




# Decision-making and planning guidelines

## Task 2.4

Roskilde University



Version	1
WP	2
Deliverable	Decision-making and planning guidelines
Date	24 May 2021
Dissemination level	Public
Deliverable lead	Roskilde University
Authors	Martin Visby Buchard & Thomas Budde Christensen
Reviewers	
Abstract	<p>A transition towards circular economy in the build environment calls for new practices in construction and demolition projects and strategic frameworks to promote the adoption of these practices. These guidelines address the implementation of circular economy in the scope of 1) construction and demolition <b>projects</b> by proposing a framework to map key practices, actors, knowledge inputs etc. in each phase of a project and 2) public <b>organizations</b> proposing a workshop format to facilitate organizational change at a strategic, tactical and operational level by promoting reflexive learning.</p>
Keywords	#Decision-making; #Planning; #Organizational change
License	 <p>This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). See: <a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a></p>

# Contents

1. Introduction	2
2. Mapping of C&D projects in municipalities	3
2.1. The project phases	3
2.1.1. Spatial planning	3
2.1.2. Planning of demolition project	3
2.1.3. Demolition and resource management	4
2.1.4. Transformation	4
2.1.5. Planning of construction project	4
2.1.6. Construction	5
2.1.7. Operation and Maintenance	5
2.2. The workshop format	6
2.2.1. Step #1: Identification of stakeholders (before the workshop)	7
2.2.2. Step #2: Identification of involvement of stakeholders (during workshop)	8
2.2.3. Step #3: Identifying interaction between stakeholders	9
2.2.4. Step #4: Identification of decisions	9
2.2.5. Step #5: Identification of CityLoops tools	10
2.2.6. Step #6: Identification of knowledge needs and risks	10
2.2.7. Step #7: Identification of improvements	11
2.2.8. Example of mapping	11
3. Organizational change for circularity in municipalities	13
3.1. The workshop format	13
3.1.1. Step #1: Mapping of central strategies (before workshop)	14
3.1.2. Step #2: Identification of current state and organizational challenges (during workshop)	15
3.1.3. Step #3: Identification and prioritization of development actions	16
3.1.4. Step #4: Establish organizational structure for implementation	17
3.1.5. Examples of workshop results	18
Annex 1 Mapping template Decision-making in C&D projects	21
Annex 2 Workshop template organizational change	23

# 1. Introduction

To address the implementation of circular economic practice in decision-making and planning of construction and demolition projects, this tool is developed as guidelines for incorporating circularity systemically in planning and decision-making processes. The guidelines are both designed to support the identification of when decisions should be taken, which stakeholders should be involved, what knowledge inputs are needed, and which (e.g., CityLoops) tools can support during different stages of urban transformation projects. Furthermore, the guidelines address how circular practice can be implemented in city organizations.

Activities in development projects such as CityLoops typically operate at a demonstrational level embedding experimental practices in real life situations. To secure adoption of experimental practices at a strategic level, thereby incorporating circularity systemically in planning and decision-making processes, it is essential to address the relation between the experimental project level and the political, strategic level of formalized procedures. The planning and decision-making guidelines does not apply fixed operational procedures (e.g., generic procurement criteria), rather the tool applies a systemic frame for experimental and innovative practice, to formalize experiences from actions carried out in individual projects and aligning these actions horizontally between actors in each phase of planning and operations and vertically between strategies, tactics, and operations.

The tool is developed in two parts covering a visual and a methodological element. The first part is a workshop format with a visual mapping framework, and the second part addresses the operationalization of the mapping framework within the organization.

**The first part** aims to identify when key decisions in urban transformation projects are to be taken, which stakeholders are involved, and what knowledge inputs are needed during different stages of the planning process.

**The second part** is based on a workshop format, engaging three levels of decision-making: a *strategic level* targeting how to implement circular economy in the municipal strategies. The purpose of this is to give mandate to employees in the organization to integrate circular economy in decision making but also obligate all parties to work towards 'circularity' across disciplines and departments in the organization. The *tactical level* targets the allocation of mandate and resources, establishment of partnerships and formulation of procedure in the implementation of circular practices. The *operational level* targets how to operationalize a 'doing your normal job in another way' based on the strategic/political mandate. To secure dynamic development across the three levels, organizational learning is crucial to secure monitoring and evolution processes, that not solely focus on capacity building in skills at the individual level, but also promote common organizational change at the three levels. These guidelines are designed to support this development.

## 2. Mapping of C&D projects in municipalities

These guidelines cover a workshop format designed to identify when key decisions in urban transformation projects are to be taken, which stakeholders are involved, and what knowledge inputs are needed during different stages of construction and demolition projects. The workshop format is intended to be carried out with participation from core stakeholders (following a stakeholder mapping exercise, see below) involved in the planning and decision-making processes related to urban transformation projects.

### 2.1. The project phases

The decision-making and planning guidelines are targeting the entire lifecycle of urban transformation including overall spatial planning, demolition of old buildings, transformation of resources and construction and use of new buildings. Demolition and construction are divided into phases of preliminary planning and execution of the projects. These phases are further specified into elaborate activities. In the following, the phases addressed in the framework are described. Although described separately to represent a lifecycle, some activities are overlapping as parallel decision-making and planning. This is due to the importance of some consideration to be done early in the process.

#### 2.1.1. Spatial planning

Prior to an individual demolition and construction project, when transforming an urban area, a framework for the development of the urban area is conducted, describing the purpose, land use, aesthetics etc. This phase is important in terms of establishing a foundation for decision-making and political priority for the area, thereby supporting a mandate for experimental practice and attracting projects to the area. The development framework involves e.g., formulation of general strategies and local plans. As it is crucial to close the gap between demolition and construction projects, this phase provides the opportunity for an overview and early planning to connect the future projects.

#### 2.1.2. Planning of demolition project

The planning phase of a demolition project involves programming of the project, a pre-demolition audit and tendering. Before designing the demolition project, it should be decided, whether to demolish the building or preserve for reuse. Therefore, the programming and pre-demolition audit often takes place as parallel or overlapping phases, to provide prior examination for this decision. In the programming phase, the objectives of the project and the scope of work is being determined. Performing a pre-demolition audit provides an understanding of the

amount and quality of materials in the building. This is also accompanied by considerations on relevant legislation such as requirements for environmental permits, as to issue recommended waste handling and routes of recovery. These examinations form the base for procurement in terms of tender specifications etc.

### **2.1.3. Demolition and resource management**

After bidding and contracting of a demolition project, the execution of the project involves a decontamination of hazardous substances, a selective demolition of the building and handling of the produced waste. Decontamination is based on an environmental screening and to secure planning for recycling also a resource screening as part of the pre-demolition audit. In the decontamination phase, necessary materials are decontaminated. The demolition phase is initiated by site preparatory work, and the selective demolition involves in short, a dismantling of direct removeable materials and demolition of the main structure. All materials are sorted to secure clean recyclable fractions. After the selective demolition, all the waste is handled for reuse, recycling, and recovery (3R). Some waste must be disposed. Essential in waste management is a quality assessment of the resources recovered from the waste which provides input for documentation of materials.

### **2.1.4. Transformation**

In order to use the demolished materials in a new building, these are now prepared for reuse and recycling (e.g., concrete crushed for recycling or bricks cleansed for reuse) or recovery for energy purpose. The documentation of materials conducted in the demolition phase, is used to apply End-of-Waste criteria (Waste Framework Directive 2008/98/EC), for the waste to obtain status as resource. Resources must comply with technical and environmental requirements and assured purpose of use, whether there is an existing market or demand, or planned for a specific construction project. If the material is to enter the market, it must comply with the Construction Products Regulation (305/2011/EU-CPR).

### **2.1.5. Planning of construction project**

Initiating a construction project, a vision and idea presentation is made followed by a program including scope and requirements for the project and a budget. In these initial phases of the project, overall considerations on 3R are to be decided, aiming at incorporating specific recovered materials in the design phase. The construction design can be based on design for disassembly (DfD) principles, focusing on simple constructions and detachable joints, thereby promoting maintenance of buildings for increased lifespan on construction parts and dismantle for 3R in the end-of-life stage. To address documentation and later quality of the construction materials in the construction phase, building information modeling (BIM) can be applied for a detailed digital representation of the building. It can be crucial to involve all relevant stakeholders early in the design phase for joint action and engagement in designing, how to use the recovered materials. This calls for more flexible tendering of projects.

## 2.1.6. Construction

In the construction phase, the secondary materials are applied. Here the documentation, often as a material passport, from the demolition is important to ensure quality and application of the materials. The material passport is applied in as-built documentation, which should be considered in the design stage. If circular construction is to be successful, the client's role is important to address possible risks in the project, thereby accommodating economic and legal barriers in collaboration. The agreements on collaboration taken prior the execution, should be continuously coordinated among stakeholder during the whole construction phase.

## 2.1.7. Operation and Maintenance

When a building is constructed and is in use, the main focus of resource consumption in the use phase is to extend the lifetime of the building. For a building to have a long lifespan, focus is on optimizing maintenance, which in the phases of construction can be improved by high durability in materials and construction elements and design for repair (integral part of DfD). By promoting renovation and retrofitting, also considering flexible use of buildings, can lengthen the time for considering demolition. In operation and maintenance of a building, concepts as performance-based contracts and extended producer responsibility can be introduced. Besides decreasing resource consumption on the construction, this should also be applied for inventory. During the lifetime of a building BIM and material passport must also be continuously updated.

The phases are illustrated in Figure 1 also illustrating the key practices in each phase. The phases should not be seen as a fixed linear process, as phases may overlap, and processes take place simultaneously.

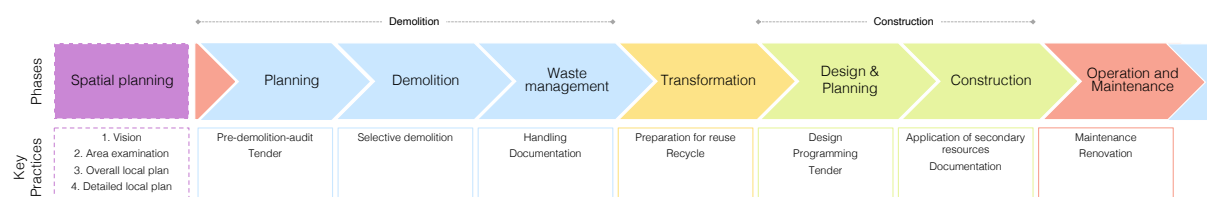


Figure 1: Phases and key practices of circular demolition and construction value chain

## 2.2. The workshop format

In the following, the steps of the mapping workshop are described. The mapping framework is illustrated in an online version focusing on stakeholder involvement (Figure 2) and a physical version focusing on circular practices in (Figure 3). The mapping framework can be used both to reflect completed projects as accumulated case experience or to map a future upcoming project as initial reflections. These guidelines present an example of a mapping for inspiration, but a key point is that the users must have accumulated some experience with circular construction. These guidelines do not provide a complete procedure for circular projects, but rather a framework and workshop format to develop procedures of your own.

Stakeholders	Area	Demolition						Transformation	Construction						Use
		Spatial planning	Program	Pre-demolition audit	Tendering	Deconstruction	Demolition		Resource handling	Vision and idea	Program	Budget	Design	Tendering	
key internal															
key internal															
key internal															
key internal															
key internal															
key internal															
secondary internal															
secondary internal															
secondary internal															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
external															
Description of decisions															
CityLoop tools															
knowledge/regulation/documents															
Risk and uncertainties															
Mapbox Describe															

Figure 2: Framework for planning and decision-making mapping focussing on stakeholders (online version)



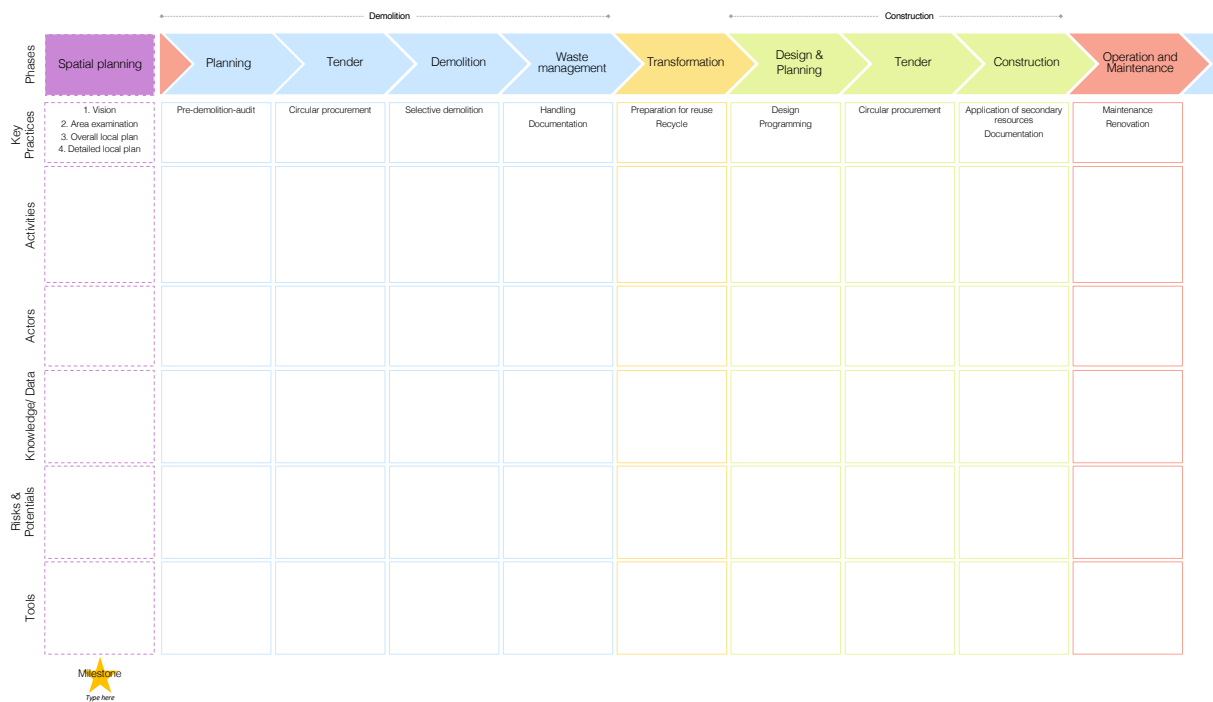


Figure 3: Framework for planning and decision-making mapping focussing on circular practices

## 2.2.1. Step #1: Identification of stakeholders (before the workshop)

The first step involves the identification of key stakeholders. The stakeholder mapping is performed before the workshop is conducted. There exist a wide range of pre-developed stakeholder mapping tools that can be used to identify key stakeholders. The CityLoops project has also developed a manual for stakeholder mapping. The stakeholder mapping must identify internal and external stakeholders in the municipality. Internal stakeholders are divided into primary and secondary stakeholders. As illustrated in Figure 4, examples of internal stakeholders include property departments, road and park departments, building departments, environmental departments, waste departments, purchasing departments etc. Examples of external stakeholders include users, advisors, construction clients, architects, entrepreneurs, developers, construction material suppliers, government agencies etc.

Output of step #1: is a list of key stakeholders divided between internal key and secondary stakeholders and external stakeholders.

## Aktører

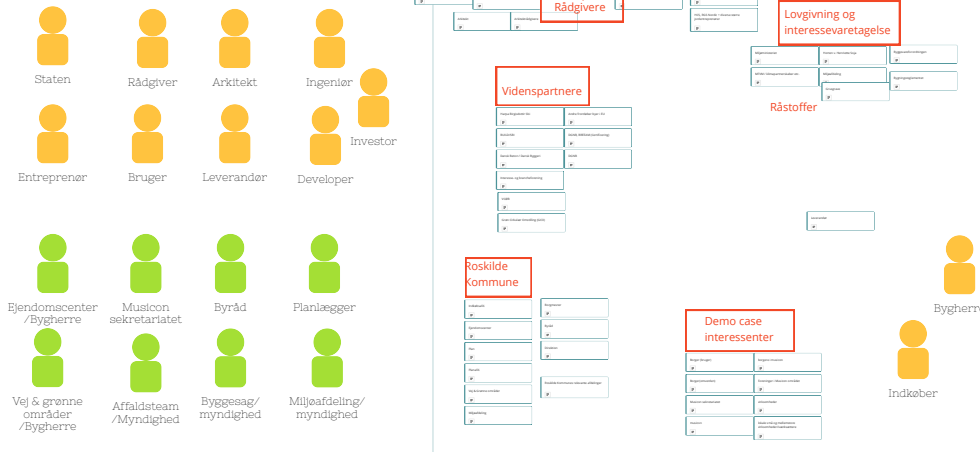


Figure 4: An example of a stakeholder mapping in Roskilde Municipality. Internal stakeholders are green and external are yellow (in Danish).

## 2.2.2. Step #2: Identification of involvement of stakeholders (during workshop)

The second step aims to identify when different stakeholders are involved during the planning phases. Before identifying stakeholder involvement, the above described phases are adjusted to the case as illustrated in Figure 5. The second step takes place during a workshop with participation of the most relevant stakeholders involved in a given urban transformation project. The workshop format can be physical or online. If the online format is chosen, Miro-boards (or software with similar functionality) is recommended. The participating stakeholders use a pre-designed template (see figure 1) to identify, when they are involved in the planning processes.

A secondary aim of the activity is to allow interaction between participating stakeholders and facilitate a dialogue about, when and why different stakeholders are involved. This process may lead to a redesign of the stakeholder mapping (step #1) if new stakeholders are identified during the dialogue.

The output of step #2: is a visual overview (a gantt diagram) that illustrates when various stakeholders are involved in the urban transformation project.

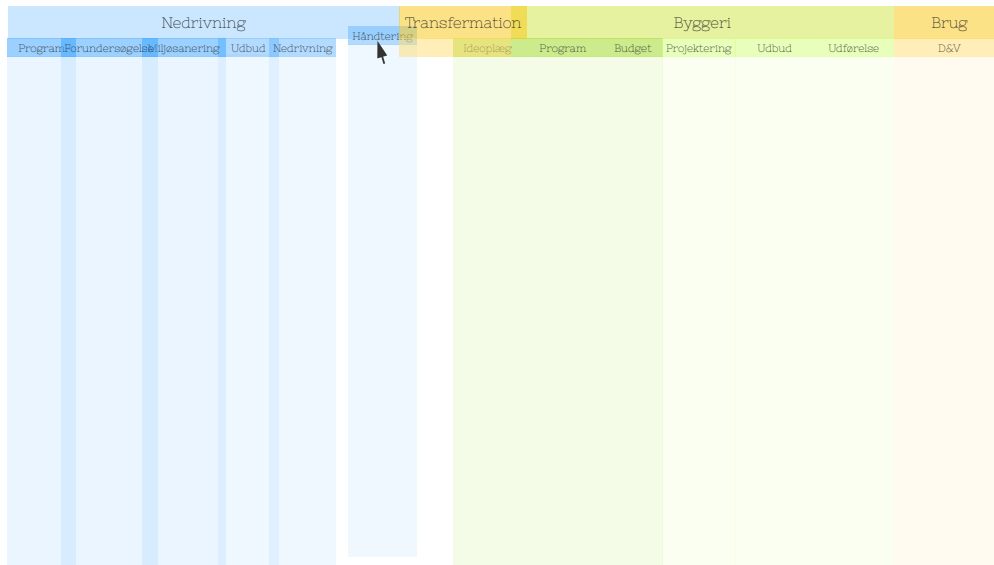


Figure 5: An example of the identification of relevant phases with blue representing demolition, yellow transformation and operation & maintenance and green representing construction (in Danish)

### 2.2.3. Step #3: Identifying interaction between stakeholders

The third step aims to identify interaction between involved stakeholders. This step is performed through a dialogue session where the participating stakeholders discuss the interaction to identify when and why stakeholders interact during planning and decision-making processes.

The output of step #3: is an overview over links between stakeholders.

### 2.2.4. Step #4: Identification of decisions

The aim of step 4 is to identify the key decisions that are taken during an urban transformation project. The decisions are identified during a dialogue session performed in smaller groups if the workshop includes more than 8-10 participants. Examples of key decisions includes adoption of a strategic spatial plan, publishing of a construction or demolition tender etc. The key decisions that are described are inserted in the bottom line of the decision-making framework. This process allows participating stakeholders to get an overview over the most important window of opportunities, and when combined with the Gantt diagram developed in Step #2, allows the stakeholders to identify which stakeholders are involved and able to influence decisions. Step #4 can furthermore facilitate a dialogue about how and when to involve stakeholders in future urban transformation projects. An example is provided in Figure 6.

Output of step #4: is a description of key decisions and their role and influence on the planning processes.

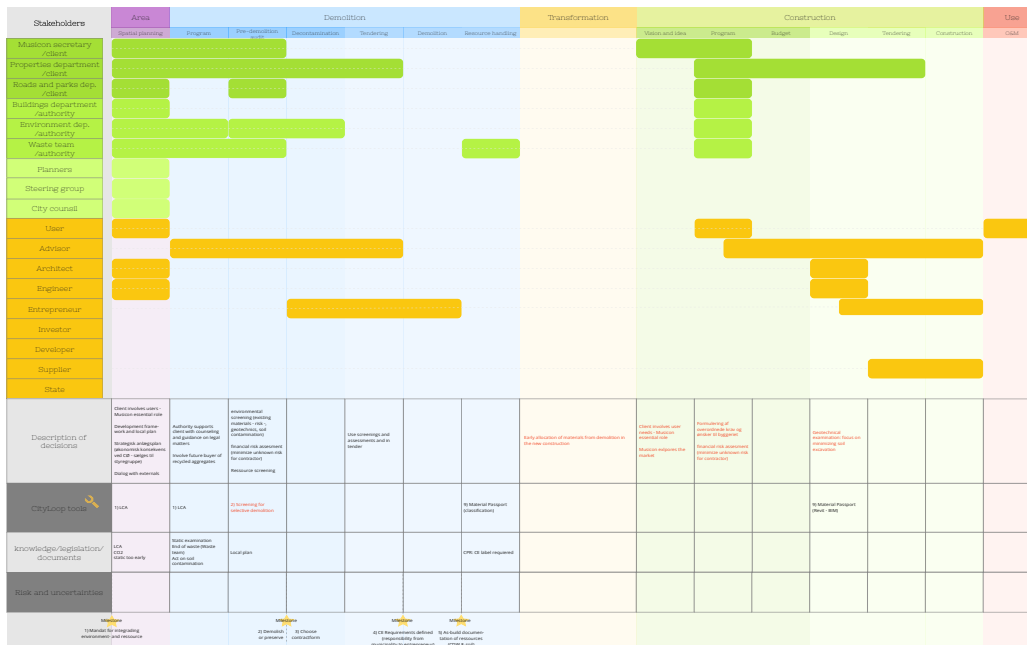


Figure 6: An example of a mapping of key decisions for circularity in a demonstration activity in Roskilde. In the above Gantt diagram is mapped the involvement of stakeholder, and below is a description of decisions, tools, knowledge, risks, and milestones.

## 2.2.5. Step #5: Identification of CityLoops tools

The aim of the fifth step is to identify, when the developed CityLoops tools become relevant during the planning and decision-making processes. Examples of CityLoops tools that may become relevant for an urban transformation project includes lifecycle assessment tools relevant for the calculation of GHG emissions, selective demolition tools/protocols, soil handling and monitoring tools etc. The tools that are described are inserted in the bottom line of the decision-making framework.

This step may facilitate a dialogue about the proper use of tools.

Output of Step #5: is an identification of when various tools may be integrated into planning and decision-making processes.

## 2.2.6. Step #6: Identification of knowledge needs and risks

The aim of step 6 is to identify knowledge gaps in and among the participating stakeholders and to identify key legal drivers and barriers that needs to be addressed during an urban transformation project. These elements are described and inserted in the bottom line of the decision-making framework. The second part of step 6 is to identify risks and uncertainties associated with the decision-making process related to the urban transformation project. Risks and uncertainties are also described and inserted in the bottom line of the decision-making framework.

## 2.2.7. Step #7: Identification of improvements

The aim of the final 7<sup>th</sup> step is to identify how improvements can be made and implemented. Potential improvements are typically identified already while completing step 2-6. Therefore the aim of step 7 is primarily related to debating and collect already identified improvements. Examples of improvements can be a changed process by which various departments within the municipality are involved and exchange knowledge, implementation of new tools and protocols, changes to paper-flows etc.

Output of step #7: is identification and ranking priority of improvements.

## 2.2.8. Example of mapping

A mapping of circular decision-making and planning practices in C&D project may vary depending on scope and focus regarding phases, stakeholders, key activities, milestones etc. Furthermore, some organizations are more experienced in circular C&D than others, hence a case of example is provided in the following to initiate reflection. The example is based on a CityLoops demonstration activity in Roskilde Municipality (Denmark) and is illustrated in Figure 7.

In Roskilde Municipality the demonstration activities took place in the urban development area Musicon – a transformation of a former concrete factory and waste deposit to a new urban area hosting 1000 dwellings and 1000 workplaces. The mapping of decision-making and planning focused on a larger transformation of two factory halls (hall 11 and 12) and was conducted continuously while the project was developed, and planning phases of C&D conducted. As emphasized in these guidelines, the phases in the mapping should not be perceived as a strict linear process, as some phases are overlapping.

One of the key points found in this case is the importance of establishing a politically supported vision (for more see Chapter 3) and clearly defined goals. A crucial step in setting the goal is a thorough examined base of data. This involves first an environmental and geotechnical screening and later a resource mapping, static examination, and soil balance assessment. This base of data, supports defining the circular project, communicating it in market dialog, setting tender requirements and assessing potential risks. After dismantling the CDW not preservable as whole structures, the initial assessments must be supplied by documentation of the CDW in the waste reporting to comply with the end-of-waste criteria (2008/98/EC) and CE certification.

Furthermore, it is important to establish a good dialog between the client, advisors, contractors, and authorities. This involves assessing and managing risks, agreeing on responsibilities, and planning and managing the project to secure aggregate value. A crucial task is to retain this dialog and a memory throughout the project, as the involvement of stakeholders and project management often change through the phases.

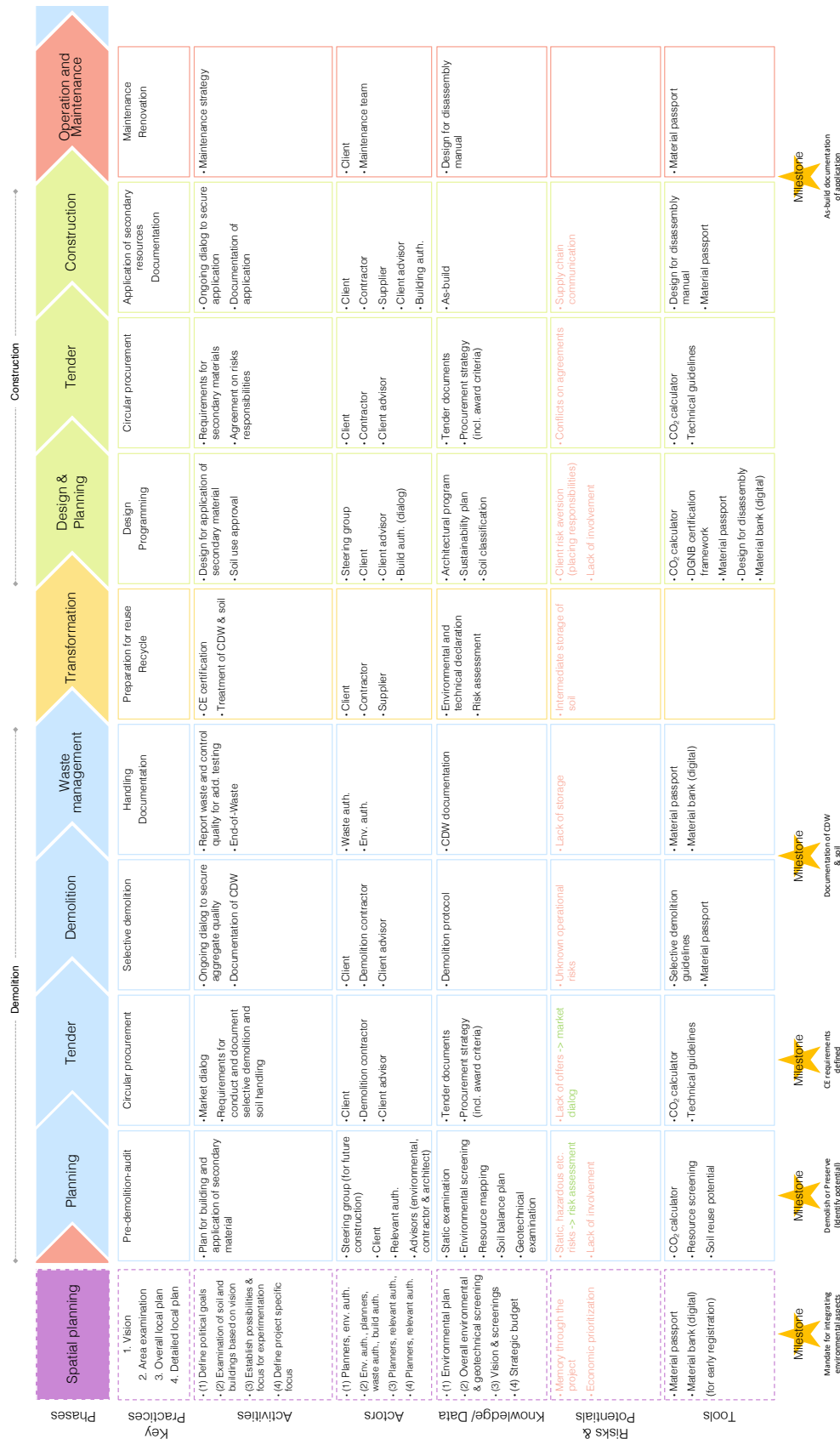


Figure 7: Example of decision-making and planning mapping based on results from Roskilde Municipality

## 3. Organizational change for circularity in municipalities

City organizations engage in construction and demolition projects in different roles (e.g., as client, authority, landowner). To embed circular practice in planning and decision-making requires adoption of new knowledge, workflows, parameters in decision-making etc., concerning a variety of functions across the organization. In the first part a mapping tool to map these practices and functions was presented.

The second part of the decision-making and planning guidelines introduces a workshop format engaging the transformation of current organizational structures, policies, and cultures etc. As introduced, both the strategic, tactical, and operational levels must be engaged to secure alignment between policies, strategies, and plans across department, implement goals and objectives in procedures and guidelines, and operationalize goals in daily operations and execution of projects. To foster change, it is crucial to address organizational learning.

To support workshop format to be described and secure a sustained commitment, thereby avoiding a fall-back to business as usual, an ongoing network/ group can be established addressing this organizational transformation. Moreover, to secure a strategic commitment and an organizational shift, it is important that both the managerial and operational level in the organizations are involved in all relevant departments. This secures managerial mandate of 'doing your normal job in another way' and cooperation at the operational level between departments each understanding their new mission based on a common vision. Furthermore, this gives the opportunity of knowledge sharing and highlights the competencies present and the competencies needed to embed circular practice in construction and demolition projects.

### 3.1. The workshop format

In the following the workshop format is described step by step. It consists of three main parts; a mapping of policies, strategies and plans prior to the workshop, a main workshop engaging participants across the organization and follow up activities to secure actual implementation. As illustrated in Figure 8 the workshop may both consist of inspirational presentations and simple group exercises to facilitated discussions. Before the workshop a key group of personnel is established overseeing planning and facilitating the workshop as well as follow up activities, to secure that the results are implemented. During the workshop the participants are divided into groups of approximately six persons with a mixed representation. The group of key personnel is dividing the groups to fit the best constellation of knowledge, experience, and group dynamics. It is important that each group has a group leader to facilitate discussions and ensure documentation of results. The group leaders either refer to the key personnel or is undertaken as role by the key group of personnel themselves.



Figure 8: Pictures from organizational change workshops in Mikkeli, Finland, Roskilde and Høje Taastrup, Denmark.

### 3.1.1. Step #1: Mapping of central strategies (before workshop)

Strategy-making for circularity in the build environment, is in public sector organizations typically not embedded in one overarching strategy but exist in a field of various competing goals and objectives and often embedded across disciplinary siloes within an organization ranging from e.g., property management, environmental authorities, waste management and urban planning. Thus, organizational transformation for circular practice calls for strategic alignment across departments and levels of strategy.

To identify the current state of mandate supporting the circular actions and moreover identify key shortfalls or contradictory goals and objectives, a mapping of municipal policies, strategies and plan is performed prior to the organizational change workshop. The mapping is performed by screening relevant documents for circular goals, targets, indicators etc. Relevant strategies range from subjects such as sustainable development (climate actions or Agenda21), urban planning, procurement and property management, waste management and utilities. The identified objectives are then summed up in a table organized in medium to long term or operational objectives and focus ranging from e.g., climate mitigation, recycling of CDW, circular construction or value chain collaboration as illustrated in Table 1. This way it gets clear where the strong



mandate is located and where there is a need for strategy development compared to the circular practices identified in the project focused mapping presented in chapter 2.

Output of step #1: is a table of mapped policies, strategies and plans to support discussions on future key strategy-making.

### 3.1.2. Step #2: Identification of current state and organizational challenges (during workshop)

After the strategy mapping the main workshop is conducted. To secure a broad commitment within the organization, it is crucial that as many relevant internal stakeholders are involved as possible. This concerns both a broad cross sector involvement of all important departments for the implementation of circular C&D projects and the participation of both operational employees and managers all together ensuring contextual knowledge and a strong mandate.

The first part of the workshop is an identification of the current state of circularity in the city (e.g., early stages of establishing a political vision or already trying to operationalize the vision in procedures and concrete projects) and to what extent the limits of mandate reach (e.g., business as usual, from project to project or a wider mandate in specific departments, types of projects or geographical area). The discussions are summed up in Figure 9 for each group and afterwards discussed and synthesized in one statement of current stage.

At what stage is the city strategically? <i>E.g., establishing political vision / Operationalisation of vision</i>
What are the limits circular mandat? <i>E.g., from project to project / specific geografic area</i>

Figure 9: Box to fill in current state in the organization.

An important part in fostering organizational change, is to realize the organizational challenges inhibiting circular progression. In the CityLoops project, five categories of organizational challenges were identified as illustrated in Figure 10. In each group challenges for all relevant categories are identified on post-it notes.

Cross-cutting cooperation	Knowledge and Competences	Time	Economy	Policy and management

Figure 10: Box to fill in organizational challenges.

The results of the mapping of challenges are afterwards used as inspiration to identify development actions to overcome the challenges. For a deeper understanding of the organizational challenges, interviews can be performed after the workshop with broad representation of relevant departments and across hierarchical levels. The interview questions are based on the mapped challenges under each category and should emphasize the dynamics behind the challenges and how they can be engaged **Fejl! Henvisningskilde ikke fundet..**

Output of step #2: is an overview of current stage and organizational challenges i.e., including a short note of 3-5 pages presenting interview results.

### 3.1.3. Step #3: Identification and prioritization of development actions

When the identification of current stage and organizational challenges is completed, the focus is shifting to the generation of development actions engaging these challenges. The aim is to develop targeted activities and actions addressing organizational change and to identify where (and to some extent how) to promote circular practice within the organization. Step #3 can be conducted in the same workshop as step #2, however, if interviews on organizational challenges are to be conducted, Step #3 should be in a separate workshop after the reporting of the interviews – here step #2 act as a shorter kick-off workshop.

The focus of development actions is both targeting strategic actions (e.g., policies, parameters, mandate), tactic actions (e.g., organizational resources, guidelines, partnerships) and operational actions (e.g., project procedures, knowledge sharing, communication) with an orientation towards organizational learning. As illustrated in Figure 11, the identification of development actions can be divided between strategic and operational actions for simplicity. To facilitate an actual output of the discussions in each group, a group leader is appointed to ensure that reflections are written on post-it notes and that the ideas are prioritized within the exercise timeframe. The leadership may take outset in the key group of personnel.

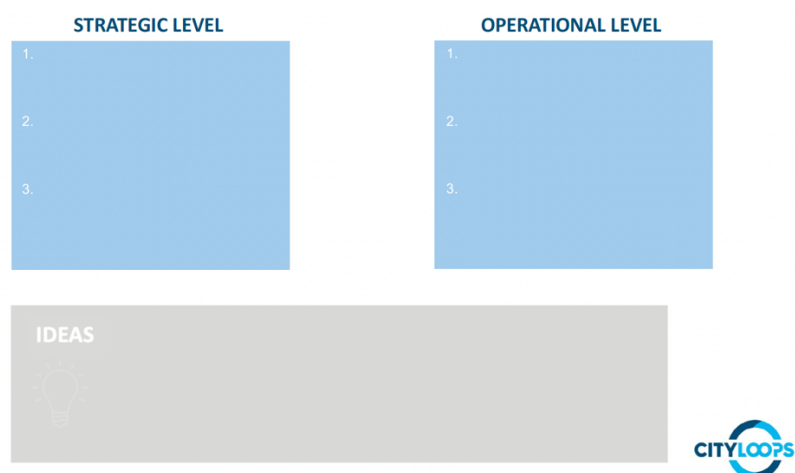


Figure 11: Box to fill in development actions.

The identification of development actions is based on a formulated development question to strengthen the focus and engagement of the workshop. It may be relevant to have two workshop rounds and in this case two questions are formulated. The development question(s) is formulated by the key group of personnel prior to the workshop.

Examples of development questions:

- How to promote circular economy in construction, demolition and urban development?
- How can we change our workflows to move from barriers to action?
- How must we cooperate to implement circular tools/practices across the organization?

During the workshop it is important to prioritize development actions in each group as illustrated in Figure 11, as this will support reflections in plenum after the group work. This is facilitated by the appointed group leader. After the workshop the group of key personnel oversees synthesizing the results in sub-categories of development actions to get a clear overview. For an example of synthesized workshop results in Seville, Mikkeli, Høje Taastrup and Roskilde, see Table 2.

Output of step #3: is an overview of strategic, tactical and operational development actions to foster organizational change, thus promoting circularity in C&D projects.

### **3.1.4. Step #4: Establish organizational structure for implementation**

After the mapping of strategies, optional interviews and workshop(s), the actual transformation work begins. The previous steps have provided a platform for joint reflection across the organization, but to avoid fall-back to business as usual, it is important to facilitate and retain an ongoing focus on implementation. This requires the establishment of organizational structures including allocated personnel with experience and know-how and moreover with a clear link in daily operations to oversee implementation.

To support implementation, it is recommended to establish a cross department sustainability group, hence facilitating ongoing knowledge exchange and coordination across the organization. The group may build on existing structures put in place, take outset in the initial group of key personnel or/and be based on the participants from the workshop(s). The composition of the group may vary from organization to organization and over time to fit the needs to support transformation. Some may need a strong managerial mandate in the group by officially announcing the group politically and by management and/or by formulating rules of procedure. Others may build on existing structures with strong grassroots engagement and to some extent an established mandate, hence the involvement of management in the group may hamper the entrepreneurial and innovative spirit.

An initial task in the sustainability group is to unfold the workshop results into activities. The group of key personnel or appointed workshop group leaders have at this point synthesized the workshop results in sub-categories of development actions, and now the task is to reflect

and agree on how to approach implementation. The Implementation of development actions can be approached in several ways and at several organizational levels, either arranging seminars related to upcoming task e.g., if the local authority plan is to be revised or a new urban development project is in scope. The scope of implementation can also be more strategic e.g., if the climate action plan is to be revised or there is political moment to accept a sustainability (or circular) strategy. The key point is to search for windows of opportunity in the daily work.

The sustainability group can be a strong platform for the diffusion of knowledge and new practices, when new procedures are developed in a department, or a team is applying for funding. A recommendation is to host meetings in the group every 1-2 month depending on activities in the organization.

### 3.1.5. Examples of workshop results

In the CityLoops project workshops of organizational changes were co-developed in Høje Taastrup and Roskilde, Denmark and further tested in Mikkeli, Finland and Seville, Spain. The results were synthesized across all four cities in [“Circular Construction in Europe - Handbook for Local and Regional Governments”](#) (see chapter 5), however, some examples are presented in the following for inspiration.

Results in the CityLoops project indicates, that circularity in the build environment is not embedded in an overarching strategy but in a field of different interdependent policies, strategies and plans embedded by varying stakeholders in different departments. A starting point seems often to be focusing vaguely on climate mitigation (e.g., energy efficiency in buildings or renewable energy supply). When gradually progressing in the circular agenda more operational objectives are needed to diffuse the development and secure a broader mandate. To transform practices, objectives may focus on e.g., CO2 calculations of projects and plans or total cost of ownership (TCO) and circularity in procurement, as illustrated in Table 1.

*Table 1: An example on strategy mapping in Høje Taastrup divided vertically in long- and medium-term strategies and operational strategies, and horizontally in targets focussing on climate mitigation, recycling CDW, circular construction and value chain collaboration.*

Høje Taastrup	Climate mitigation	Recycling CDW	Circular construction	Value chain collaboration
Medium to long-term strategies				
Development strategi 2020-2032	Energy effective buildings			
Planning strategy 2014-2026	Energy effective buildings			
Architecture strategy			Circularity as a parameter	
Housing policy 2021-2033	Energy effective buildings		Promote circularity in urban transformation projects.	
Operational strategies				
Climate action plan 2030	CO2 calculations in local plans		Circularity and TCO required in construction projects.	Market dialog for circular construction
Waste management plan 2014-2024		Better sorting and focus on hazardous substances		
Procurement strategy & action plan 2020-2024		Promote circularity through procurement. TCO and certifications.		

Likewise, the current state of circularity may vary between organizations affecting the development needs, hence the scope of a workshop. In Mikkeli, the city has accepted new strategies with a stronger focus on sustainable development in the build environment, however, there is still a decoupling internally between key stakeholders and the economic situation in the city inhibit circular innovation (Figure 12). Thus, the focus was to gain political momentum.

Current situation

At what stage is the city strategically? <i>E.g., establishing political vision / Operationalisation of vision</i>				
<ul style="list-style-type: none"> <li>- City strategi is being updated: vitality/CE/SG/climate</li> <li>- Climate action plan is accepted december 2021</li> <li>- Change initiative is currently coming from Miksei – should come from municipality</li> <li>- CE is now Metsäsarilas job (monopoly) and action centers. Action center doesn't have enough resources</li> </ul>				
What are the limits circular mandat? <i>E.g., from project to project / specific geographic area</i>				
<ul style="list-style-type: none"> <li>- From project to project but currently business as usual</li> <li>- Limited to Mikkeli city region</li> </ul>				

Challenges

Cross-cutting cooperation	Knowledge and Competences	Time	Economy	Policy and management
<ul style="list-style-type: none"> <li>- Siloes</li> <li>- Turnover of key personnel (short time for development)</li> <li>- Jealousy of process owned by organisation</li> </ul>		<ul style="list-style-type: none"> <li>- Procurement expert lack of time</li> <li>- Tight schedules</li> <li>- Short term planning (no time for CE in projects)</li> </ul>	<ul style="list-style-type: none"> <li>- Difficult economic situation in the city</li> <li>- Focus on sumval? of city. No time/money for extras.</li> </ul>	<ul style="list-style-type: none"> <li>- Umbrella strategies are not implemented in the organisation</li> <li>- Waste company monopoly</li> </ul>

Figure 12: An example of current state and organizational challenges in Mikkeli, Finland.

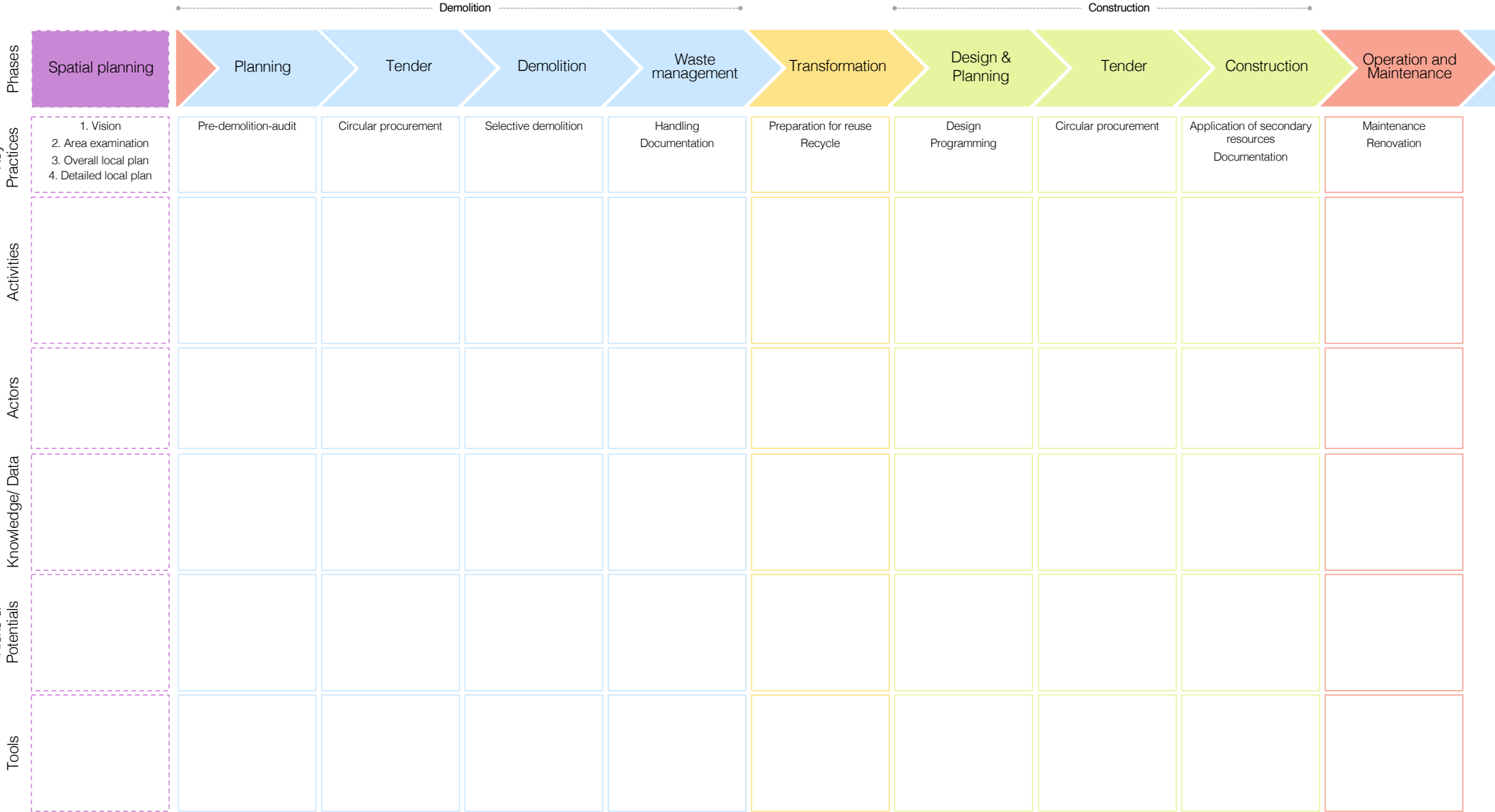
The results from the development action workshops all show a focus on strategy alignment. As illustrated in Table 2, the focus in the first three cities is to operationalize strategies to establish mandate and commitment. In Roskilde this commitment is already established, and now the focus is to strengthen the relation across departments.

At the operational level, there is a focus on knowledge diffusion and to develop strong procedures based on the experience accumulated in circular pilot projects. In Seville and Roskilde, there is also a focus on establishing a new projects area as a seed bed for experimentation, and in Seville and Høje Taastrup it emphasized to strengthen value chain communication.

Table 2: An example of identified development actions during workshops in Seville, Spain, Mikkeli, Finland, Høje Taastrup and Roskilde, Denmark.

Strategic actions			
Seville (S)	Mikkeli (FI)	Høje Taastrup (DK)	Roskilde (DK)
1. Strategy alignment <ul style="list-style-type: none"> <li>From general strategy to sector specific strategies</li> <li>Clearer goals and actions for each department</li> </ul>	1. Strategy alignment <ul style="list-style-type: none"> <li>Departments adopt the goals in climate action plan</li> <li>Property strategy (incl. construction, renovating and demolition -plan)</li> <li>Implementation plan of procurement strategy</li> </ul> 2. Better interconnection between: <ol style="list-style-type: none"> <li>planning,</li> <li>demolition and</li> <li>construction</li> </ol>	1. Strategy alignment and professional pride <ul style="list-style-type: none"> <li>Strategy for active ownership as culture change</li> <li>Property strategy (incl. plot sales) - min. requirements</li> <li>Specific actions for departments in new sustainability strategy</li> </ul> 2. Adoption of strategies across disciplines <ul style="list-style-type: none"> <li>Budget item or percentage for CE I projects</li> <li>Dialog tool across organisation for political prioritization and mandate</li> </ul>	1. Mandate and professional pride <ul style="list-style-type: none"> <li>Formalization of political mandate</li> <li>Focus on responsibility and risk</li> <li>Clear gains, vision and success criteria</li> <li>Submit specific projects for political approval</li> <li>Input to strategies and signature programmes</li> </ul> 2. Adoption of strategies across disciplines <ul style="list-style-type: none"> <li>Common language and concepts</li> <li>Economy and time for early screening</li> <li>Room for grassroots</li> <li>Mentoring scheme</li> </ul>
Operational actions			
Seville (S)	Mikkeli (FI)	Høje Taastrup (DK)	Roskilde (DK)
1. Develop practices and procedures <ul style="list-style-type: none"> <li>Procedure/model for systematic cooperation on expertise and knowledge</li> <li>Handbook on measures to take (internal and external)</li> <li>Tender requirements promoting quality assessment</li> </ul> 2. Knowledge sharing and diffusion <ul style="list-style-type: none"> <li>Systematic evaluation process for circular C&amp;D</li> </ul> 3. New project area <ul style="list-style-type: none"> <li>Select pilot area initiate circular renovation projects</li> </ul> 4. Value chain communication <ul style="list-style-type: none"> <li>Create local market for municipal construction works.</li> </ul>	1. Knowledge sharing and diffusion <ul style="list-style-type: none"> <li>Develop a group across siloes</li> </ul> 2. Develop practices and procedures <ul style="list-style-type: none"> <li>Implementation of strategies and plans in guidelines (with best cases)</li> <li>Procurement guides for specific branches/services</li> <li>Involve procurement manager and specialist in development projects</li> <li>Identify key persons at different levels – who is in charge?</li> </ul>	1. Develop practices and procedures <ul style="list-style-type: none"> <li>Process to integrate CE when initiating projects</li> <li>Early cooperation regarding local plans and tenders</li> <li>Resource screening common procedures as environmental screening</li> <li>Early screening of potentials</li> </ul> 2. Knowledge sharing and diffusion <ul style="list-style-type: none"> <li>Quantitative business cases</li> <li>Formalize early involvement of internal experts</li> <li>Identify persons with expertise in departments</li> </ul> 3. Value chain communication <ul style="list-style-type: none"> <li>Paradigm to communicate political focus to developers</li> <li>Dialog tool for early value chain communication</li> </ul>	1. New project areas <ul style="list-style-type: none"> <li>Diffusion from Musicon to e.g. Sankt Hans area</li> </ul> 2. Develop practises and procedures <ul style="list-style-type: none"> <li>Tender requirements</li> <li>Requirements/guidelines for plot sales</li> <li>Early screening of potentials</li> </ul> 3. Resource mapping (incl. soil) as basis for municipal development plan
			4. Establish permanent material bank
			5. Collect knowledge and experience <ul style="list-style-type: none"> <li>Platform for cases and inspiration template</li> <li>One page med cases and videos for dissemination</li> </ul>

# **Annex 1 Mapping template Decision-making in C&D projects**





## **Annex 2 Workshop template or- ganizational change**

# What is the current situation and organisational challenges?

## Current situation

At what stage is the city strategically? *E.g., establishing political vision / Operationalisation of vision*

What are the limits circular mandat? *E.g., from project to project / specific geografic area*

## Challenges

Cross-cutting cooperation	Knowledge and Competences	Time	Economy	Policy and management

write development question here:

## STRATEGIC LEVEL

- 1.
- 2.
- 3.

## OPERATIONAL LEVEL

- 1.
- 2.
- 3.

IDEAS



# CITYLOOPS

CityLoops is an EU-funded project focusing on construction and demolition waste (CDW), including soil, and bio-waste, where seven European cities are piloting solutions to be more circular.

Høje-Taastrup and Roskilde (Denmark), Mikkeli (Finland), Apeldoorn (the Netherlands), Bodø (Norway), Porto (Portugal) and Seville (Spain) are the seven cities implementing a series of demonstration actions on CDW and soil, and bio-waste, and developing and testing over 30 new tools and processes.

Alongside these, a sector-wide circularity assessment and an urban circularity assessment are to be carried out in each of the cities. The former, to optimise the demonstration activities, whereas the latter to enable cities to effectively integrate circularity into planning and decision making. Another two key aspects of CityLoops are stakeholder engagement and circular procurement.

CityLoops started in October 2019 and will run until September 2023.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821033.

**Disclaimer:** The sole responsibility for any error or omissions lies with the editor. The content does not necessarily reflect the opinion of the European Commission. The European Commission is also not responsible for any use that may be made of the information contained herein.