

A report from the project



Guiding document – Upscaling process for sustainable solutions

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Mainstreaming sustainability [in Swedish: "*Hållbarhet blir standard*"] is a project aiming to support a sustainable development of cities, from all perspectives: ecologically, socially and economically.

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Participants in the project: Stockholm, City of Gothenburg, Malmö, Mälardalen municipalities (in pre-study), IVL Swedish Environmental Research Institute, Royal

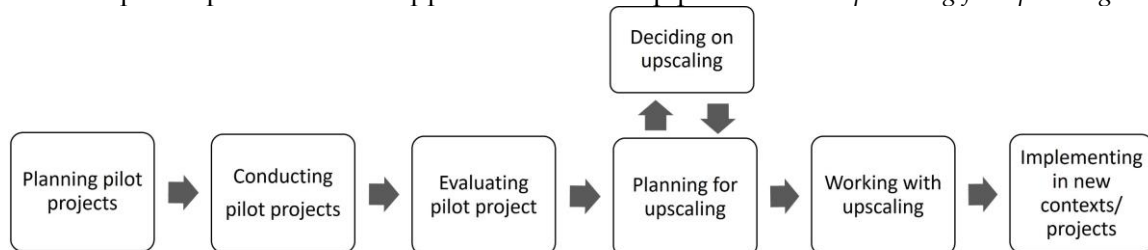
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Summary

Many smart and innovative solutions for sustainable urban development are being developed in specific initiatives and pilot projects. In the work to cope with a major climate transition of cities, it is often assumed that solutions from pilot projects are implemented on a large scale and become standard. However, both experience and research show that upscaling is difficult and faces several obstacles. This also applies to solutions for sustainable urban development where various obstacles make it difficult to integrate them into the regular operations of municipalities, property owners and others. In the project *Mainstreaming sustainability*, the City of Stockholm, the City of Gothenburg and the City of Malmö have worked together with IVL Swedish Environmental Research Institute, KTH Royal Institute of Technology and the Property Owners of Stockholm on practical working methods for scaling up solutions for sustainable urban development. This report shows and guides how a work process in a municipality or real estate company can support upscaling for sustainable urban development.

The experience from the project *Mainstreaming sustainability* is that upscaling is not something that takes place through individual efforts but requires active work throughout a whole process: from planning and conducting a pilot project, to evaluating sustainable solutions and implement them in new projects or contexts. Scaling up is also not something that happens automatically but requires active work and decisions. Sometimes, it can be perceived as sudden and random which solution is quickly spread and used on a large scale. Having clear structures and processes for upscaling has therefore been highlighted as success factors. Therefore, this guidance describes a generic scale-up process with the aim of providing support in succeeding with the upscaling by clarifying what is important to consider throughout the process. The process can be illustrated as in the figure below, and the different steps can follow each other but also to some extent take place in parallel. This guidance also includes the document "*Support tool for upscaling sustainable solutions*", which is developed to provide extra support in the scale-up process when *planning for upscaling*.



Recommendations for successful scale up.

Generally

- Work with upscaling in all parts of the process, not through individual efforts.
- Use collaboration as a method throughout the process (see specific recommendations below)

Planning and conducting pilot projects

- Set goals and plan for evaluation of how the solution contributes to the city's sustainability objectives.
- Plan for cost evaluation on project level, and on community and societal level where relevant.
- Define objectives for future scale up, to be prepared if the pilot project is successful.
- Collaborate with potential future users/managers of the sustainability solution already in the planning of the pilot project.
- Ensure that the pilot project gathers the information future decision-makers need to be able to decide on upscaling.
- Plan, at an early stage, for a sufficient evaluation of the pilot project.

Evaluate pilot projects

- The evaluation should clearly show which sustainability objectives the solution supports, how it brings the city closer to the goal and how important it is for the city to achieve the goal.
- The evaluation should include costs at project level, as well as community and societal level where relevant.
- Ensure that the evaluation addresses and describes the effects and costs of the solution in a way that allows it to be compared with the technologies or processes it replaces.
- If the evaluation shows that the solution will have difficulty being implemented, the solution may need to be adapted/further developed. Alternatively, the regular processes need to be changed, if the solution is crucial to making the city more sustainable. Reflect on these possibilities in the evaluation, what is relevant to do for the current solution?
- If the solution is not ready to be scaled up, review the need for more development and/or testing.

Plan, decide, and drive scale-up

- Use the *“Support tool for upscaling sustainable solutions”*, in the work of: compiling information about the sustainable solution, defining what upscaling means in the specific context, clarifying the conditions for upscaling and planning for upscaling.
- Work with upscaling actively, where you set goals for, plan and implement upscaling in collaboration with relevant actors.
- You can also use the support tool as a structure for collaboration between stakeholders.
- Spend extra time discussing and defining what upscaling means in the specific context, see further in *Support tools for upscaling sustainable solutions*.
- By being specific about what the upscaling entails, it can be easier to find a person with the right mandate who can make the decision that upscaling should take place.

- Don't see obstacles to scaling up as something negative, it can often be overcome through early collaboration with the right actors. Use the upscaling of the individual solution to also create needed system changes.

Implement sustainable solutions

- Use collaboration to ensure that there is a demand for the sustainability solution early in the process.
- Work to create clear visions and goals for sustainable urban development, or alternatively use already established visions and goals, they are important tools for creating demand for sustainable solutions.
- Work in collaboration with those who are the recipients of a sustainable solution to find adaptations required to be able to implement the solution.

Collaboration is a prerequisite for upscaling

Throughout the upscaling process, collaboration between and within the actors involved is important. Effective collaboration is a prerequisite for upscaling to take place. This guidance therefore also provides a number of recommendations for successful collaboration. In summary, these recommendations concern the following:

- Collaboration is a joint task that must be managed together.
- Collaboration is a learning process with many iterations where new knowledge is added and the goal can move.
- Anyone who collaborates needs a mandate and resources for collaboration.
- The person who leads the collaboration is a key person, they must see everyone in the group and be clear in their communication.
- Collaboration processes must create an understanding of each other's mission and mandate.
- Facilitate and create acceptance by involving those responsible for the implementation from the beginning of the process.
- Conclude the collaboration with a discussion of what has been learned during the process, preferably followed by a reunion later to discuss – how did it turn out?

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Introduction

Background - the project Mainstreaming Sustainability

Many smart and innovative solutions for sustainable urban development are developed in pilot projects and other initiatives, but there are obstacles that make it difficult to link them to the regular operations in municipal organizations as well as private property owners and others. Some solutions are disseminated to the municipality's other projects, other municipalities or actors, while others are not used after the end of the pilot project – despite good results. Some are introduced in new construction, but are not transferred to retrofit projects and vice versa. Lack of collaboration and lack of clear processes for upscaling means that efficiency potential and positive synergy effects are lost.

The project Mainstreaming Sustainability aims to address these issues and find new ways of working that deal with current obstacles. Successful pilot projects should result in implementation i.e., result in mainstream sustainable solutions. By basing both on previous research and the prevailing reality in participating cities, a number of insights have been gathered on how municipalities should work.

The City of Stockholm, the City of Gothenburg and the City of Malmö have participated in the project and shared their experiences and needs. IVL Swedish Environmental Research Institute, KTH Royal Institute of Technology and Uppsala University have been research partners and both analyzed how the work is done today and supported how the work could be done differently in the future. This report summarizes some of the project's conclusions with a focus on how a more structured and conscious upscaling process can look like to mainstream sustainability. The purpose is that the upscaling process presented in this report can be used by both the cities that participated in the project and by other cities and municipalities that want to work in a more structured way with their upscaling. This guide and associated support tools are based on insights from interviews, discussions, workshops and tests of draft versions of these documents that have taken place within the framework of the project. This guide also contains some references to previous research on the subject.

What is meant by *pilot projects, tests and sustainable solutions*?

In this report, *pilot projects* refer to a variety of projects that in different ways *test* new technical products, working methods, procurement criteria or other types of *sustainable solutions*. A pilot project is sometimes clearly defined in terms of the sustainable solution that is being tested. One example is from the City of Stockholm, where an electric garbage truck has been tested as a sustainable solution to evaluate whether a transition to smaller electric vehicles for waste management in the city's parks was possible. Another example is from the City of Malmö, where a multi-storey car park was built; partly to test a number of new functions a multi-storey car park can have, and partly to test the construction of wooden multi-storey car parks. The evaluation can then show that some sustainable solutions that were tested were good, others less so. Other examples of sustainable solutions discussed within the project are the installation of solar cells, reuse initiatives, pop-up re-cycle facilities, action plan for handling soil mass, reloading station for waste management and delivery management of goods, mobility stations, multifunctional plantbeds with biochar, social value analysis, requirements for energy efficient buildings in land allocation and more...

What is meant by *scaling up* sustainable solutions?

What is meant concretely by upscaling depends partly on what kind of sustainable solution it is, but also what it is about the sustainable solution that is relevant to scale up. Even if it is a technical solution that has been tested in a pilot project, it is not certain that it is the technical solution itself that should be scaled up. For example, regarding stormwater treatment, it may not be a specific solution for purification of stormwater that should be used in all locations, but rather the working method to decide on which technical solution works best in the local context. What is meant by upscaling can therefore depend a lot on the context. One conclusion from the project is therefore that it is of great importance to clarify both the type of sustainable solution to be scaled up, and which aspect of the solution is to be scaled up. For a more detailed discussion of different ways of looking at and understanding upscaling, see immersion below.

Immersion: three perspectives on upscaling and its prerequisites

There are several perspectives to use to investigate and understand upscaling and its prerequisites. As a basis for a better understanding of why this guidance and associated support tools look the way they do, an immersion including scientific references is provided here. The three perspectives presented provide a good basis for being able to understand the content in the best possible way and work with the guidance and the support tool.

A first perspective is to see the different dimensions of upscaling. Previous research on the subject has, for example, made a distinction between geographical and vertical upscaling (van Doren et al., 2018). Geographic upscaling means that a solution starts as a local initiative but then grows by including larger parts of the city or region. An example could be a sharing service that starts in a single neighborhood and then grows to enable sharing in the several neighborhoods or the entire city. The sharing service can be scaled up by growing the local initiative into a larger organization, or the initiative can be replicated by giving each neighborhood its own sharing service. Vertical upscaling instead refers to how a sustainable solution can involve new knowledge, new values, changed norms, etc., which affect formal and informal institutions. This may mean, for example, new ways of working within a municipality, new regulations from authorities, policy development at national or international level.

In practice, it can be difficult to distinguish between these two types of upscaling, they are closely linked and there are synergies between them. A solution that is geographically spread has a greater opportunity to also influence norms, regulations, policy development or the like in a vertical direction (van Doren et al., 2018).

A second perspective for understanding the conditions for upscaling is through Multilevel perspective (MLP) (Geels, 2002, Smith et al., 2005, van den Heiligenberg et al., 2017). Within this theory, pilot projects take place in *niches*. Niches are protected environments where special conditions such as external financing, explicitly more ambitious project goals for sustainability or different organizational forms mean that new solutions can be tested. The problem, according to this theory, comes when solutions are to spread outside the protective environment that the niche constitutes. The solution then needs to deal with

regimes that can consist of, for example, national legislation, municipal administrative principles or organizational cultures, which can be difficult (but not impossible) to change. In other words, the sustainable solution must either work under existing regimes or change regimes in order to be scaled up. A third and final level is *landscapes* that consist of things that are impossible or at least very difficult to influence and therefore constitute a reality that exists to deal with, such as the market logics or international financial crises.

A third way to understand the conditions for upscaling is to distinguish between administrative logic and experimental logic (Berglund-Snodgrass and Mukhtar-Landgren, 2020). The administrative logic is that municipalities as organizations are governed by formal structures that value the municipality's traditional and bureaucratic roles. This can be contrasted with the experimental logic, which comes into play when municipalities engage in pilot projects or other tests of new innovative solutions that aim to break traditional roles and ways of working to find more sustainable solutions. In other words, the experimental logic values testing, creativity, and change while administrative logic values maintaining order and stability (Berglund-Snodgrass and Mukhtar-Landgren, 2020). By conducting tests in pilot projects with an experimental logic, it becomes problematic when the traditional management logic is challenged to change. Eneqvist (2022) points out the importance of seeing how a municipality consists of different units that act in different ways based on different logics and have different roles that may conflict with each other. Eneqvist (2022) writes, for example, that pilots carried out within urban development projects may be scaled up in future stages within the urban development project because there is knowledge of priorities, needs and the opportunity to link pilots to the ongoing work in a clear way. Successful upscaling outside of the urban development project requires other types of organization and support systems that rarely a single pilot project can bear.

These different perspectives on scaling up sustainable solutions are interrelated and overlapping. A vertical upscaling means that the sustainable solution needs to relate to regimes and landscapes. At the same time, regimes and landscapes are probably based on an administrative logic. Together, these perspectives in this way encapsulate the problems that the upscaling process tries to address to support and enable upscaling despite the obstacles that exist. At the same time, it is important to point out that if a sustainable solution does not change regimes or challenge administrative logics, the solution may not be radical enough to drive society towards the transformation required to create sustainable cities.

Collaboration between actors - a key factor

Throughout the upscaling process presented in this guidance, collaboration is highlighted as a key factor for success. This is in line with, for example, the Delegation for Sustainable Cities (2012), which highlights the concept of a "*cross-border collaboration process*", in order to move away from silo thinking as an obstacle to sustainable transition, and instead achieve synergies and sustainability in all dimensions.

In this guide, the concept of collaboration is used in a broad sense, following Hertting (2003), as interactions between actors with different organisational affiliations that maintain a high degree of autonomy. The purpose of these interactions is to better achieve common or separate goals compared to if the actors had acted alone. This definition includes both external collaboration between the municipality and the surrounding community and

internal collaboration between different units within the municipal administration. It also encompasses a wide range of working methods, from consultation where one actor has the main responsibility but opens up for views from others, via coordination where actors primarily act individually but coordinate their efforts to achieve better effect, to co-create where they collaborate closely in cross-organizational groups. Although collaboration in this definition may imply a diversity of processes and activities, it can be clarified that the upscaling process presented in this guidance puts great emphasis on new sustainability solutions being formally anchored in the municipal administration through collaboration. This does not provide support for a more unconditional collaboration, which may also need to take place in order to achieve a more sustainable urban development.

Since successful collaboration is a prerequisite for upscaling, here are some important conducive factors for collaboration. Without these prerequisites, it becomes a greater challenge to follow the upscaling process that will be presented later.

- Collaboration is a joint task that must be managed together. It is based on jointly defining needs and setting goals (images) for future development. Based on a shared ownership of the problem, an active collaboration can be created where you help each other to find common strategies for sustainable solutions.
- Collaboration needs to start early in the process. Therefore, when initiating a project, identify who should be included in order to get the right participants involved from the start. For example, those responsible for implementation should be involved in the collaboration process to facilitate implementation.
- Create a clear starting point for collaboration.
- A fundamental aspect of collaboration is to consider the local context and the conditions that underpin the problem in question.
- A good co-creation process is dependent on that all participants see the need to collaborate. However, this does not mean that everyone has to have the same opinion on how to find the right solutions.
- Collaboration is a learning process with many iterations where new knowledge is added, and where the objectives can change over time. It may therefore be necessary to reconsider the objectives.
- For collaboration to have an effect, those who are part of the collaboration need to have mandate and resources for collaboration.
- A person who leads the collaboration must see everyone in the group and create the conditions for everyone to feel safe to think out loud. This may mean that the person leading the collaboration talks regularly with the working groups/theme groups, and sometimes individual conversations may be needed.
- The person who leads the collaboration must repeat and communicate what is to be done, several times! This is important as there are often new people who can come into the collaboration process.
- It is fundamental to create an understanding of each other's mission and mandate.
- The process needs to be characterized by a sharing culture, putting oneself in the roles and interests of others. At the same time, it is important to be prepared for how views change and that it is part of the change process.
- A steering group can be used to set the framework for collaboration, but also to support the person leading the collaboration and the group as a whole.

- It is important to anchor and create acceptance. Therefore, it is good to involve those who will be responsible for the implementation process. This must be considered already at the start of the collaboration process.
- It is important to reassemble and follow up on how things evolved and what the results were, and if it turned out as planned?"
- Experience feedback is an important part of collaboration. For example, it can consist of a joint project review to learn more and discuss, for example, the three most important innovations in the project.

The upscaling process

The experiences of the cities included in the project show that upscaling is not something that takes place through individual efforts but requires active work throughout a whole process: from planning and conducting a pilot project, to evaluating sustainable solutions and implement them in new projects or contexts. Scaling up is also not something that happens automatically, just because it is a good solution, but requires active work and decisions. Sometimes it can be perceived as sudden and random what is being scaled up. Having clear structures and processes have therefore been highlighted as success factors. As part of this, a generic upscaling process is described below with the aim of providing support in succeeding with the upscaling by clarifying what is important to consider throughout the process.

The upscaling process, see

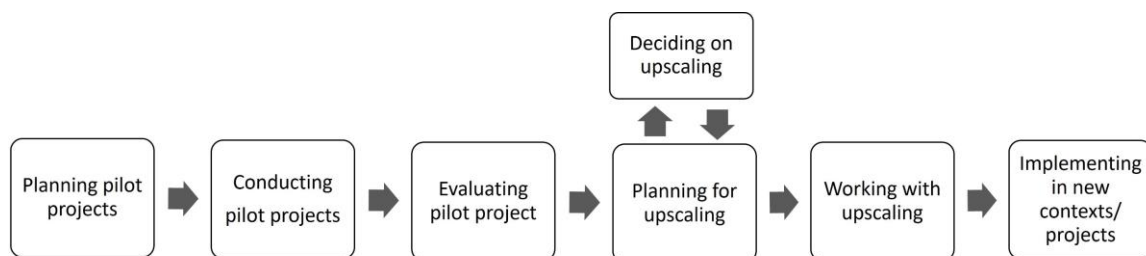


Figure 1, is intended to be generic and flexible to suit different municipalities and other organizations with different conditions. The process should not be seen as a step-by-step approach where one part must be completed before you can move on to the next step in the process. The experience from the project is rather that several of the process steps often take place in parallel and the support consists rather of insights into what is important to think about in different phases to actively and consciously create condition for upscaling. A conducive factor for working with the upscaling process is therefore that there is a good understanding of the decision-making processes that the upscaling process is affected by or becomes a part of. This may involve municipal budget processes, land allocations, processes for developing new criteria for procurement, and more. Knowledge of national decision-making processes may also be needed if that is part of the upscaling process. The experience

from the project is also that established networks for collaboration between different parts of the organization and other actors is important, as well as clear sustainability objectives to link to in the process.

The upscaling process is briefly presented in

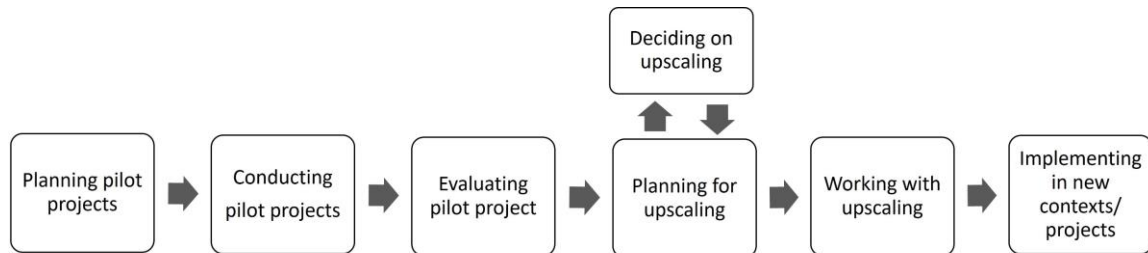


Figure 1. The boxes in the figure correspond to the headings below, where a detailed description is given. As shown in the figure, the process begins with the planning and implementation of a pilot project. After completion of the pilot project, or in parallel, what has been tested in the pilot is evaluated. The next part of the process is to plan for an upscaling, and based on the evaluation and plans for scale up, make decisions within the organization that the solution is good enough to scale up. After decisions and planning, the actual work of scaling up can be conducted and finally implemented in new projects and/or in new locations. Please note that the process parts can take place in parallel and partly in a different order. Within the project, participating cities could give examples of sustainable solutions that had been decided to be upscaled before the sustainable solution was evaluated or there were plans for how the upscaling would be carried out. However, other examples of sustainable solutions that had been scaled up had followed this process more stepwise. There are also examples of sustainable solutions that come from other initiatives/projects that have not been identified as "pilot projects". There is also support available for upscaling if you have "missed" some initial steps, e.g. not planning a pilot project with regard to how upscaling should take place. However, this may mean that some conditions are not the best, which then needs to be dealt with.

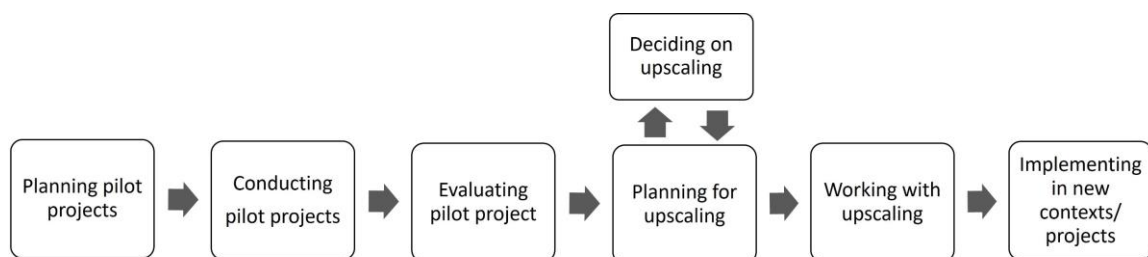


Figure 1. The upscaling process aims to demonstrate that the scale up work starts already when the pilot project is planned and should continue as an important part of conducting and evaluating the pilot project. Scaling up is then planned and a decision is made as to whether upscaling is relevant, often at the same time, before the actual work with upscaling can take place. Finally, the sustainable solution can be implemented in new projects. It is important to note in this simplified illustration of the process that several process parts often take place in parallel, or partly in a different order.

To become more concrete and create a deeper understanding of what the process entails, these steps are presented below in more detail.

Planning and implementing pilot projects

Already when planning a pilot project, it is important to consider how the sustainable solution(s) can be upscaled if the test is successful. In that work it is important to look at the entire upscaling process and what requirements will be set for an upscaling to succeed. This includes what the evaluation of the pilot project needs to focus on, to ensure that future decision-maker on upscaling gets needed information. This, in turn, can affect how the pilot project is carried out and documented in order to evaluate the right parameters. An important part of the evaluation will be to verify the effects of the solution and, based on that, identify which sustainability objectives the sustainable solution supports and to what extent. Costs associated with the introduction of a sustainable solution are also often central. This applies both to direct costs at project level and to socio-economic consequences.

Already in the planning of a pilot project, the entire upscaling process can be visualized, as in Figure 1

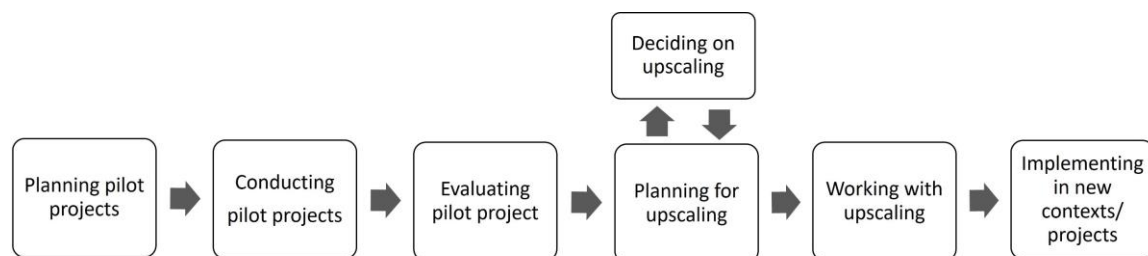


Figure 1, all the way to "implementing solutions in new projects/new locations". An important aspect of the final implementation is that there is a demand for the sustainable solution. This is a challenge that both previous research and the cities that participated in the project have identified, showing the need to collaborate in the planning of pilot projects with those who are likely to be the target group of the upscaling.

Concluding recommendations

- Set goals and plan for evaluation of how the solution contributes to the city's sustainability objectives.
- Plan for cost evaluation on project level, and on community and societal level where relevant.

- Define objectives for future scale up, to be prepared if the pilot project is successful.
- Collaborate with potential future users/managers of the sustainability solution already in the planning of the pilot project.
- Ensure that the pilot project gathers the information future decision-makers need to be able to decide on upscaling.
- Plan, at an early stage, for a sufficient evaluation of the pilot project.

Evaluate pilot projects

Not all tested solutions should be upscaled. For upscaling to be relevant, the solution needs to meet certain criteria. Previous research points a lot to cost efficiency and that solutions are reliable and not too complex. However, this may reflect which solutions are easy to scale up, rather than which should be scaled up.

In the project, the starting point has instead been that sustainability solutions that are worth scaling up are those that effectively bring a city closer to its sustainability objectives. This is therefore an important part of the evaluation, showing how a solution contributes directly or indirectly to local and/or global sustainability objectives. This is an important conducive factor that is highlighted in the project, that the clearer you can show the link between a solution and sustainability objectives, the easier it is to get an upscaling to take place. If several actors are involved, the evaluation should be done in collaboration with these actors to ensure that the solution best supports their sustainability goals. At the same time, many solutions involve costs that must be clearly accounted for. However, there are different types of costs to keep separate. New solutions often have upfront development costs. Depending on how fully developed the solution is, these will constitute costs for each individual implementation, but often decrease as the implementation becomes more efficient. To evaluate the solution, it is therefore important to investigate how much the solution costs compared to a "business as usual" scenario. It may then be relevant not only to look at the project economy but also to take a socio-economic perspective, since a "business as usual" scenario probably entails societal costs in the form of, for example, pollution or unused ecosystem services.

If a solution is expensive for an individual actor but has positive socio-economic effects, higher demands is put on the evaluation. Perhaps more testing and development is needed to create the business case. Perhaps future upscaling needs to focus on how traditional ways of working, business models, division of responsibilities and so on can be challenged.

Concluding recommendations

- The evaluation should clearly show which sustainability objectives the solution supports, how it brings the city closer to the goal and how important it is for the city to achieve the goal.
- The evaluation should include costs at project level, as well as community and societal level where relevant.
- Ensure that the evaluation addresses and describes the effects and costs of the solution in a way that allows it to be compared with the technologies or processes it replaces.
- If the evaluation shows that the solution will have difficulty being implemented, the solution may need to be adapted/further developed. Alternatively, the regular processes need to be changed, if the solution is crucial to making the city more

sustainable. Reflect on these possibilities in the evaluation, what is relevant to do for the current solution?

- If the solution is not ready to be scaled up, review the need for more development and/or testing.

Planning for upscaling, deciding on upscaling, and working with upscaling

An important conclusion from the project is that upscaling often does not happen automatically but requires active work. This means that upscaling needs to be both planned and formally decided. It is in this part of the process that a solution should go from being tested in an individual project to becoming interesting for the regular business/processes and being able to be implemented there.¹

To support this central part of the process, alongside this guidance, there is a "*Support tool for scaling up sustainable solutions*". The purpose of the support tool is partly to gather knowledge about the sustainable solution (i.e., summarize the evaluation), and partly to provide support in understanding opportunities and obstacles to successful scaling-up. The tool also provides support for planning for upscaling i.e., make upscaling concrete by clarifying needed activities, who should conduct activities and how it should be financed.²

The support tool is intended to be used by officials working on pilot projects or their upscaling at municipalities and real estate companies. Since upscaling is dependent on collaboration within and between organizations, the purpose is also to facilitate such collaboration between different parts of a municipal organization and/or other relevant actors. At the same time, the tool provides support in identifying which actors you should be part of the collaboration. The tool may therefore be used iteratively. The tool does not need to be used as a formal documentation for decision-makers to use, but as a support to see what information needs to be gathered and what needs to be planned to succeed with upscaling.

Below is a description of the different parts of the support tool. The purpose of the description is to provide a background and explanation of the content, to support the person who uses it.

The four parts of the support tool

1. Information about the sustainability solution

Part one is about gathering overall information about the sustainable solution, including what sustainability goals it supports and what costs are associated with using the solution.

¹ To use concepts presented in previous in-depth studies, this is about taking a solution from the protective niche to, despite prevailing regimes, start to be used on a broader scale. Alternatively, through upscaling, change the management logic/regimes so that the sustainable solution can scale up.

² Opportunities and obstacles for upscaling are largely about the institutional capacity of organizations. Previous research has shown that municipalities often lack the institutional capacity required to work with transformative change in line with a sustainable development, see Norell Bergendahl (2016) and Isaksson & Heikkinen (2018). The support tool provides both an opportunity to analyse institutional capacity and to find ways to strengthen it.

This information is hopefully available from previous evaluations. Questions also highlight which organization, business, administration or person should pay the costs and gets benefits from the solution. If there is a big difference between who pays and who benefits from the solution, an alternative business model is probably needed to compensate for these differences.

2. Meaning of upscaling

Part two aims to clarify which type of upscaling is relevant to implement. A distinction is made between geographical and vertical upscaling. Geographic scale-up means that a solution starts as a local initiative but then grows by including larger parts of the city or region. Vertical upscaling instead refers to how a sustainable solution can involve new knowledge, new values, changed norms, etc., which affect formal and informal institutions. In practice, it can be difficult to distinguish between these two types of upscaling, they are closely linked and there are synergies between them.³ Since there are several dimensions of upscaling, it is of the utmost importance to be as concrete as possible when describing what upscaling means for the individual sustainable solution. It also needs to be clarified what aspects of a sustainable solution should be upscaled. It is not always the technical solution that should be upscaled, but perhaps the procurement procedure, the specification of requirements or the working process that led to the technical solution becoming a sustainable solution in a specific context.

Part two of the supportive tool also includes identifying who has the mandate to decide on upscaling. For example, who has the mandate to change process descriptions in management systems, principles for procurement, technical manuals etc... The person with mandate identified need to be involved in the upscaling, either through forums that already exist (e.g. committee meetings) or by creating new networks (e.g. new management groupings between several municipal administrations).⁴

3. Prerequisites for upscaling

In the third part of the support tool, questions are asked about the prerequisites for upscaling. Questions about the maturity of the sustainability solution are included to clarify whether there are any question marks that need to be clarified before upscaling can take place. To answer these questions, and to put the maturity level in relation to the sustainability gains, *Appendix A – Diagram of the solution's impact on sustainability objectives and its maturity level* be used as additional support. Collaboration between the actors involved is important in this part of the process because different actors may have different views on the degree of maturity and the need for adjustments before the sustainability solution can be upscaled.

This part also includes questions about stakeholders as well as dissemination. Actors who are affected by the solution need knowledge about the solution itself, but also a joint perspective on the problem, and that the proposed solution is a good way solve it.⁵ To

³ See previous immersion for more guidance on different types of upscaling.

⁴ This is about what is called relational resources in institutional capacity research, which means that change requires access to formal decision-making power, see Norell Bergendahl (2016) and Isaksson & Heikkinen (2018).

⁵ In research, this is called knowledge resources, see Norell Bergendahl (2016) and Isaksson & Heikkinen (2018)

succeed in this, collaboration with the right people and actors early in pilot projects and throughout the upscaling process is often crucial. If such collaboration has not taken place before, the work with the support tool can be an opportunity to start. In this context, it is important to involve all actors who may be affected by the solution, not only in the planning but also after implementation.

Part three of the support tool also includes questions about barriers. These questions are asked to capture both the obstacles that is possible to influence and those that is not possible to influence but are important to be aware of and manage the consequences of.⁶ Different actors can see different obstacles, so it is a good idea to carry out the obstacle analysis in collaboration with the relevant actors.

4. Planning for upscaling

The fourth part of the support tool is about creating a plan for upscaling that is based on an understanding of both the sustainable solution and the identified prerequisites. This includes what should be achieved, what activities are required and what resources that is needed. The experience from good examples of upscaling within the project shows that clear goals, mandates and resources have been conducive factors for upscaling to take place. Sometimes it is necessary to create a specific project aimed at scaling up solutions, needing external funding. In other cases, it is possible to allocate resources within an organization or existing project to work with upscaling.

Working with upscaling entails different activities depending on the sustainable solution. Common to these processes is that they often include different types of collaboration with relevant actors. Processes where stakeholders have been involved from the beginning of the pilot project (and therefore share knowledge and frames of reference) will be easier to run.

Concluding recommendations

- Use the *“Support tool for upscaling sustainable solutions”*, in the work of: compiling information about the sustainable solution, defining what upscaling means in the specific context, clarifying the conditions for upscaling and planning for upscaling.
- Work with upscaling actively, where you set goals for, plan and implement upscaling in collaboration with relevant actors.
- You can also use the support tool as a structure for collaboration between stakeholders.
- Spend extra time discussing and defining what upscaling means in the specific context, see further in *Support tools for upscaling sustainable solutions*.
- By being specific about what the upscaling entails, it can be easier to find a person with the right mandate who can make the decision that upscaling should take place.
- Don't see obstacles to scaling up as something negative, it can often be overcome through early collaboration with the right actors. Use the upscaling of the individual solution to also create needed system changes.

⁶ See previous immersion on multi-level perspective.

Implement the sustainability solution in new projects and contexts

Implementation requires not only that something has been delivered, but also that there is an openness to receive new solutions. Upscaling is therefore dependent on a demand for the sustainable solution. At the same time, the municipalities involved in the project mean that the demand for the "ordinary" organization is often lacking.⁷ The fact that a sustainable solution, or a support tool for upscaling, exists makes no difference if no one is interested in using it. Thus, leadership and clarity on the sustainability objectives from senior officials are important conducive factors. At the same time, an understanding of the recipient of the sustainability solution is needed already in the planning of a pilot project. Therefore, collaboration must begin as early as possible in the process. In order to succeed with the upscaling, the sustainable solution may also need to be adjusted to the different contexts in which it will be used, the implementation therefore needs to be open to such adaptations.

Concluding recommendations

- Use collaboration to ensure that there is a demand for the sustainability solution early in the process.
- Work to create clear visions and goals for sustainable urban development, or alternatively use already established visions and goals, they are important tools for creating demand for sustainable solutions.
- Work in collaboration with those who are the recipients of a sustainable solution to find adaptations required to be able to implement the solution.

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⁷ This is linked to institutional capacity and the ability to mobilise resources for change, see Norell Bergendahl (2016) and Isaksson & Heikkinen (2018).

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Appendix A – Diagram of the solution's impact on sustainability objectives and its maturity level

Charts to support discussion on the maturity of a sustainable solution and how it relates to sustainability objectives, especially climate impact goals. There are three variables: 1) The impact of the sustainability solution on the SDGs 2) Potential for upscaling 3) Climate impact. Choose the size of the circle that matches your response to climate change mitigation and place it on the chart accordingly to the axis.

