained even when functional ability declines.

## SUSTAINABILITY

When developing the living environments for aging population, **ecological, social, economic and cultural sustainability must be taken into account.**

Housing must be developed in a resource-wise manner, primarily utilising the existing building stock, utilising underused premises and making existing apartments and residential buildings age-friendly.

When building a new building, it is important to take into account and prepare for future changes with flexible solutions.

## PLACE-BASED SOLUTIONS

**Housing solutions must be location-specific, i.e. based on local starting points and needs.**

Different places have different needs, strengths and challenges, resources and their own local identity. Identifying and utilizing these factors, along with local knowledge, supports finding solutions that meet needs and leads to more sustainable outcomes. The solutions must also support aging in place.

## INNOVATIONS AND CHANGE IN ATTITUDE

**In designing and developing age-friendly living, it is essential to continuously seek new solutions** rather than remain tied to traditional housing models and practices. Innovation does not automatically mean higher costs. **This requires an open mindset**, active monitoring of international developments, the involvement of research and development, and collaboration among different stakeholders. National decision-making should create an environment that encourages and enables experimentation and testing. **Existing systems should also be actively challenged.** In other words, if something does not work, it must be changed. **Change starts with all of us.**

## COMMUNALITY

**A sense of community supports the quality of life of older people and also brings quality to housing.** A sense of community and its creation cannot be forced, but it can be supported. The importance of social resources in the immediate environment is emphasised as we age. Opportunities for community and social contacts should be offered both through spatial solutions and through various actions. Community must therefore be taken into account in development, planning and housing itself.

## PARTICIPATION

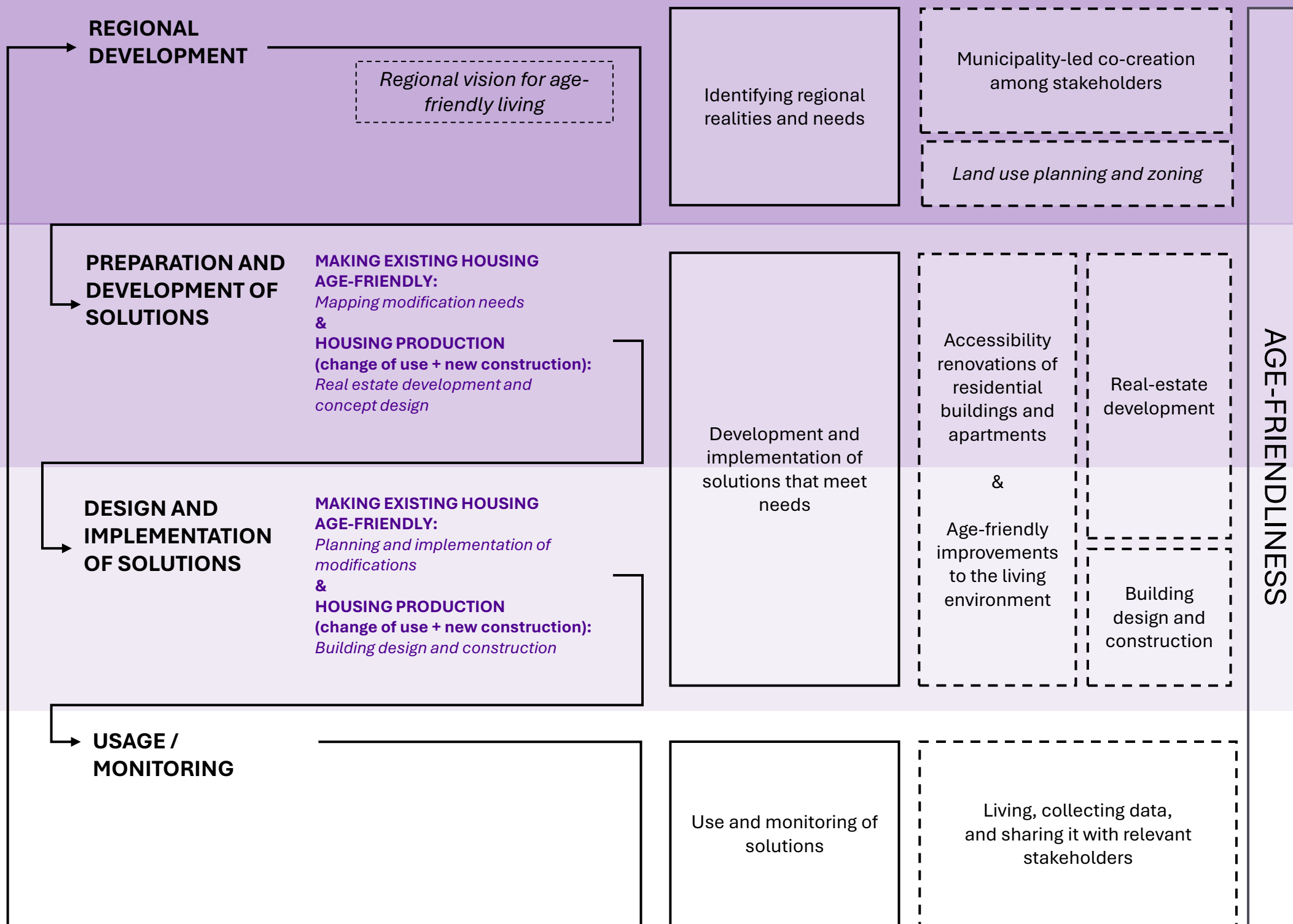
**Involving older people is essential in all projects related to housing and living environments: from planning to implementation and the collection of user feedback.** Current and future older people are experts in expressing their own needs. At the same time, it is important to involve their close relatives and those acting as informal caregivers. Attention should be paid to the methods of participation, and these should be developed to ensure that even those in the most vulnerable positions have their voices heard.

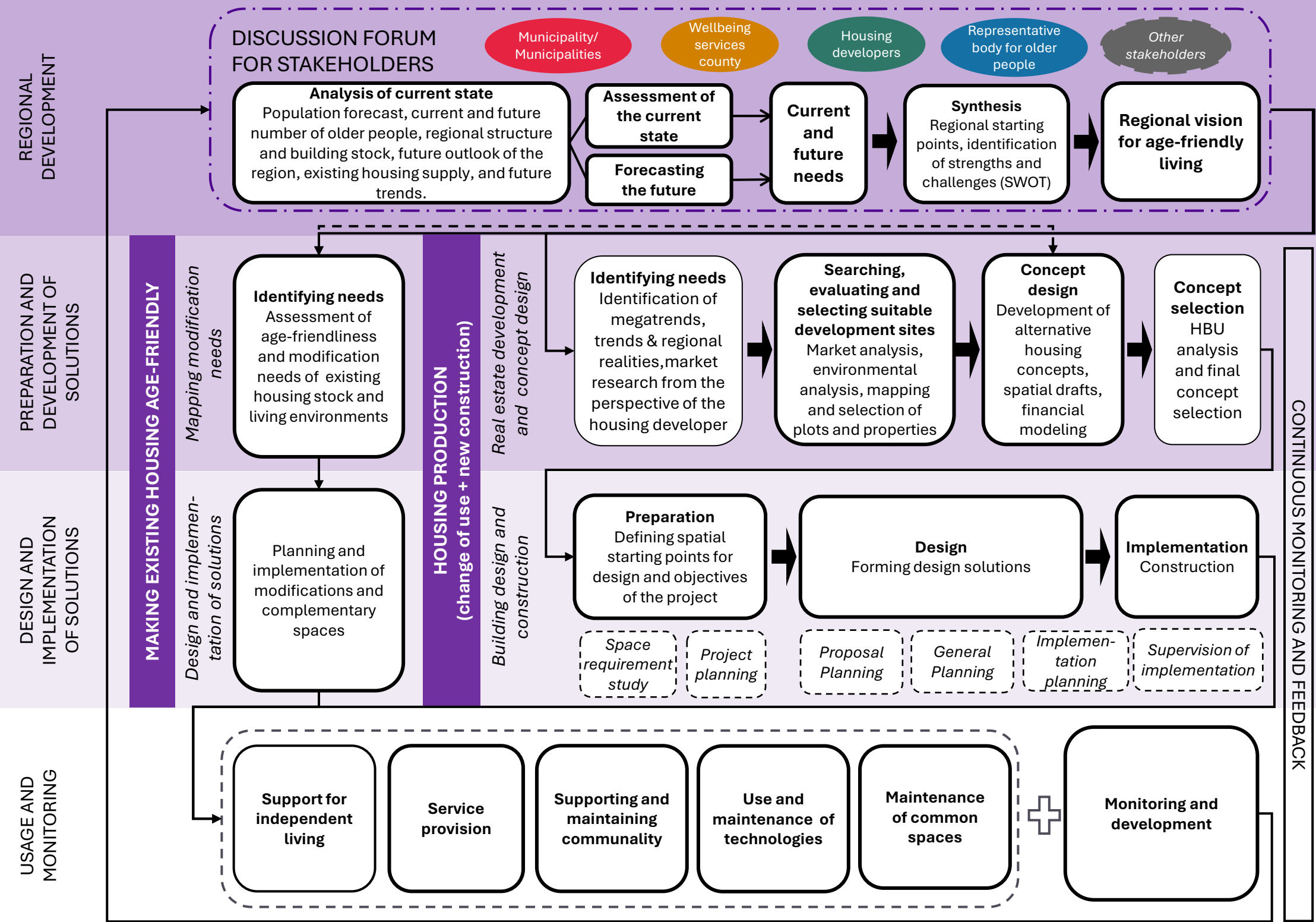
## DIVERSITY

**Older people are not a homogeneous group.** Therefore, no single concept can serve as a universal solution for housing in later life. A **wide range of housing options** should be offered to older people—from detached houses to apartment buildings, from shared living arrangements to private homes, and from multi-generational housing to housing designed exclusively for older people.

All housing must enable a **high quality** of life.

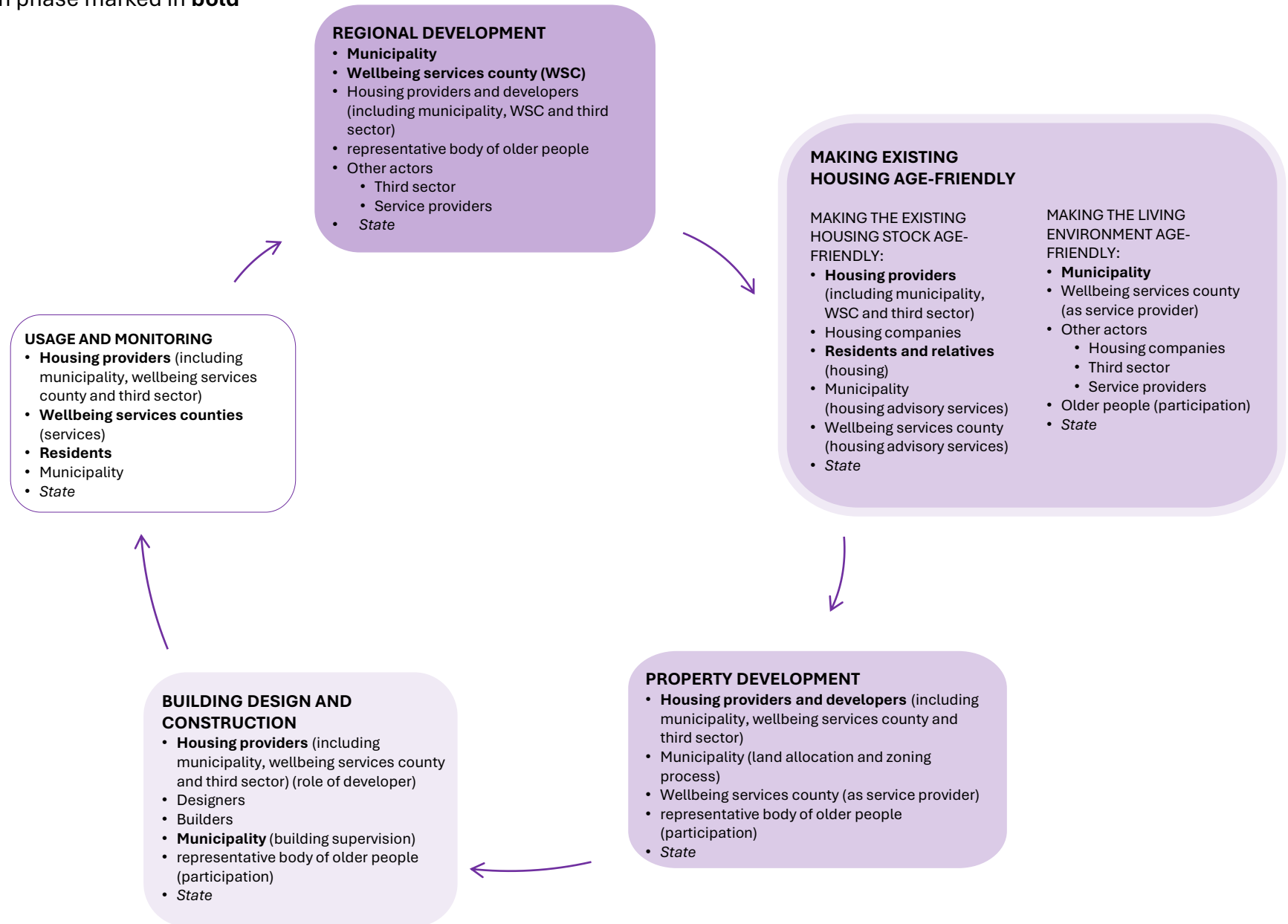
**An attitude shift is needed in how we view older people and ageing.** Ageing is part of almost everyone's life course. Negative perceptions of ageing are formed early and are shaped by societal structures and assumptions about older people. These perceptions influence intergenerational relationships and older people's self-image. (WHO 2025.) Research shows that negative views on ageing are linked to poorer health outcomes later in life (WHO 2025) and also affect housing-related decisions (Aclan ym. 2023). Accepting ageing, on the other hand, enables more active ageing and proactive housing planning (Aclan ym. 2023, p.6).





# Stakeholders involved in different phases

Main actors of each phase marked in **bold**



# Flow of feedback & information

## REGIONAL DEVELOPMENT

## PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs*  
**& HOUSING PRODUCTION (change of use + new construction):**  
*real estate development and concept design*

## DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications*  
**& HOUSING PRODUCTION (change of use + new construction):**  
*building design and construction*

## USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# REGIONAL DEVELOPMENT –

## Regional vision for age-friendly living

In the regional development phase, a vision for age-friendly living in the region (municipality/municipalities) is created. This vision is formed in a **discussion forum for age-friendly living**, convened by the municipality/municipalities, bringing together local stakeholders (wellbeing services county, housing developers (social housing + ordinary housing), **representative body for older people**, and other parties important for age-friendly living).

The vision is based on an assessment of the current circumstances and future foresight, carried out through municipality-led analyses. The results of these analyses are discussed among the forum participants, and based on a shared consensus, a **regional vision for age-friendly living** is established to support the development of age-friendly living in the area.

The vision outlines:

- **Quantitative demand for age-friendly housing:**
  - Demand for making the existing housing stock age-friendly
  - Demand for regional community spaces supporting independent living
  - Demand for new dwellings (including change of use & new construction)
- **Areas to be developed:**
  - Areas suitable for age-friendly housing
  - Potentially usable plots or properties
  - Areas to be improved in terms of age-friendliness
- **Sustainability principles**
  - Consideration of sustainability in implementation
- **Demand for service development**
  - Services supporting independent living

The discussion forum decides its meeting frequency itself. The municipality and the wellbeing services county act as coordinators, and the municipality maintains up-to-date information on the implementation of the vision (alternative arrangements can also be agreed upon in the forum).

The purpose of the discussion forum is to gather information from different actors, ensure information exchange, and promote cooperation among stakeholders. **The aim of the vision is to create a unified direction and picture of the development of age-friendly living in the region, and thereby support evidence-based decision-making.** The vision is not static but continuously evolving (in line with strategic planning approach). Development is based on collected data and feedback, as well as indicators agreed upon as part of the vision: Is the vision being implemented as planned? Is there a need for changes in actions or guidelines? At certain intervals, a more extensive update of the vision is carried out.

### TABLE OF CONTENTS FOR THIS PHASE

DISCUSSION FORUM FOR STAKEHOLDERS & VISION	11
ANALYSIS OF CURRENT STATE AND CURRENT AND FUTURE NEEDS	12
SYNTHESIS & VISION	13
RECOMMENDATIONS FOR THE REGIONAL DEVELOPMENT PHASE	14
ROLES OF STAKEHOLDERS	15
FLOW OF FEEDBACK AND INFORMATION	17

# DISCUSSION FORUM FOR STAKEHOLDERS & VISION

The forum focuses on upper-level discussions and negotiation. A competitive setting is not part of the forum.

The municipality and the wellbeing services county clarify the situational picture through analyses and initiate the discussion.

The goal is a shared **CONSENSUS**.

The forum also provides a good platform for identifying and considering opportunities for cooperation between stakeholders.

If needed, visits by different experts is arranged by invitation.

## Stakeholders' resources and benefits in formulating guidelines

Slow change

**MUNICIPALITY**  
Regional development perspective,  
land use planning,  
Long-term development,  
Political decision-making

Integration of issues into zoning and strategies,  
Increased efficiency in housing planning,  
Enhanced cooperation with stakeholders,  
Reduction of conflicts

### REPRESENTATIVE BODY FOR OLDER PEOPLE

User perspective,  
wishes, needs,  
identification of attractiveness factors

Responding to needs,  
opportunity to influence living arrangements

Housing developers' strategies

## Regional vision for age friendly living

Guidelines:

**Demand:**  
Needed amount of housing

**Spatiality**  
Areas to be developed

**Sustainability**  
Sustainable implementation and consideration of future use

**Demand for services supporting independent living**

Fast change

**HOUSING DEVELOPERS**  
Understanding of the market and demand, current realities, innovations, cost awareness

Increased efficiency in concept development,  
Clarification of the operational field  
Enhanced cooperation with other stakeholders  
Avoidance of unnecessary work

### Participating stakeholders

Municipality/  
Municipalities

Wellbeing services county

Housing developers

Representative body for older people

Other stakeholders

Municipal strategies

### WELLBEING SERVICES COUNTY

Care perspective,  
regulations,  
Provision of supported housing for older people, regulated by law regional perspective



Integration of issues into strategies,  
Identification of challenges,  
Targeting and planning of supported housing regulated by law,  
Enhanced cooperation with other stakeholders

Wellbeing services county's strategies

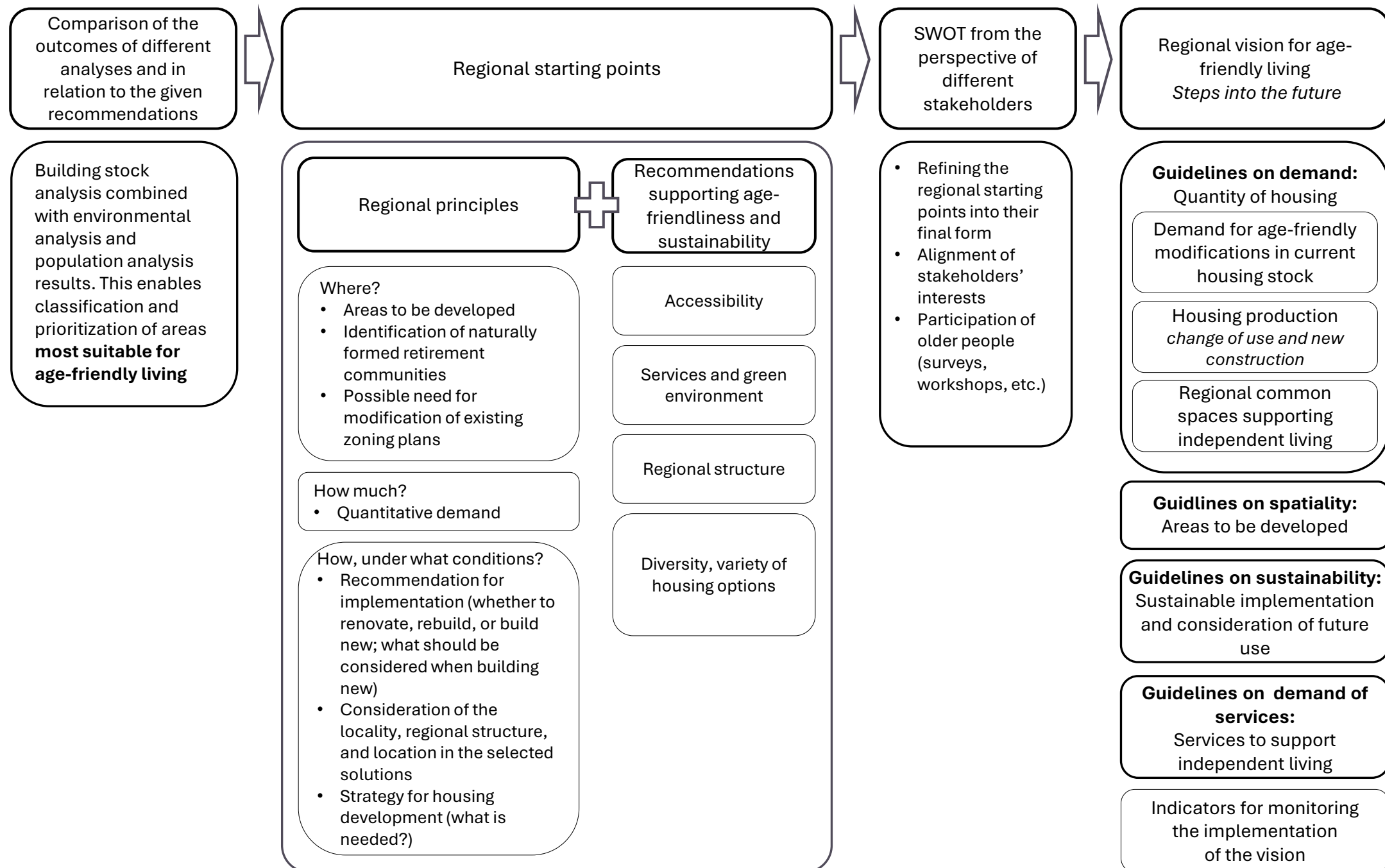
## ANALYSIS OF CURRENT STATE &amp; CURRENT AND FUTURE NEEDS

Guidelines of public strategies



Analysing the current state				Forecasting the future	
Population analysis	Environmental analysis <i>Grid-based analysis (GIS)</i>	Building stock analysis	Zoning analysis	Population forecast & Potential buildings	Future vision
<b>Number of older people</b>  <b>Distribution of older people in the area</b> <ul style="list-style-type: none"> <li>Naturally formed clusters</li> <li>Sparsely populated areas with older people</li> <li>Existing housing designed for older people</li> </ul> <b>Number of middle-aged people</b>  <b>Health status of older people</b>  <b>Housing preferences of older people</b> <ul style="list-style-type: none"> <li>Participation through surveys and workshops</li> </ul>	<b>Location and mapping of services and identification of service clusters</b> <ul style="list-style-type: none"> <li>Everyday services               <ul style="list-style-type: none"> <li>Grocery shops</li> <li>Pharmacies</li> <li>Post offices</li> <li>Banks</li> </ul> </li> <li>Health services</li> <li>Sports and exercise services</li> <li>Public transport               <ul style="list-style-type: none"> <li>Public transport stops</li> <li>Service interval</li> <li>Service transportation</li> </ul> </li> <li>Leisure services</li> <li>Services targeted at older people</li> <li>Community spaces</li> </ul> <b>Location of green areas</b> <ul style="list-style-type: none"> <li>Parks and forests</li> <li>Outdoor routes</li> <li>Urban greenery</li> </ul> <b>Accessibility analysis</b> <ul style="list-style-type: none"> <li>Slope of pathways mainly max 5% (SuRaKu 2008)</li> <li>Low-traffic areas</li> <li>Utilization of reports &amp; surveys on accessibility and traffic safety, e.g.:               <ul style="list-style-type: none"> <li>Accessible walking routes                   <ul style="list-style-type: none"> <li>Well-lit walking routes</li> <li>Resting places</li> <li>Winter-maintained walking routes</li> </ul> </li> <li>Traffic safety                   <ul style="list-style-type: none"> <li>Car-free zones</li> <li>Separated cycling and walking paths</li> <li>Low-speed zones</li> </ul> </li> </ul> </li> </ul>	<b>Available plots</b>  <b>Underutilized or vacant buildings</b> <ul style="list-style-type: none"> <li>Office buildings</li> <li>Shopping centers</li> <li>Government buildings</li> <li>Hotels</li> <li>Historical sites</li> <li>Schools, daycare centers</li> <li>Commercial premises</li> <li>Care facilities</li> <li>Service housing</li> <li>Existing rental apartment buildings or housing cooperatives where residents are mainly older people</li> </ul> <b>Renovation needs of existing building stock</b> <ul style="list-style-type: none"> <li>Multi-storey buildings without elevators</li> </ul>	<b>Existing zoning plans</b> <ul style="list-style-type: none"> <li>Future development areas and their suitability for age-friendly residential use</li> </ul>	<b>Demographic change</b> <ul style="list-style-type: none"> <li>Changes in age group distribution, emphasizing the ageing population</li> <li>Observations also spatially when possible</li> </ul> <b>Potential future vacant or underused buildings</b>	<b>Megatrends</b> <ul style="list-style-type: none"> <li>Major global megatrends affecting society</li> </ul> <b>Trends</b> <ul style="list-style-type: none"> <li>Smaller-scale trends affecting housing for older people</li> </ul> <b>“Future older people”</b> <ul style="list-style-type: none"> <li>Housing preferences of today’s young and middle-aged people</li> </ul>
				Supply of housing for older people	
				Existing housing for older people Market review of upcoming housing projects targeted at older people	
				<div>  </div> <div>  </div> <div> <b>Current and future needs</b> <ul style="list-style-type: none"> <li>Demand for housing for older people now and in the future</li> <li>Demand for housing support services for older people</li> <li>Demand for making existing housing stock age-friendly</li> <li>Demand for new age-friendly housing (conversion and new construction)</li> <li>Demand for cooperation between stakeholders</li> <li>Demand for services supporting independent living</li> </ul> </div>	

The content of the table is based on expert knowledge, same things have also been expressed in e.g. SYKE's IKKUNA report (Rehunen et al. 2025).

SYNTHESIS & VISION 

# RECOMMENDATIONS FOR THE REGIONAL DEVELOPMENT PHASE

## Factors influencing the spatial realization of the vision

When locating housing, the following must be considered:

### Location of services and green areas

For age-friendly living, it is important to ensure:

- Direct connection to nature (green views, yard enabling outdoor activities, outdoor route within <500 m)
- Proximity to services (grocery store, pharmacy, etc. <500 m)
- Proximity to a public transport stop or availability of transport services
- Proximity to leisure services: library, theatres, cafés, restaurants, etc.

### Accessibility of the immediate environment

For age-friendly living, it is important to consider:

- Flat terrain, avoiding slopes over 5% (SuRaKu 2008)
- Low-traffic
  - Low driving speeds
  - Separated pedestrian and bicycle paths
  - Car-free zones
- Accessible walking routes
  - Well-lit walking routes
  - Winter-maintained walking routes
  - Abundance of resting places (benches)

### Location of older people in the area

- Recognition of needs
- Identification of natural retirement communities

## New Construction vs. Renovation

If the population is expected to decline significantly in the future, priority should be given to:

- Age-friendly modifications in current housing stock
- Utilizing vacant spaces
- Renovations
- Change of use
- Relocatable and reusable structures (circular economy)

## Impact of forecasts and regional structure on the vision

- When assessing quantity and locating housing, future forecasts and regional structure must be considered
- Housing should primarily be located in or near service clusters
- All housing solutions must consider multi-functionality and the possibility of changes in use in the future
- The more sparsely populated the municipality is and the longer the distances, the more attention must be paid not only to housing solutions but also to mobile services and service transportation

**Engage current and future users as well as family members.**

**In all decisions and solutions, resource wisdom should be prioritized by developing what already exists. When building new structures, prepare for changes with flexible solutions.**

**Selected solutions must also be suitable for other age and user groups.**

**Ensure diversity and abundance of housing options in all decisions and solutions.**

**Consider community and its support at different levels.**

**Always adapt decisions and solutions to the local context.**

# ROLES OF STAKEHOLDERS (1/2)

## STATE

- Ministries
- Bodies guiding housing matters for the older people

## MUNICIPALITY/MUNICIPALITIES

- Zoning and land use
- Building control services
- Real estate and housing
- Services for older people

## WELLBEING SERVICES COUNTY

- Housing services and services for older people

### TASK IN THE FORUM / IN CONNECTION WITH THE FORUM

- Visiting forums
- Research, mapping of housing conditions and solutions at the national level

- Convening stakeholders
- Division of labour with the WSC concerning housing for older people
- Compilation and analysis of initial data in cooperation with other actors (p. 12)
- Compilation and dissemination of information produced in the Forum

- Participation in the discussion forum and vision development
- Division of labour with the municipality concerning housing for older people

### INFORMATION TO BE BROUGHT TO THE FORUM AND VISION

- National policies and national guidance
- Legislation

- Municipal housing policy guidelines, including housing for older people
- Starting points for land use planning, zoning and the municipality's strategic policies
- The state of accessibility of the existing housing stock (building control archives, data from building permit applications) (Arpiainen et al., 2021, 78)

- Service needs of older people
- Strategies for housing services and services for older people under HVA's responsibility

### INFORMATION EXPORTED FROM THE FORUM AND VISION

- Gathering the issues outlined in the forums: mapping local solutions and collecting and utilising good practices

- Conveying the vision's policies and the information shared in the forum to municipal decision-making, plans and strategies, as well as zoning practices and building control services
- Understanding of the circumstances in the field of housing for older people in the area

- Taking the vision policies and the information shared in the forum into the planning and strategies of housing services and services for older people
- Understanding circumstances in the field of housing for older people in the area

### BENEFITS FOR STAKEHOLDERS

- View and knowledge of local measures

- Enhanced information sharing and collaboration
- Resource-efficient development of services and housing
- A common direction and a well-functioning division of labour between stakeholders

# ROLES OF STAKEHOLDERS (2/2)

	<b>HOUSING PROVIDERS AND DEVELOPERS</b> <ul style="list-style-type: none"> <li>Housing providers (including the municipality, WSC and the 3rd sector)</li> <li>property owners</li> <li>Real estate developers</li> <li>housing developers</li> </ul>	<b>OTHER STAKEHOLDERS</b> <ul style="list-style-type: none"> <li>E.g. service providers, third sector, experts</li> </ul>	<b>REPRESENTATIVE BODY OF older people (AND RELATIVES)</b> <ul style="list-style-type: none"> <li>e.g., councils of older persons, senior citizen advisory boards</li> </ul>
<b>TASK IN THE FORUM / IN CONNECTION WITH THE FORUM</b>	<ul style="list-style-type: none"> <li>Participation in the discussion forum and vision development</li> </ul>	<ul style="list-style-type: none"> <li>Participation in the discussion forum and vision development</li> </ul>	<ul style="list-style-type: none"> <li>Participation in the discussion forum and the development of the vision (also in workshops and surveys carried out separately in the forum)</li> </ul>
<b>INFORMATION TO BE BROUGHT TO THE FORUM AND VISION</b>	<ul style="list-style-type: none"> <li>Market, innovation and cost data</li> <li>Good and bad practices</li> </ul>	<ul style="list-style-type: none"> <li>Expert knowledge</li> <li>Good and bad practices</li> </ul>	<ul style="list-style-type: none"> <li>The perspective of older people</li> <li>Housing preferences</li> <li>Empirical knowledge</li> </ul>
<b>INFORMATION EXPORTED FROM THE FORUM AND VISION</b>	<ul style="list-style-type: none"> <li>Putting vision policies into practice</li> <li>Information shared in the forum</li> <li>Market, innovation and cost data</li> <li>Good and bad practices</li> </ul>	<ul style="list-style-type: none"> <li>Putting vision policies into practice</li> <li>Information shared in the forum</li> </ul>	<ul style="list-style-type: none"> <li>Current circumstances and development of housing and services for the elderly</li> </ul>
<b>BENEFITS FOR STAKEHOLDERS</b>	<ul style="list-style-type: none"> <li>Enhanced information sharing and collaboration</li> <li>Resource-efficient development of services and housing</li> <li>A common direction and a well-functioning division of labour between the actors</li> </ul>		<ul style="list-style-type: none"> <li>Services and housing that meet needs</li> <li>Opportunity to make a difference</li> </ul>

# Flow of feedback & information

## REGIONAL DEVELOPMENT

### PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs & HOUSING PRODUCTION (change of use + new construction): real estate development and concept design*

### DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications & HOUSING PRODUCTION (change of use + new construction): building design and construction*

### USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# MAKING EXISTING HOUSING AGE-FRIENDLY:

Promoting age-friendliness of the existing housing  
stock and living environment

# MAKING EXISTING HOUSING AGE-FRIENDLY:

## Promoting age-friendliness of the existing housing stock and living environment

In this phase, the existing housing stock and living environments will be developed to be more age-friendly. The age-friendliness of the existing housing stock should be promoted by increasing awareness of the importance of age-friendly housing among both current and future older people and by supporting the accessibility renovations of existing residential buildings and apartments.

In addition to the housing stock and the apartments themselves, existing living environments must also be taken into account. By identifying areas with a large number of older people and by mapping the accessibility needs and the needs for meeting places that support social resources, targeted changes can promote ageing in place.

When making existing housing age-friendly, regional input is incorporated through **the discussion forum for age-friendly living** (including the municipality, HVA, representative body of older people, and housing developers). This forum has outlined **a regional vision for age-friendly living** agreeing on key principles that guide this phase, including:

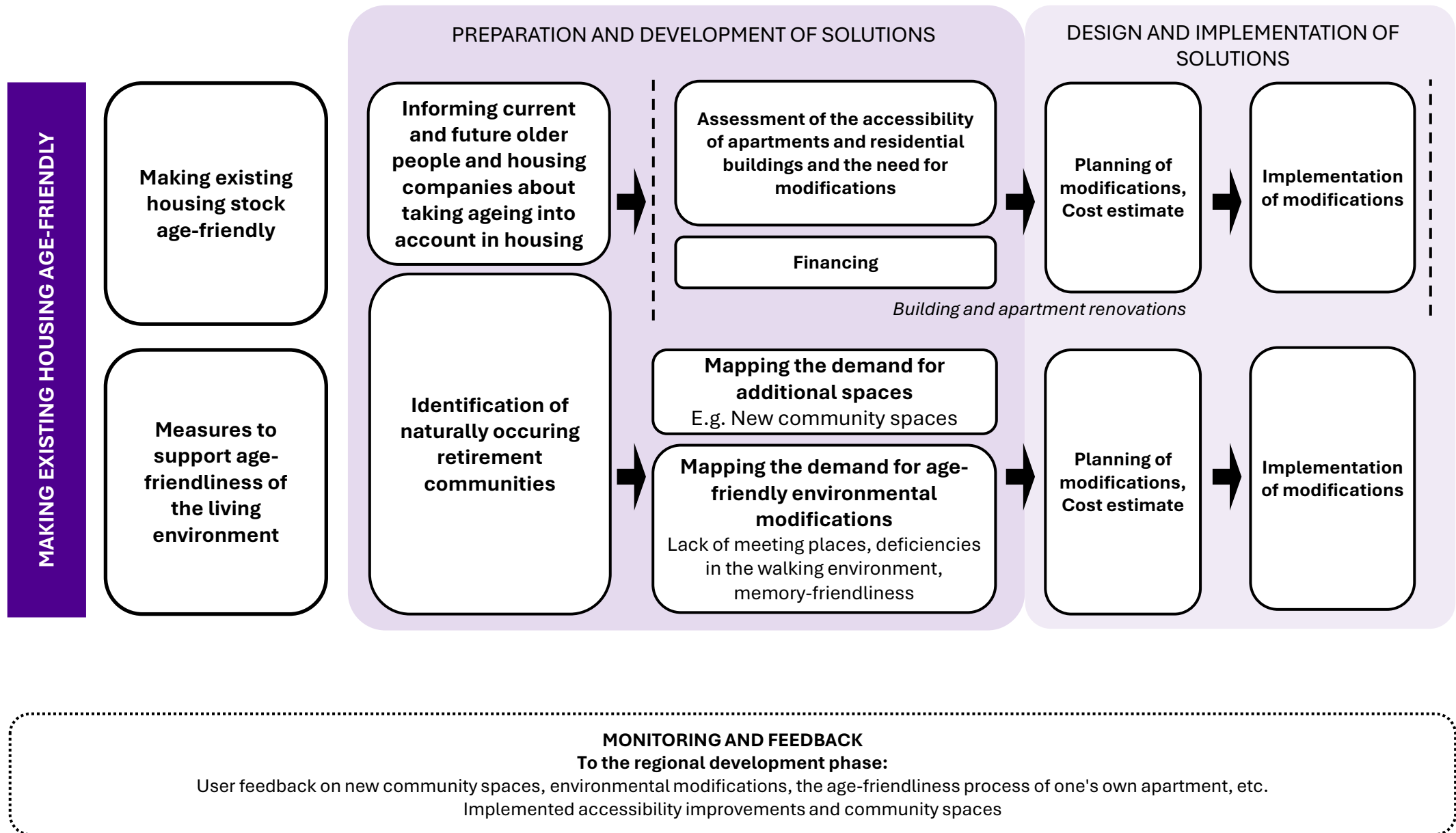
- **The quantitative demand for age-friendly housing**
  - Demand to make the old housing stock age-friendly
  - Demand for regional facilities that support housing
- **Areas to be developed**
  - Areas with suitable conditions (naturally formed communities)
  - Potential usable plots or properties
  - Areas to be developed in terms of age-friendliness
- **Sustainability principles**
  - Taking sustainability into account in implementation methods
- **The Demand for service development**
  - Services supporting independent living

The vision and its policies are based on the current and anticipated future needs of the region identified through analyses and discussions in the forum. The analyses are available as source materials (see p.12).

### TABLE OF CONTENTS FOR THIS PHASE

MAKING EXISTING HOUSING AGE-FRIENDLY	20
RECOMMENDATIONS FOR MAKING EXISTING HOUSING AGE-FRIENDLY	21
ROLES OF STAKEHOLDERS	23
FLOW OF FEEDBACK AND INFORMATION	25

# MAKING EXISTING HOUSING AGE-FRIENDLY



# RECOMMENDATIONS FOR MAKING EXISTING HOUSING AGE-FRIENDLY PHASE 1/2

## Participation

- Investigate the accessibility needs of the living environment together with older people and their relatives, e.g.
  - Accessibility walks
  - Accessibility surveys

## When locating new community spaces, the following should be considered:

### Location of older people in the area

- Identification of naturally occurring retirement communities
- Accessibility and reachability of the location**
  - Flat terrain, avoiding slopes over 5% (SuRaKu 2008)
  - Traffic safety
    - Low driving speeds
    - Separated pedestrian and bicycle paths
    - Car-free zones
  - Accessible walking routes
    - Well-lit, sufficiently wide walking routes
    - Winter-maintained walking routes
    - Abundance of resting places (benches)
  - Proximity to a public transport stop or availability of transport services

## Increasing awareness and providing guidance

- Both current and future older people should be informed about the importance of an age-friendly living environment and anticipating housing needs
  - Organizing events and information sessions
  - Campaigns
  - Providing
    - Housing advice
    - Renovation advice
      - For housing companies
      - For residents
  - Communicating about events and availability of guidance
    - Examples:
      - Local newspapers
      - Public transport
      - Websites & social media

**Engage current and future users as well as family members.**

**In all decisions and solutions, resource wisdom should be prioritized by developing what already exists. When building new structures, prepare for changes with flexible solutions.**

**Selected solutions must also be suitable for other age and user groups.**

**Ensure diversity and abundance of housing options in all decisions and solutions.**

**Consider community and its support at different levels.**

**Always adapt decisions and solutions to the local context.**

## Considerations for making homes age-friendly (Haukeland 2024, see final report, attachment 6)

### 1. Accessibility

- Vision:**
  - All spaces should have sufficient and even lighting, avoiding dim areas and sudden changes in light levels.
  - Glare should be minimized by using curtains or sunshades and avoiding reflective wall or floor surfaces.
  - Interior design should utilize contrast to improve visibility (e.g., stair steps, handrails, bathroom fixtures, glass walls, doors).
- Mobility and physical control:**
  - Multi-storey buildings should have an elevator or a stair lift.
  - Circulation spaces and doorways should be generously dimensioned.
  - Floor surfaces should be even and non-slip, and thresholds should be avoided.
- Memory-friendliness**
  - Entrances should allow personalization (for example, with a picture or a piece of furniture)

### 2. Functionality and comfort of spaces

- Apartment dimensions should consider storage needs (e.g., assistive devices and incontinence product deliveries).
- Spaces should enable care and assistance with daily activities (e.g., bathing etc.).
- Attention should be paid to the appearance of assistive devices supporting mobility and activity, ensuring they do not stand out excessively from the rest of the interior.

# RECOMMENDATIONS FOR MAKING EXISTING HOUSING AGE-FRIENDLY PHASE 2/2

## Considerations for designing the additional common spaces

(Haukeland 2024, see final report, attachment 6)

### 1. Accessibility

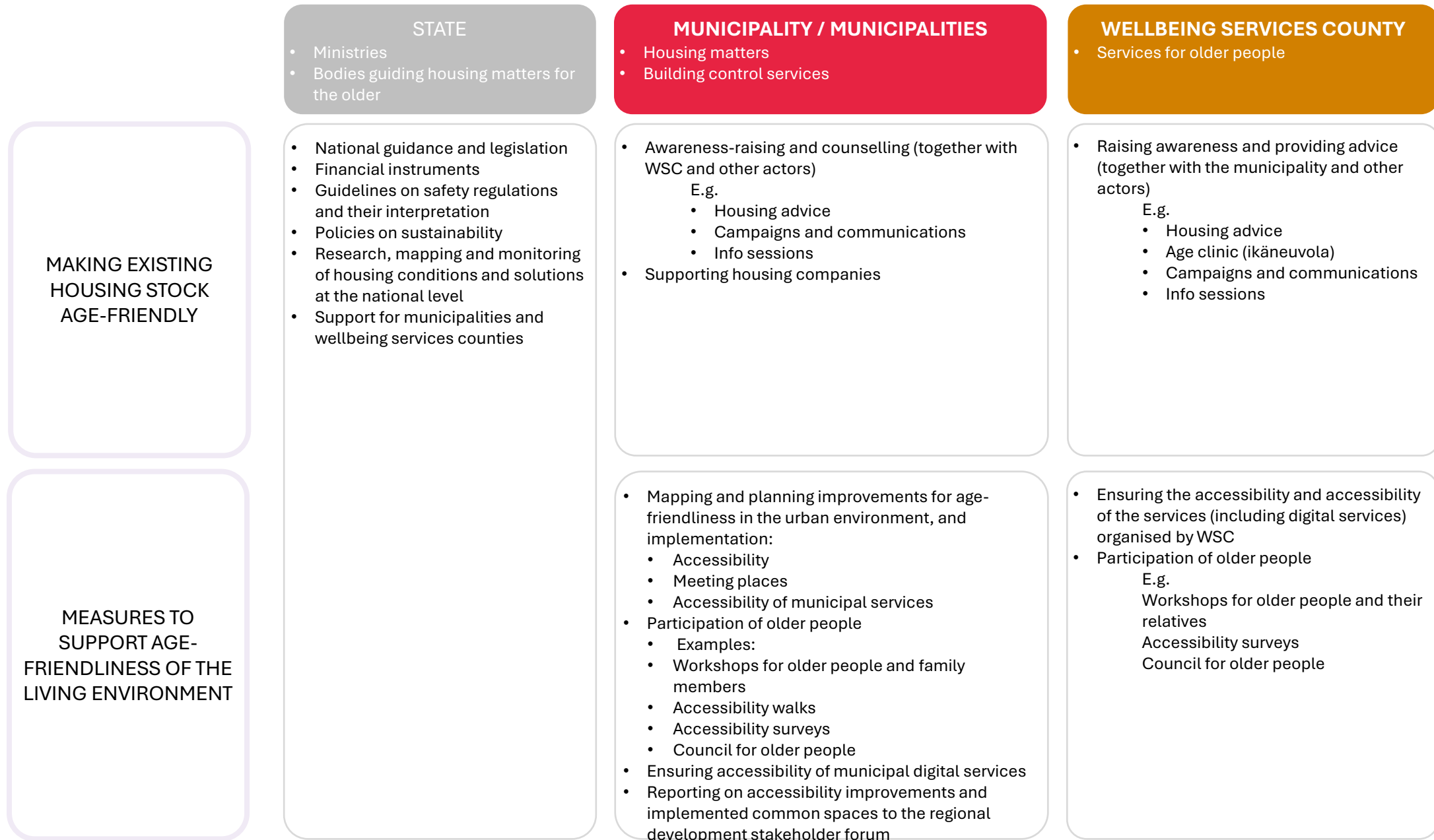
- **Vision:**
  - All spaces should have sufficient and even lighting, avoiding dim areas and sudden changes in light levels.
  - Glare should be minimized by using curtains or sunshades and avoiding reflective wall or floor surfaces.
  - Interior design should utilize contrast to improve visibility (e.g., stair steps, handrails, bathroom fixtures, glass walls, doors).
- **Kuulo:**
  - Common spaces should use materials that reduce echo and noise, such as acoustic panels
  - The layout of spaces and soundproofing solutions should ensure that sounds do not carry from one space to another
- **Mobility and body control**
  - Multi-storey buildings should have an elevator or a stair lift.
  - All circulation areas should have handrails
  - Circulation areas and doorways should be generously dimensioned
  - Floor surfaces should be even and non-slip, and thresholds should be avoided
  - Resting places should be available in circulation areas and outdoor spaces
  - An accessible toilet should be located adjacent to common spaces.
- **Memory-friendliness**
  - Long, maze-like corridors and repetitive spatial layouts should be avoided
  - Routes should mainly consist of sequences of functional spaces, where people using these spaces act as landmarks

- Visual connections between spaces should be enabled
- Colors and aids should be used to facilitate navigation (e.g., each floor has its own color code)
- Entrances should be designed to stand out from the façade
- Outdoor activities should be possible in a safe environment

### 2. Functionality and comfort of spaces (Haukeland 2024, see final report, attachment 6)

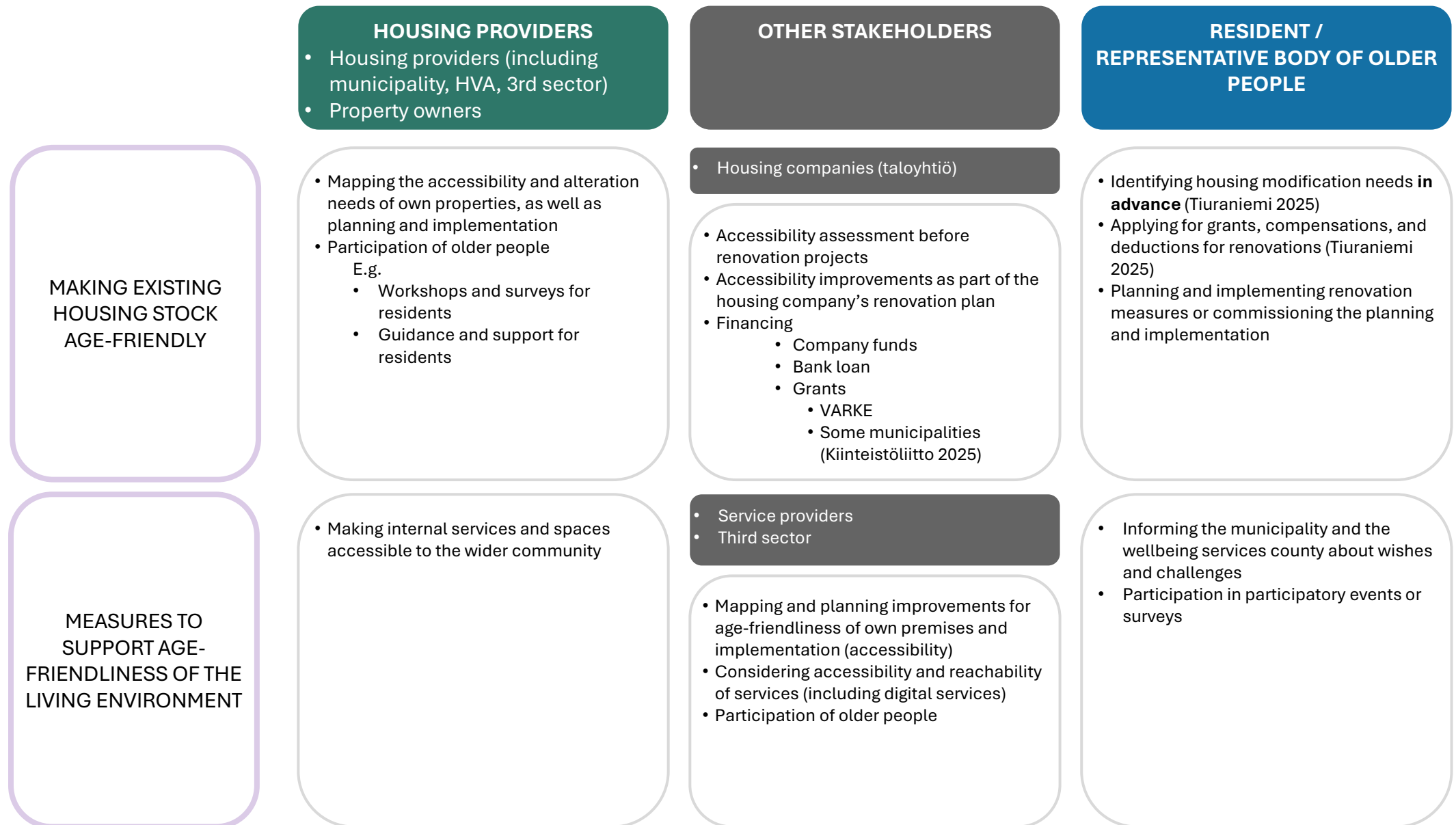
- Attention should be paid to the appearance of mobility and activity aids so that they do not stand out excessively from the rest of the interior
- Aesthetics should be considered when choosing furniture and materials
- Sufficient space should be reserved for the needs of operators

# ROLES OF STAKEHOLDERS (1/2)



*All stakeholders collect and provide feedback to the Regional development forum*

# ROLES OF STAKEHOLDERS (2/2)



*All stakeholders collect and provide feedback to the Regional development forum*

# Flow of feedback & information

## REGIONAL DEVELOPMENT

### PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs & HOUSING PRODUCTION (change of use + new construction): real estate development and concept design*

### DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications & HOUSING PRODUCTION (change of use + new construction): building design and construction*

### USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# HOUSING PRODUCTION

Change of use and new construction

# REAL ESTATE DEVELOPMENT & CONCEPT DESIGN

## Project ideation and development

In the real estate development and concept development phase, a housing concept is created based on identified demand. By analysing local, national, and global phenomena, an understanding of demand is formed. By analysing local conditions, the demand is anchored to the local context. By mapping examples, user needs, and ideating and testing alternative concepts, a foundation is established for a housing concept that will be detailed later during the design and implementation phases.

In the real estate development and concept design, regional input is incorporated through **the discussion forum for age-friendly living** (including the municipality, HVA, representative body of older people, and housing developers). This forum has outlined **a regional vision for age-friendly living** agreeing on key principles that guide this phase, including:

- **Quantitative demand for age-friendly housing:**
  - Demand for new dwellings (including change of use & new construction)
  - Demand for regional community spaces supporting living at home
- **Areas to be developed:**
  - Areas suitable for age-friendly housing
  - Potentially usable plots or properties
- **Sustainability principles**
  - Consideration of sustainability in implementation methods
- **Demand for service development**
  - Services supporting independent living

The vision and its guidelines are based on **current and anticipated future needs** identified through analyses and discussions in the forum. The analyses are available as source material for real estate development and concept design (see p.12).

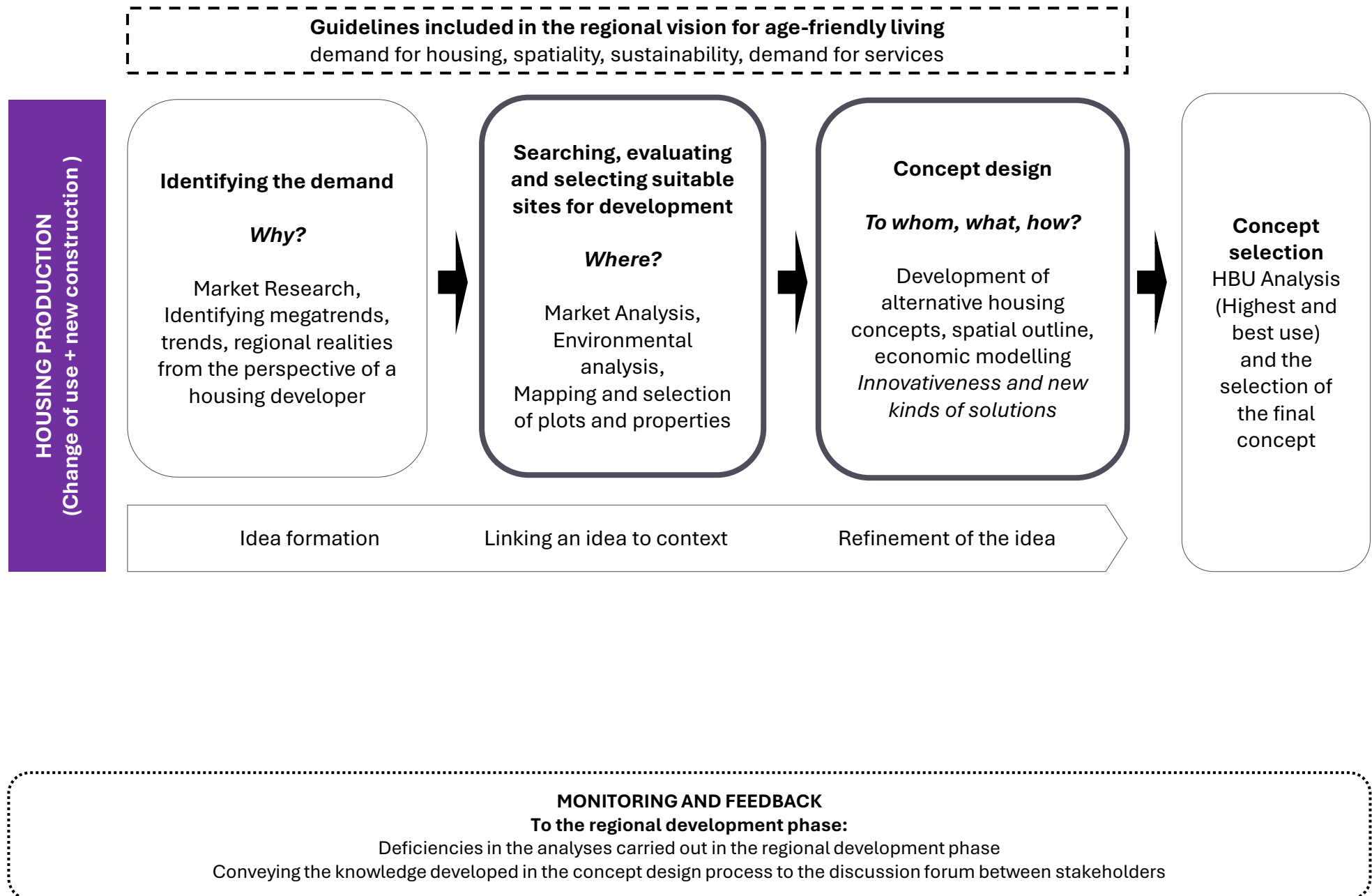
To support concept design, a concept tool developed in the TULE project can be found on page 49.

### TABLE OF CONTENTS FOR THIS PHASE

REAL ESTATE DEVELOPMENT & CONCEPT DESIGN PROCESS	28
FINDING, EVALUATING AND SELECTING SUITABLE SITES FOR DEVELOPMENT	29
CONCEPT DESIGN	30
RECOMMENDATIONS FOR REAL ESTATE DEVELOPMENT & CONCEPT DESIGN PHASE	31
ROLES OF STAKEHOLDERS	32
FLOW OF FEEDBACK AND INFORMATION	33

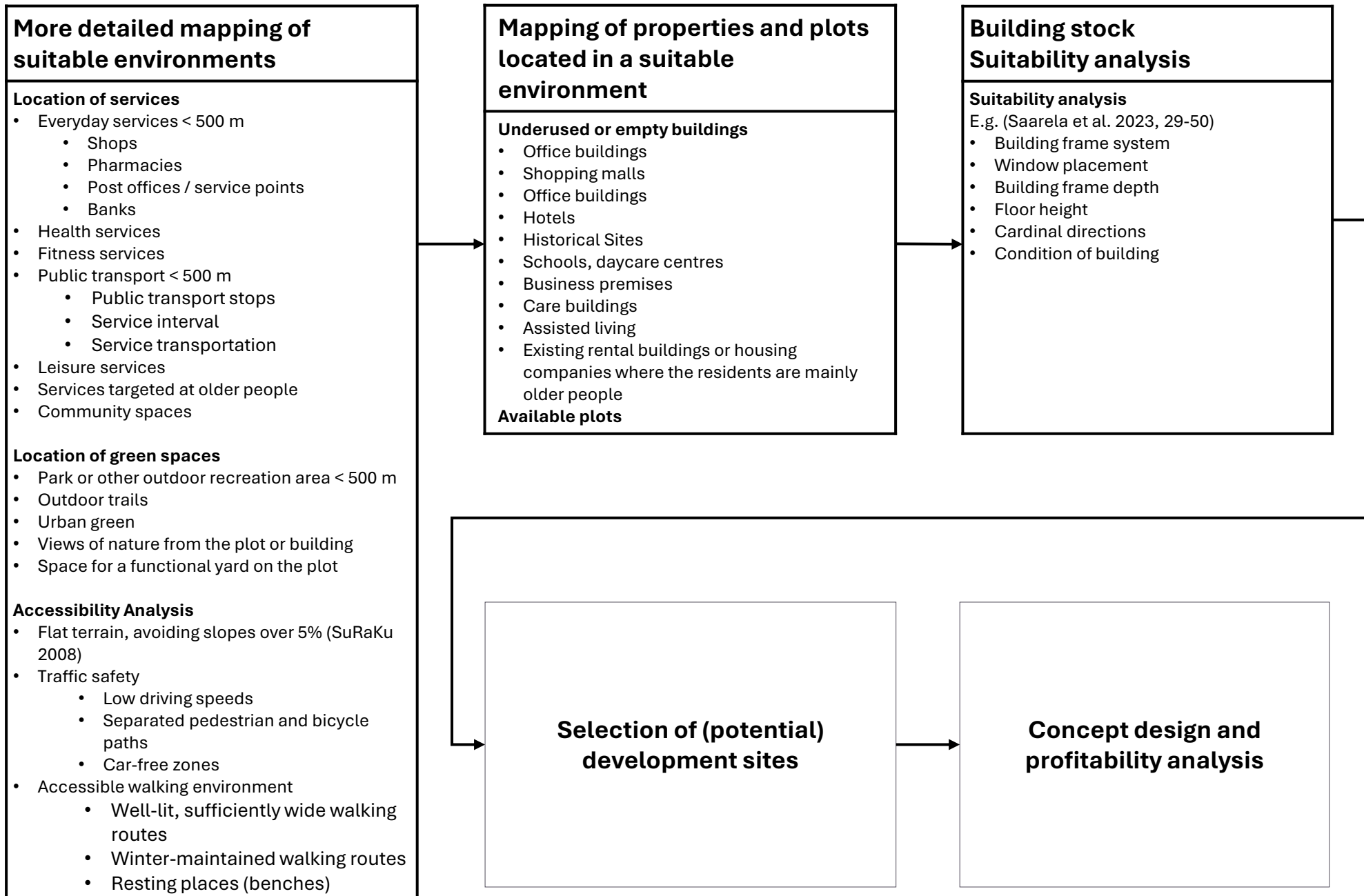
# REAL ESTATE DEVELOPMENT & CONCEPT DESIGN

Structure adapted from Miles et al. (2015)

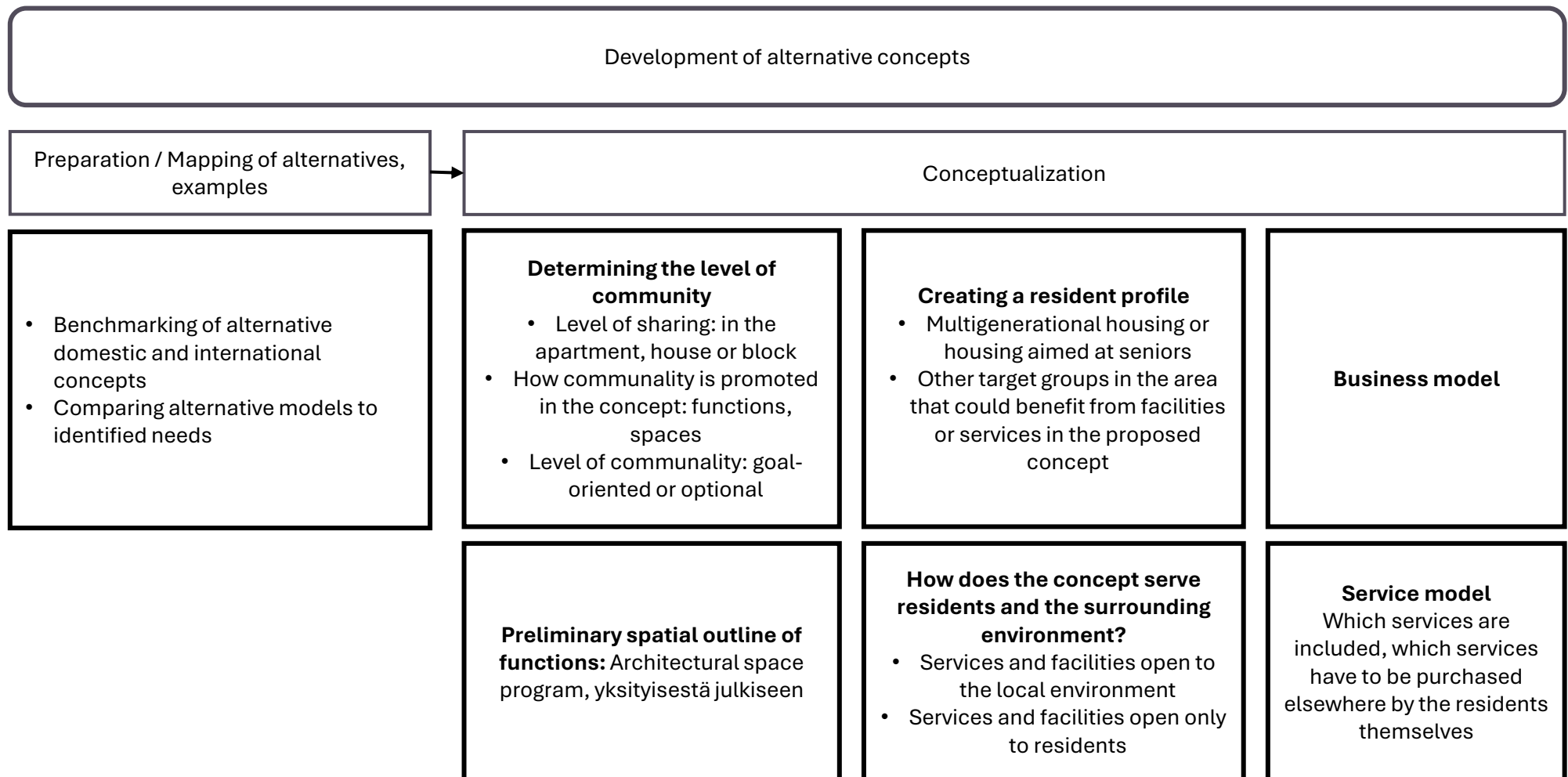


# Searching, evaluating and selecting suitable sites for development

## Searching, evaluating and selecting suitable sites for development



# Concept design



# RECOMMENDATIONS FOR THE REAL ESTATE DEVELOPMENT AND CONCEPT DESIGN PHASE

## Participation

- Involve older people and their relatives in concept development, e.g.
  - Workshop
  - Surveys mapping housing preferences
  - Surveys to test housing concepts

## Intergenerationality

- When developing housing concepts, take intergenerationality into account and try to enable meeting places for different generations, e.g.
  - Spaces and services open to non-residents
  - Housing with a mixed-age population (no age limit)

## Affordability

- When developing age-friendly housing, the affordability of housing and other housing-related costs should be ensured

## Sustainability

- Consider potential alternative uses for the property already at the concept stage, in case the current intended use is no longer needed in the future.
- Prioritize (when possible) existing building stock (especially in areas where housing demand may decrease in the future).

## Diversity

- Take into account the diverse needs and preferences of older people when developing concepts
  - Different needs for communality
  - Different housing preferences
  - Varying need for support
- **There are no one-size-fits-all solutions, many kinds of solutions are needed**

## Accessibility (see also p. 21)

- When mapping a suitable site or plot, take into account:
  - Proximity to services and communal spaces
  - Proximity to green spaces and opportunities for outdoor activities on the plot
  - Accessible location

## Effects of the regional structure on services

- The more sparsely populated the locality and the longer the distances in the area, attention should be paid not only to housing solutions, but also to mobile services and service traffic/transport services.

## Cooperation between actors

- When developing concepts, opportunities for cooperation and partners (service providers, foundations, voluntary organisations, municipal actors, etc.) should be mapped out.
  - To organize activities or services
  - To share spaces

**Engage current and future users as well as family members.**

**In all decisions and solutions, resource wisdom should be prioritized by developing what already exists. When building new structures, prepare for changes with flexible solutions.**

**Selected solutions must also be suitable for other age and user groups.**

**Ensure diversity and abundance of housing options in all decisions and solutions.**

**Consider community and its support at different levels.**

**Always adapt decisions and solutions to the local context.**

## TOIMIJOIDEN ROOLIT Kiinteistökehitys ja konseptointi -vaiheessa

## REAL ESTATE DEVELOPMENT &amp; CONCEPT DESIGN

## STATE

- Ministries
- Bodies guiding housing matters for the older people

- Legislation and national guidance
- Financial instruments
- Guidance for state supported housing projects for special groups (The Centre for State-Subsidised Housing Construction)

## MUNICIPALITY / MUNICIPALITIES

- Zoning and land use
- Housing matters
- Building control services

- Offering plots, e.g.:
  - Plot assignment competition
  - Continuous application
  - Scoring
- Co-development of the project with the client and potential real estate developers (partnership planning)
- Possible changes to the local detailed plan

## WELLBEING SERVICES COUNTY

- Services for older people

- Acting as a possible partner: service provision

## HOUSING PROVIDERS AND DEVELOPERS

- Housing providers (including the municipality, WSC and the 3rd sector)
- Property owners
- Real estate developers

- Mapping and analysis of plots and sites
- Development and conceptualisation of own projects
- Participation of older people, service providers and employees
  - Workshops
  - Surveys
- Finding and identifying possible partners

## OTHER STAKEHOLDERS

- Service providers
- Third sector
- Experts

- Acting as a partner: service provision
- Participation
  - Workshops
  - Surveys

## RESIDENT / REPRESENTATIVE BODY OF OLDER PEOPLE

- Participation in concept development workshops and surveys

*All stakeholders collect and provide feedback to the regional development forum*

# Flow of feedback & information

## REGIONAL DEVELOPMENT

## PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs*  
**& HOUSING PRODUCTION (change of use + new construction):**  
*real estate development and concept design*

## DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications*  
**& HOUSING PRODUCTION (change of use + new construction):** *building design and construction*

## USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# BUILDING DESIGN AND CONSTRUCTION

In the design and implementation phase, functional, spatial, and financial objectives are set for the final building. Both the project process and the building and plot are designed and constructed.

- **Preparation (space requirement study, project planning):**

Objectives are defined for the project process and the final building. These include financial, spatial, sustainability, and functional aims that guide the design. For age-friendly housing, preparation emphasizes

- considering the spatial needs of older residents and stakeholders connected to their daily life,
- defining comprehensive design principles that support age-friendliness and social resources, and
- setting sustainability targets.

- **Design (proposal, general and implementation planning):**

Through progressively refined plans, the spatial and technical form of the building is developed (including designs for applying building permits and implementing construction phase). For age-friendly housing, the design phase focuses on solutions that support sustainability, age-friendliness, and social resources (taking into account layout, space dimensions, material choices, etc.).

- **Implementation:**

The building is constructed.

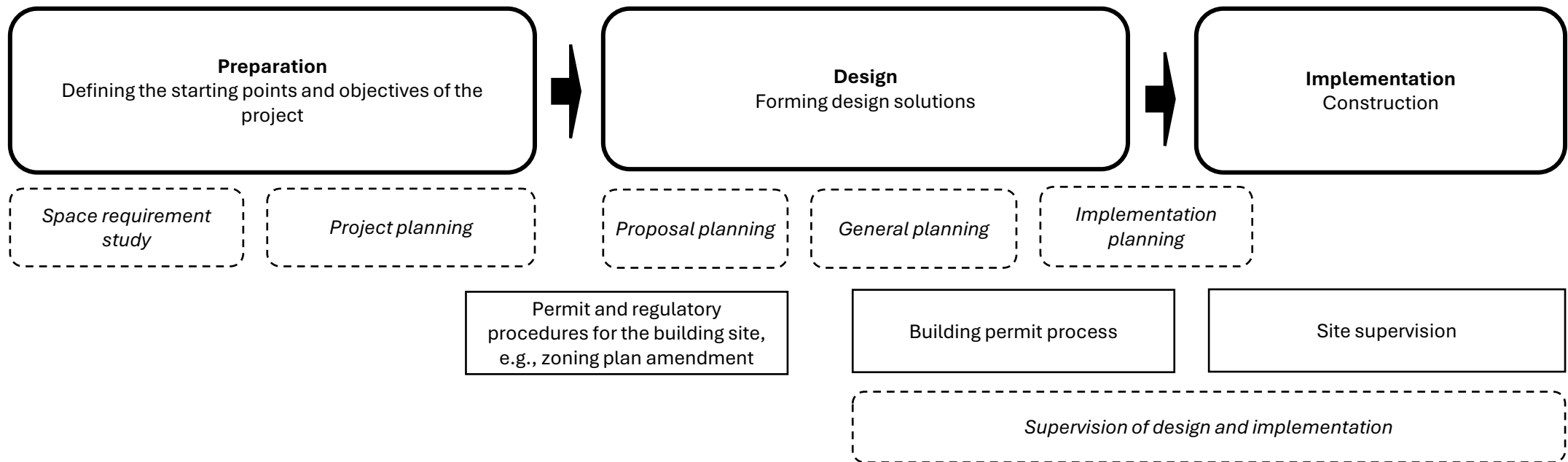
The design and implementation phase is based on the housing concept developed during the real estate development and concept design phase, the selected plot or property, and zoning regulations. The concept's functions, services, preliminary spatial layout, and chosen environment, together with financial realities, form the basis for the design. This phase also executes the regional vision for age-friendly living.

## TABLE OF CONTENTS FOR THIS PHASE

DESIGN AND IMPLEMENTATION PROCESS	35
PREPARATION	36
DESIGN & IMPLEMENTATION	37
RECOMMENDATIONS FOR DESIGN & IMPLEMENTATION	38
ROLES OF STAKEHOLDERS	40
FLOW OF FEEDBACK AND INFORMATION	33

# BUILDING DESIGN AND CONSTRUCTION PROCESS

Sources for the structure and the roles of actors: RT 10-10827; RT 10-11222; RT 10-11224; RT 10-11284; (Kuusiniemi 2019)



## MONITORING AND FEEDBACK

**For the regional development and real estate development and concept design phase:**

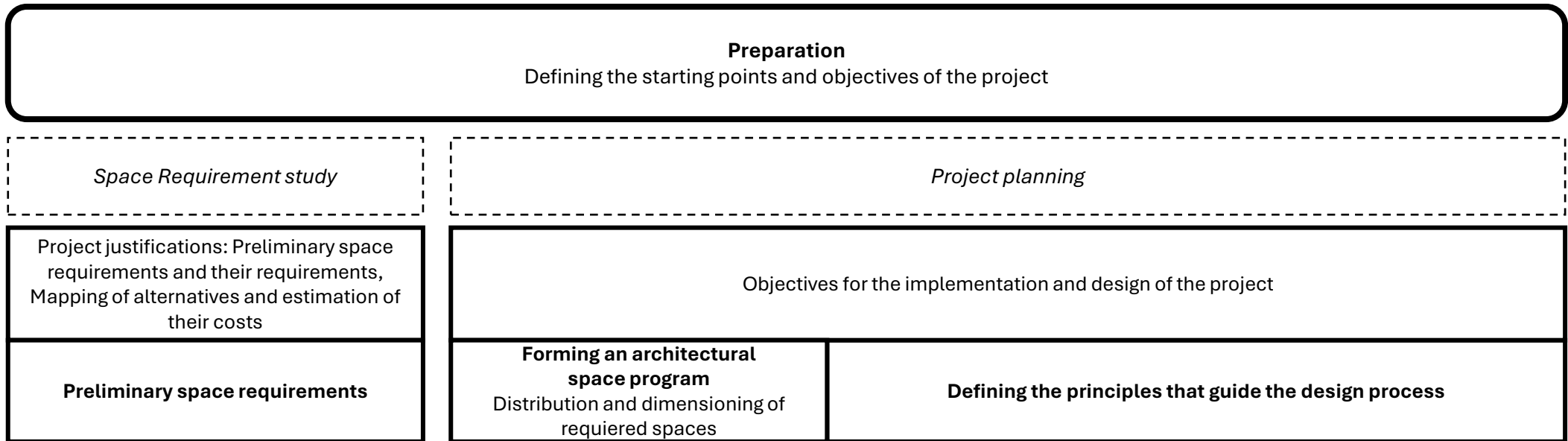
The impact of design solutions on costs.

Completed age-friendly housing projects and community spaces

**Within the design and implementation phase, from the design phase to the preparation phase:**

Feedback on the sufficiency of preliminary information.

# Preparation & recommendations



## Recommendations related to age-friendly housing concerning spatial requirements to be defined during the Space requirement study and project planning stages

### Mapping of building site options

- The plot should have space for a functional accessible green yard

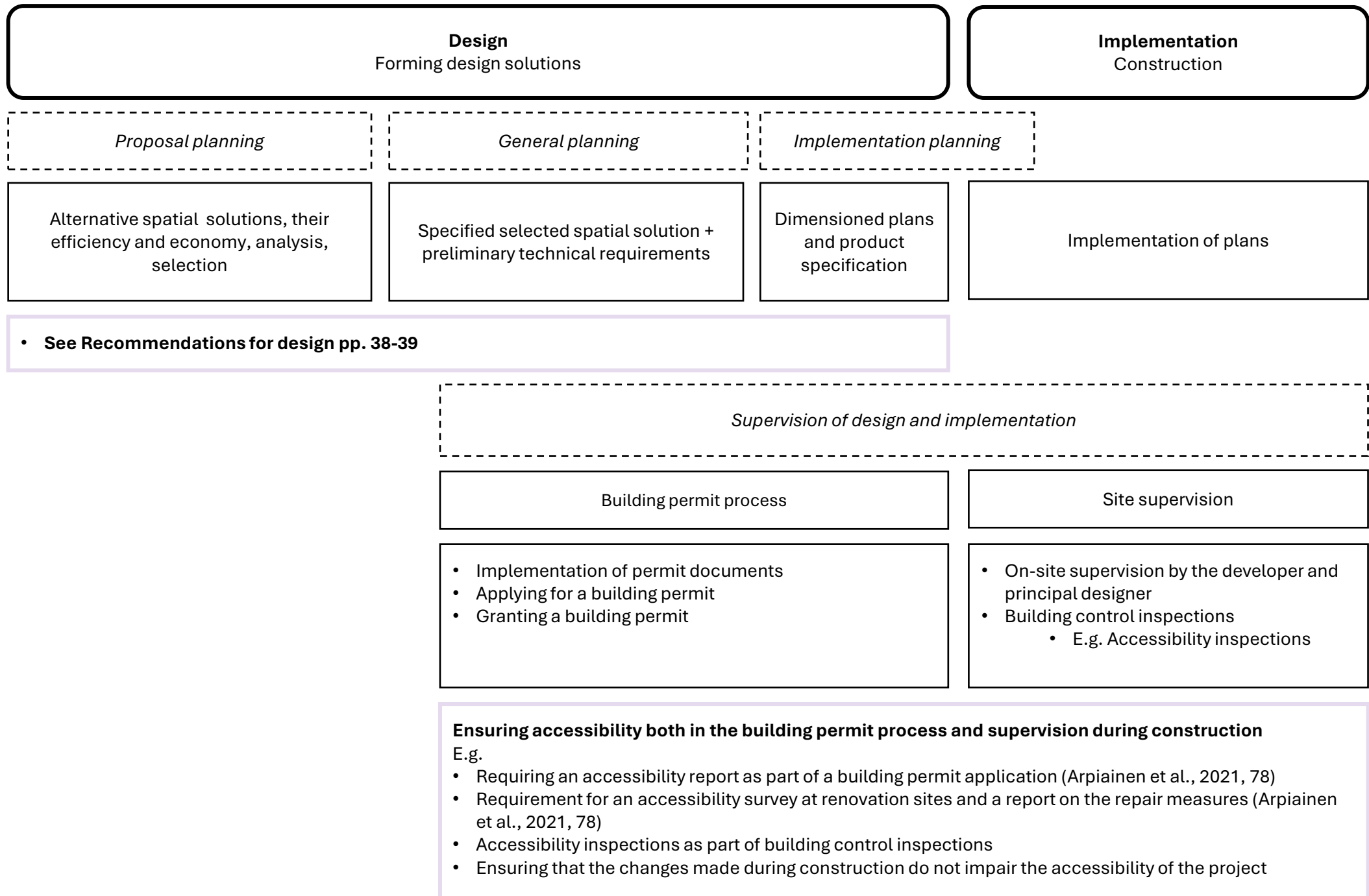
### Forming a preliminary architectural space program

- Outdoor and indoor spaces should be reserved for exercise (e.g. gym, outdoor gym, lawn bowling).
- Common spaces should have functional outdoor and indoor spaces that encourage activities and exercise (e.g. workshop, gardening, planting boxes).
- The need for storage space (e.g. assistive devices, diaper deliveries) must be taken into account in the dimensioning of the apartments.
- If there are care staff in the building, the facilities intended for staff work and storage should be separated from the residents' facilities.
- In addition to the residents of the building, it is recommended that some of the common areas be directed to the residents of the surrounding area.

## Recommendations related to age-friendly housing for defining the principles that guide the design process

- The facilities must be designed to be accessible. Please note:
  - Memory-friendly design
  - Sensory-friendly design
  - Accessibility (Mobility)
- The spatial structure should support both a sense of community and ensure privacy
- The space needs of care and storage must be taken into account
  - There should be enough storage space in the apartment and common areas (assistive devices, diaper boxes, etc.)
- Facilities must be designed to be flexible in the short and long term. E.g.
  - Provisions for building systems, and structural openings
  - Kitchen provision in all units
  - Provisions for future installation of assistive technologies and devices
- Connection with nature
  - Yard design, views from the apartments
- Age-neutral design principles
- Requirements for furniture and equipment
  - Technologies that increase safety
    - E.g. stove guards, safe stoves
  - Age-friendly and ergonomic furniture
    - E.g. descending kitchen upper cabinets, raised sockets

# Design & Implementation & Recommendations



# RECOMMENDATIONS FOR DESIGN 1/2

## 1. Accessibility (Haukeland 2024, see final report, attachment 6)

- **Vision:**
  - Sufficient and even lighting should be ensured in all spaces, and dim spaces and sudden changes in the amount of light should be avoided.
  - Both artificial light and natural light should be used in lighting conditions.
  - Glare should be minimized by using curtains or sun visors and avoiding reflective wall or floor surfaces.
  - Contrast differences should be used in the interior to improve visibility (e.g. staircase steps, railings, toilet fixtures, glass walls, doors).
- **Hearing:**
  - Materials that reduce echoes and noise, such as acoustic panels, should be used in common areas.
  - The placement of the premises and sound insulation solutions must ensure that sounds do not carry from one space to another.
- **Movement and body control:**
  - Multi-storey housing should have an elevator or a stairlift.
  - All circulation spaces must have railings.
  - Passageways and doorways must be dimensioned spaciously
  - Floor surfaces should be flat and non-slip, and thresholds should be avoided.
  - There should be resting places in the circulation spaces and in the yard.
  - There should be an accessible toilet in connection with common areas.
  - In the apartment, the toilet should be located in connection with the bedroom.
  - The doors should be easy to use, for example. assisted by electric opening.
- **Memory-friendliness**
  - Avoid long, maze-like corridors and repetitive spatial layouts.
  - Circulation routes should primarily consist of a sequence of functional spaces, allowing people using these spaces to serve as landmarks.
  - Visual connections between spaces should be enabled.
  - Colors and cues should be used to support navigation (e.g., each residential floor has its own color code).
  - Apartment entrances should allow personalization (for example, with a picture or a piece of furniture).
  - The building should provide access to an accessible outdoor courtyard.
  - Apartments designed for people with memory disorders should preferably be located so that residents have direct, unaccompanied access from the residential floor to a safe outdoor area without needing an escort (via elevator or stairs)

## 2. Connections to the outside (Haukeland 2024, see final report, attachment 6)

- Apartments and shared spaces should offer views of green space (e.g., towards a courtyard).
- Yard design should consider ease of winter maintenance (Verma et al., 2022).
- Placement of functions on the plot should take into account how building massing and positioning affect light conditions for both the plot and the building.
- Views from apartments should, where possible, be oriented towards nature

**Engage current and future users as well as family members.**

**In all decisions and solutions, resource wisdom should be prioritized by developing what already exists. When building new structures, prepare for changes with flexible solutions.**

**Selected solutions must also be suitable for other age and user groups.**

**Ensure diversity and abundance of housing options in all decisions and solutions.**

**Consider community and its support at different levels.**

**Always adapt decisions and solutions to the local context.**

# RECOMMENDATIONS FOR DESIGN 2/2

## 3. Communality (Haukeland 2024, see final report, attachment 6)

### Design that supports social interaction

- Common areas should be designed to be functional (e.g. shared kitchen, conservatory, garden, gym, laundry room).
- Shared spaces should be centrally located in the spatial structure in relation to the apartments and in connection with everyday routes.
- The apartments should have views of the common areas (e.g. from the kitchen to the courtyard).
- The routes should be compiled mainly from functional space series, and windowless narrow corridors should be avoided.

### • Design that supports privacy

- Sounds should not carry between apartments and shared spaces.
- Apartment entrances should not be located directly adjacent to shared spaces; instead, there should be a transitional zone (e.g., a resident-controlled area or stairwell) between apartments and shared spaces to protect privacy.
- Shared spaces should not have unobstructed visual access to apartments.

### • An environment that supports inclusion:

- In the design of common areas, it must be taken into account that residents have the opportunity to meet with different sizes of ensembles.
- The residents' handprint should also be visible in the common areas (for example, a personalised apartment entrance).

## 4. Functionality and comfort

- The need for storage space (e.g. assistive devices, diaper deliveries) must be taken into account in the dimensioning of the apartments.
- The premises of the apartment must enable care and assistance in everyday activities (e.g. washing, etc.).
- Attention should be paid to the appearance of assistive devices that support movement and activity, and they should not stand out too much from the rest of the interior.
- When choosing furniture, attention should be paid to aesthetics and office-like furniture should be avoided.
- The property must have a designated parking space for care staff.

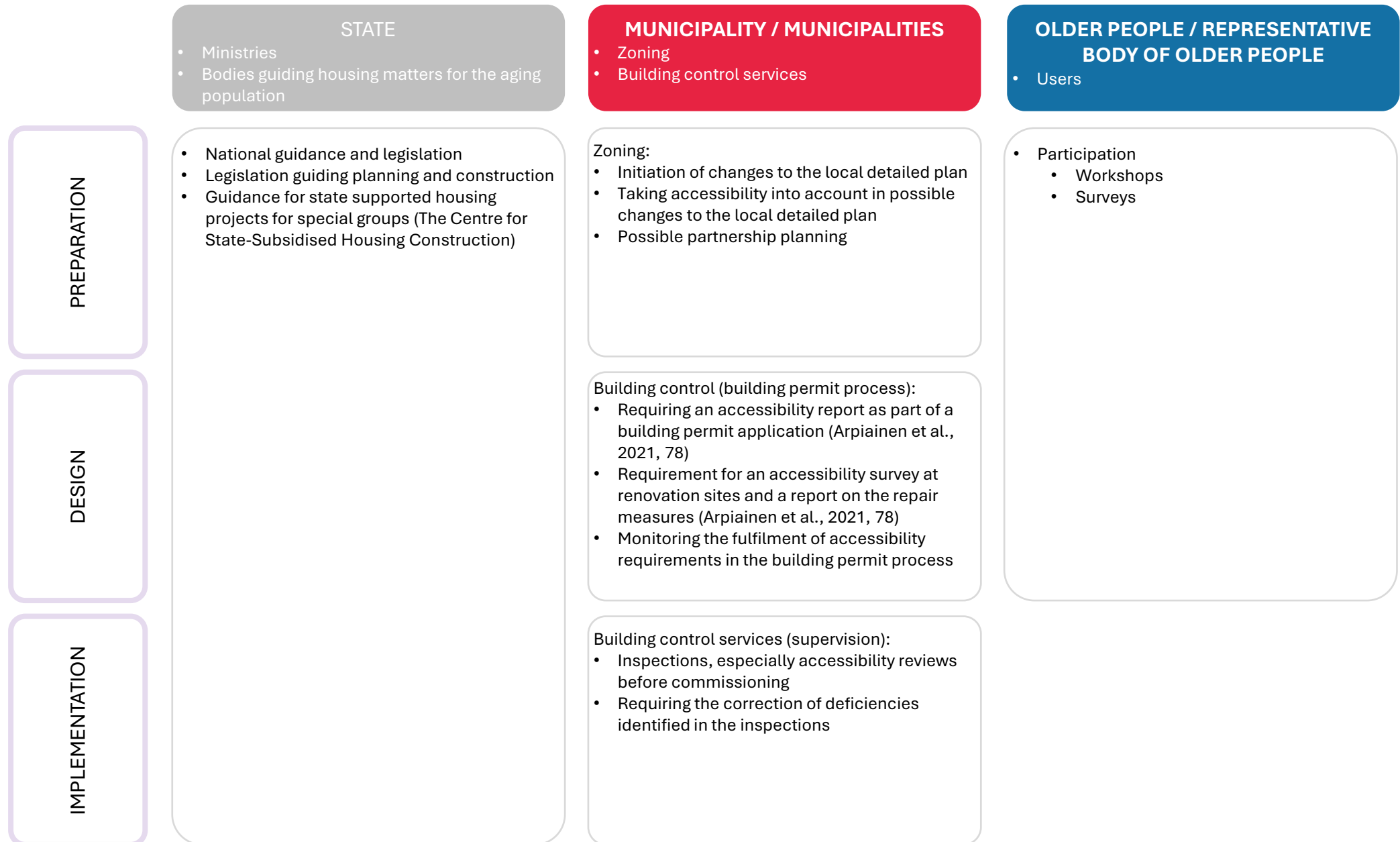
## 5. Adaptability

- The design should take into account how structural systems, building services, and layout affect the building's adaptability in the future (see Tarpio 2015)
  - Adaptability is made possible, for example, by long spans and pillar structures (Häkkinen and Ala-Kotila 2019).
- The window division must enable the division of spaces into smaller spaces with windows (Pelsmakers et al. 2022; Yrjänä 2024).
- The number and placement of the building's stairwells must enable versatile and flexible apartments (Yrjänä 2024)

## 6. Universal principles of good housing design (Pelsmakers et al. 2022)

- The frame depth of the building should not exceed 12 metres
- Most apartments should open in at least two directions
- The central corridors dividing the building's frame in two should be avoided and natural light should be allowed to enter the stairwell
- All apartments should have a direct connection to the outside (terrace or balcony)
- It must be possible to furnish the apartments in several ways

# ROLES OF STAKEHOLDERS (1/2)



*All stakeholders collect and provide feedback to the Regional development forum*

# ROLES OF STAKEHOLDERS (2/2)

## HOUSING DEVELOPER/CLIENT

- Housing providers (including the municipality, HVA and the 3rd sector)
- Property owners
- Builder consultant etc.

## DESIGNERS

- Principal Designer
- Building Designer (Architect)
- Specialty designers
- Especially interior architect and landscape architect
- Experts (e.g. accessibility expert)
- External auditor (in special procedures)

### PREPARATION

- Project organization, coordination, management, control, and information management
- Gathering and guiding the project parties, coordinating cooperation

- Setting the financial, operational and spatial goals of the project
- Planning the implementation of the project
- Defining the space needs and the principles guiding the design
- Mapping, comparing and selecting building site options
- Applying for possible plan changes
- User engagement and needs mapping

- Coordinating the design process and guiding the designers (Principal Designer)

- Assessment of baseline data: e.g., zoning plans, context
- Preliminary design: spatial requirements with dimensions, functional layout and interconnections, demands for furniture, equipment, and materials
- Definition and description of design principles: sustainability, flexibility, age-friendliness, accessibility
- User participation and needs assessment

### DESIGN

- Reviewing plans and decision-making
- Design management
- Compiling the operation and maintenance manual
- Applying for a building permit

- Implementation of design proposals and final design documents
- Responsible for accessible and sustainable design
- Production of official documents
- Cooperation between authorities and permit documents

### IMPLEMENTATION

- Site supervision
- Monitoring the implementation of age-friendly design solutions

- Adjust plans as needed
- Supervision (principal designer)
  - Monitoring the implementation of age-friendly design solutions

## BUILDERS

- Contractors: main, subcontractors

- Site organization (main contractor)

- Construction, implementation of design solutions according to plans

All stakeholders collect and provide feedback to the Regional development forum

# Flow of feedback & information

## REGIONAL DEVELOPMENT

### PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs & HOUSING PRODUCTION (change of use + new construction): real estate development and concept design*

### DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications & HOUSING PRODUCTION (change of use + new construction): building design and construction*

### USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# USAGE AND MONITORING

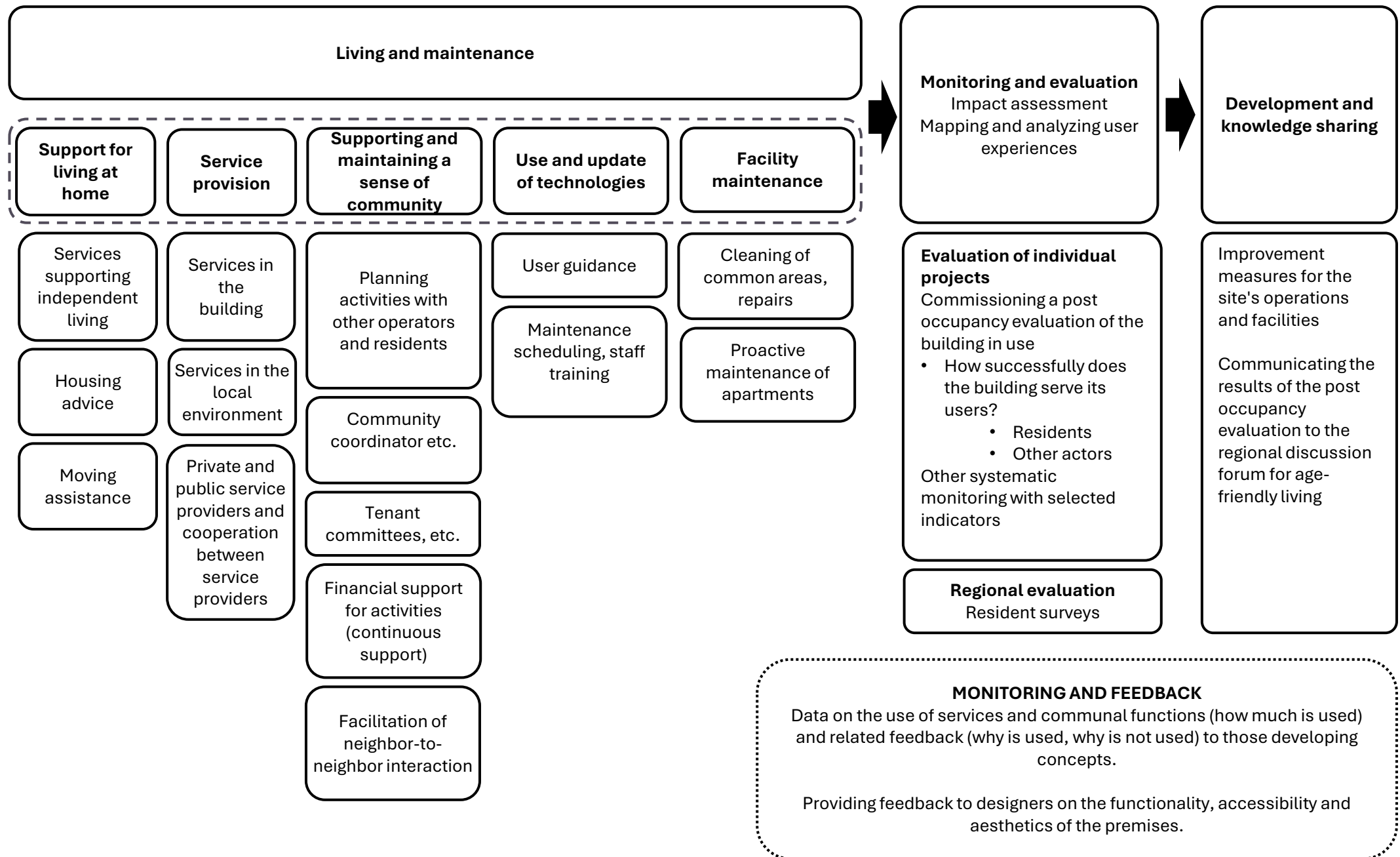
In the usage and monitoring phase, the designed building is taken into use and becomes a home for its residents. At the same time, the planned spaces, functions, services, and technologies are implemented. During this phase, independent living and active aging are supported through various measures, such as fostering social interaction. The functionality of the designed concept and spatial solutions is monitored, and feedback is collected from residents and housing management. This information is used to improve the current properties and shared with stakeholders planning new housing.

Input for this phase consists of the building designed and implemented in the previous phase, including its services, functions, and spaces, as well as its integration with the existing environment.

## TABLE OF CONTENTS FOR THIS PHASE

USAGE AND MONITORING PROCESS	44
RECOMMENDATIONS FOR USAGE AND MONITORING	45
ROLES OF STAKEHOLDERS	46
FLOW OF FEEDBACK AND INFORMATION	47

# USAGE AND MONITORING PROCESS



# RECOMMENDATIONS FOR THE USAGE AND MONITORING PHASE

## Participation

- Engage older people in the development of services and community activities
- Collect and respond to feedback from older people
- Support and enable activities organized by older people themselves

## Adequate guidance

- Older people must be familiarized with the technologies utilized in housing and their proper use.
  - For example, stove guard and similar devices.
- Older people must be instructed on how to use the new apartment and the building

## Supporting communality

- Activities organised by the elderly themselves should be supported and enabled.
- Cooperation with different actors and service providers should be utilised in the production of communal events and activities.
- Intergenerational communality and a sense of community within the area should also be promoted through events or activities open to non-residents.

## Collecting feedback and further development

- Satisfaction with the quality of housing must be assessed, and opportunities for providing feedback must be ensured
  - For older people
  - For other stakeholders
- Identified challenges must be addressed, and efforts should be made to find appropriate solutions.
- Post-occupancy evaluation (POE) should be conducted for completed housing projects a few years after completion. The results should be reported to developers of age-friendly housing and shared in the regional discussion forum for age-friendly living

## Supporting living at home

- Considering and anticipating personal housing needs
  - Housing advice
- Supporting moving into an age-friendly apartment
  - Moving assistance
- Services supporting independent living and their needs assessment

**Engage current and future users as well as family members.**

**In all decisions and solutions, resource wisdom should be prioritized by developing what already exists. When building new structures, prepare for changes with flexible solutions.**

**Selected solutions must also be suitable for other age and user groups.**

**Ensure diversity and abundance of housing options in all decisions and solutions.**

**Consider community and its support at different levels.**

**Always adapt decisions and solutions to the local context.**

# ROLES OF STAKEHOLDERS

## USAGE AND MONITORING

### STATE

- Ministries
- Bodies guiding housing matters for the aging population

- Legislation and national guidance
- Financial instruments
- Research, mapping and monitoring of housing conditions and solutions at the national level

### HOUSING PROVIDERS

- Housing providers (including municipality, WSC, 3rd sector)
- Property owners

- Support for anticipating housing needs
- Introducing residents to housing (including communal activities, technologies, etc.)
- Conducting post-occupancy evaluations
- Collecting and analyzing feedback from older people

### MUNICIPALITY / MUNICIPALITIES

- Housing matters
- Building control services

- Service provision
- Monitoring age-friendly housing in the area
  - Completed housing projects
  - Implemented services
  - Studies and surveys on housing

### OTHER STAKEHOLDERS

- Service providers
- Third sector

- Service Provision
- Housing advice

- Developers, designers and builders

- Tasks during the liability and warranty period

### WELLBEING SERVICES COUNTY

- Services for older people

- Service provision (care services, e.g. home care)
- Monitoring own service production and forwarding information to the regional development forum

### RESIDENT / REPRESENTATIVE BODY OF OLDER PEOPLE

- Living
- Utilisation of services
- Giving feedback
  - Feedback sessions
  - Surveys
  - Other active feedback
- Participation in communal activities and their development

*All stakeholders collect and provide feedback to the Regional development forum*

# Flow of feedback & information

## REGIONAL DEVELOPMENT

### PREPARATION AND DEVELOPMENT OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*Mapping modification needs & HOUSING PRODUCTION (change of use + new construction): real estate development and concept design*

### DESIGN AND IMPLEMENTATION OF SOLUTIONS

**MAKING EXISTING HOUSING AGE-FRIENDLY:**  
*planning and implementation of modifications & HOUSING PRODUCTION (change of use + new construction): building design and construction*

### USAGE / MONITORING

Data on the use of services, communality and other functions (how much is used) and related feedback (why is used, why is not used) to parties developing concepts.

Monitoring the changes made and the effects of housing solutions, e.g. falls, need for care, etc.

User feedback on housing solutions, new common areas, environmental modifications, the process of making one's own apartment age-friendly, etc.

The impact of design solutions on costs.

Feedback on the sufficiency of preliminary information.

Completed age-friendly housing projects and community facilities

Training and communication of information to different stages and different actors

**MAKING EXISTING HOUSING AGE-FRIENDLY**

Feedback from users on new shared spaces, environmental modifications, the process of making their own home age-friendly, etc.

Implemented accessibility improvements and shared spaces

Deficiencies in analyses carried out in the regional development phase

Transferring knowledge developed during the concept design process into discussions between actors

Communicating feedback on the functionality, accessibility and aesthetics of spaces to designers

# Sources cited in the document

The background to the model can be found in the final report of the Future Senior Housing (TULE) project. Due to the extensive number of sources, the sources are also mainly only included in the report.

- Aclan, R., George, S., Block, H., Lane, R. ja Laver, K. (2023). Middle aged and older adult's perspectives of their own home environment: a review of qualitative studies and meta-synthesis. *BMC Geriatrics*, 23(707), 1–12. Available at: <https://doi.org/10.1186/s12877-023-04279-1>.
- Arpiainen, L., Wäre Åkerblom, S., Hillukkala, E., Mäkinen, R. ja Roberts, V. (2021). YK:n vammaissopimus ja rakennetun ympäristön esteettömyys : Tulevaisuuden lainsäädäntö- ja ohjaustarpeet. Helsinki: Valtioneuvoston kanslia. Available at: <https://julkaisut.valtioneuvosto.fi/handle/10024/163652> [Accessed: 6 October 2025].
- Ekvall, A. 2019. A Generic Manual for the Design Process Stages in International Building Projects – with specific focus on Denmark, Finland, Norway, Sweden and the United Kingdom. AMK-opinnäytetyö, Raasepori: Yrkehögskolan Novia. Available at: <http://www.theseus.fi/handle/10024/265869> [Accessed: 27 October 2025].
- Haukeland, V. (2024). Itsenäistä asumista yhteisöllisesti: Yhteisöasuminen ikääntyneiden asuinvaihtoehtona ja sen tilalliset tarpeet. Diplomityö. Tampereen yliopisto. Available at: <https://urn.fi/URN:NBN:fi:tuni-202405025141> [Accessed: 6 October 2025].
- Häkkinen, T. ja Ala-Kotila, P. (2019). Monikäyttöisyys ja muunneltavuus kestävässä rakentamisessa. FI: VTT Technical Research Centre of Finland. Available at: <https://doi.org/10.32040/2242-122X.2019.T363> [Accessed: 27 January 2025].
- Kiinteistöliitto (2025). Ikä- ja muistiystävällisen taloyhtiön hyvät käytännöt. Available at: [https://www.kiinteistoliitto.fi/media/ezmegmmd/hyvatkaytannot\\_taloyhtiolle042025.pdf](https://www.kiinteistoliitto.fi/media/ezmegmmd/hyvatkaytannot_taloyhtiolle042025.pdf) [Accessed: 25 September 2025].
- Kuusiniemi, A. (2019). Asemakaavoitus osana yksityistä hankekehitystä - prosessinäkökulma kolmeen tapaukseen. Diplomityö, Aalto Yliopisto. Available at: <https://urn.fi/URN:NBN:fi:aalto-201906234119> [Accessed: 6 October 2025].
- Miles, M.E. (2015). *Real estate development: principles and process*. 5. ed. Washington, DC: Urban Land Institute.
- Pelsmakers, S., Nisonen, E., Maununaho, K., Kaasalainen, T., Tarpio, J., Lehtinen, T. ja La Rosa, R.C.D. (2022). Mistä syntyy kestävä asuinympäristö? / What Makes a Sustainable Living Environment? – Researchers Compiled a Checklist. ark ARKKITEHTI (4). Available at: <https://researchportal.tuni.fi/en/publications/mist%C3%A4-syntyy-kest%C3%A4v%C3%A4-asuinymp%C3%A4rist%C3%B6-what-makes-a-sustainable-livi> [Accessed: 6 October 2025].
- RT 103253 (2020). Arkkitehtisuunnittelun tehtäväluettelo ARK18. Rakennustietosäätiö RTS. Available at: <https://kortistot.rakennustieto.fi/kortit/RT%20103253>
- RT 10-10827 (2004). Asuntosuunnittelun tehtäväluettelo PS ARK GEO RAK LVI SÄH. Available at: <https://kortistot.rakennustieto.fi/kortit/RT%2010-10827>
- RT 10-11222 (2016). Talonrakennushankkeen kulku. Rakennushankkeen osapuolet. Rakennustietosäätiö RTS. Available at: <https://kortistot.rakennustieto.fi/kortit/RT%2010-11222>
- RT 10-11224 (2016). Talonrakennushankkeen kulku. Rakennushankkeen vaiheet ja osittelu. Rakennustietosäätiö RTS. Available at: <https://kortistot.rakennustieto.fi/kortit/RT%2010-11224> [Accessed: 6 October 2025].
- RT 10-11284 (2017) Hankkeen johtamisen ja rakennuttamisen tehtäväluettelo HJR18. Rakennustietosäätiö RTS. Available at: <https://kortistot.rakennustieto.fi/kortit/RT%2010-11284>
- Saarela, K., Korsimo, I., Alasentie, S., Lahdensivu, J., Tulokas, T., Ruotanen, J., Takala, J., Tiainen, P., Ropponen, A. ja Tapaninen, L. (2023). *Rakennuksen käyttötarkoituksen muutoksen edellytykset : Case toimistorakennus*. Ympäristöministeriön julkaisuja. [online] Helsinki: Ympäristöministeriö. Available at: <https://julkaisut.valtioneuvosto.fi/handle/11111/12132> [Accessed 8 december 2025].
- SuRaKu. 2008. Esteetön ympäristö - Puistokäytävät ja levähdyspaikat. Available at: [https://www.hel.fi/static/hki4all/ohjeet/Suraku\\_Kortti-5\\_060208.pdf](https://www.hel.fi/static/hki4all/ohjeet/Suraku_Kortti-5_060208.pdf) [Accessed: 28 January 2025].
- Tarpio, J. (2015). Joustavan asunnon tilalliset logiikat: Erilaisiin käyttöihin mukautumiskykyisen asunnon tilallisista lähtökohdista ja suunnitteluperiaatteista. Tampereen teknillinen yliopisto. Arkkitehtuurin laitos. Available at: <https://trepo.tuni.fi/handle/10024/115316> [Accessed: 6 October 2025].
- Tiuraniemi, M. (2025). Esteettömyysinvestoinneilla hyvinvointia asukkaille ja arvoa kiinteistölle. Available at: <https://varsinais-suomi.kiinteistoliitto.fi/blogi/esteettomyysinvestoinneilla hyvinvointiaasukkaillejaarvoakiinteistolle/> [Accessed: 6 October 2025].
- Verma, I. (toim ), Arpiainen, L. ja Vladykina, N. (2022). Monimuotoista integroitua asumista muistisairaille - Loppuraportti. Aalto University. Available at: <https://aaltodoc.aalto.fi/handle/123456789/115571> [Accessed: 28 January 2025].
- WHO. (2025). *Ageing: Ageism*. [online] Available at: <https://www.who.int/news-room/questions-and-answers/item/ageing-ageism> [Accessed 11 november 2025].
- Yrjänä, A.-K. 2024. Joustavat erityisryhmäasunnot : Ikääntyneiden palveluasumisen rakennusten analyysi. Diplomityö, Tampere University. Available at: <https://trepo.tuni.fi/handle/10024/157344> [Accessed: 6 October 2025].