

D3.1 BIPED Community

Visualised steps and guidance in PED stakeholder mapping and a framework with tools for engaging PED stakeholders.





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Executive summary

This document presents Deliverable (D) 3.1 BIPED Community of Work Package (WP) 3 of the Building Intelligent Positive Energy Districts (BIPED). The deliverable is a DEC¹ and the description from GA is as follows:

“Visualised steps and guidance in PED stakeholder mapping and a framework with tools for engaging PED stakeholders.

Starting with a stakeholder analysis (including a brainstorming). Then creating a visual, four-quadrant influence-interest matrix to identify stakeholders and tools to categorise stakeholders in terms of their influence, interest, impact, and the information flow in the project. Will use the gathered data to create a stakeholder communication plan.”

The main product for the deliverable is a visual booklet helping the reader through the work with stakeholders in PED communities (See Annex 3) and to support this, the deliverable also includes both this document, and the PED stakeholder engagement framework (Annex 2).

D3.1 establishes the foundation for engaging with stakeholders in the BIPED project and serves as a starting point for collaboration and interaction with relevant stakeholders in the city of Aarhus through contextual methods and approaches. Furthermore D3.1 paves the way for future work with stakeholders throughout the BIPED project in both WP2, WP4 and WP5. Once the PED engagement framework is established in the city of Aarhus, it facilitates a more systematic engagement process in the BIPED community forming the groundwork and connection with the following steps in WP3; overall dealing with the democratising and implementing of the PED (see figure 4).

PART 1: In the first part, the importance of the involvement of stakeholders based on principles of people-driven innovation will be presented, taking into account the value of the PEDs and the technical / data development of the digital twin in WP2 is aligned with local needs in WP3. A description and visualisation of the D3.1 roadmap and milestones is presented, including the task and output flow. Finally, the first part of this document emphasises the iterative process embedded in this deliverable.

PART 2: In the second part, each step in the process of the Stakeholder Mapping is emphasised and elaborated on. The following steps are presented: 1) Mural board as a working platform, 2) District mapping and identification, 3) Identify stakeholder groups and individual stakeholders representatives, 4) Categorisation of key stakeholders, 5) Creating a stakeholder list, 6) Prioritise and analyse stakeholders - MoSCoW prioritisation list, and 7) Stakeholder mapping. The stakeholder mapping process builds a bridge to the engagement framework, paving the way for effective collaboration. The engagement framework focuses on four key elements: **1) Stakeholder, 2) Communication plan, 3) Engagement, and 4) Stakeholder management.** Finally, the second part of this document emphasises the iterative process by highlighting ‘The stakeholder engagement life cycle’.

PART 3: In the third part, the visual booklet is presented very briefly. The D3.1 conclusion emphasises that the stakeholder engagement plan and framework is dynamic and iterative and it will continue to evolve, serving as a guide for the overarching stakeholder engagement process supporting BIPED’s Digital twin development. Finally, the third part of this document ends by highlighting the next steps which involve more targeted engagement and active involvement of stakeholders.

¹ [Dissemination and exploitation - European Commission \(europa.eu\)](https://european-commission.europa.eu)

PART 1

In the first part, the document emphasises stakeholder engagement based on people-driven innovation principles. It aligns digital twin development with local needs in Aarhus, and presents the roadmap milestones and the iterative process of D3.1:

1. Introduction

This document outlines detailed information on the process of PED stakeholder engagement within the D3.1 BIPED community. By identifying key stakeholders, understanding their expectations, engaging them proactively, managing conflicts, influencing their perceptions, and adapting to their feedback, this deliverable ensures strong relationships and the alignment needed to drive the BIPED project towards successful outcomes by emphasising the role of citizens and local stakeholders in shaping research and innovation while building an intelligent positive energy district.

1.1. The Scope

This deliverable deals with Task 3.1 which focuses on district-based but citywide mapping of stakeholders and end-users to secure a proper representation of interests (e.g. social, cultural, economic, environmental). In collaboration with existing actors in the Brabrand district, the aim is to involve both private and public actors, city developers, energy suppliers, local businesses, and NGOs. In correlation to the stakeholder mapping, a framework of engagement will be built to secure a purposeful and fruitful involvement of stakeholders based on principles of people-driven innovation².



Figure 1: The Brabrand district

² <https://cfiaarhus.dk/procesmodel>

The BIPED Community (D3.1) plays an important role in ensuring effective collaboration, communication, engagement and alignment among stakeholders in the city of Aarhus and uses a principle-led and socio-scientific approach to stakeholder engagement and people-driven innovation named The Aarhus Compass (Figure 2). The Aarhus compass³ has 3 main principles:

1. Stronger focus on value – Aarhus must be a good city for everyone
2. Strengthened co-creation and co-production – We create value together with citizens and with society
3. More knowledge-informed management and practice – We convert knowledge into value

The purpose of the principles is to create open, trustful, safe, inclusive, productive, and output oriented collaboration on climate adaptation.

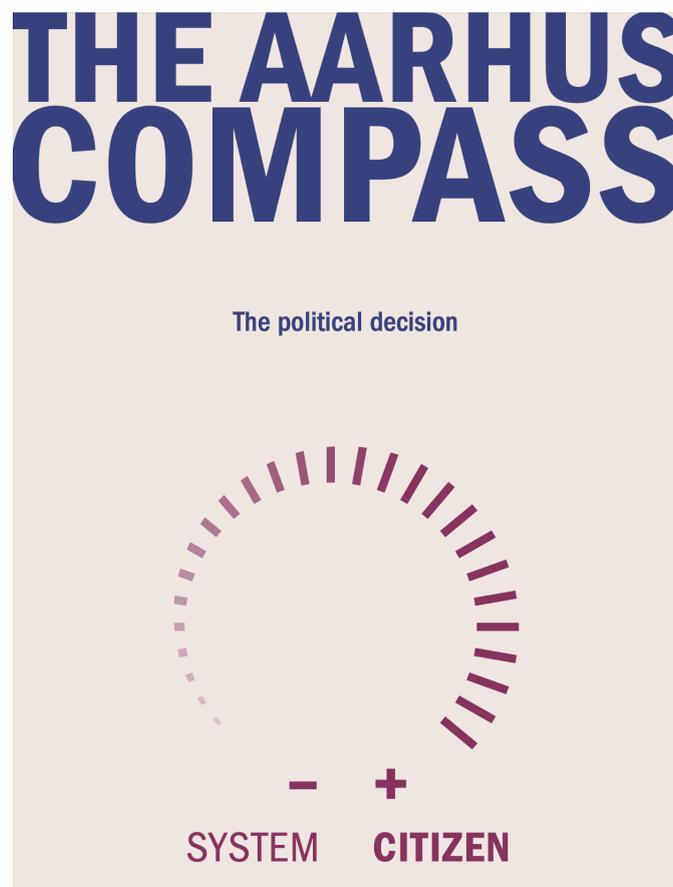


Figure 2: The Aarhus Compass

These principles will act as the building block of the PED community, incorporating all stakeholders and the BIPED project team in one community, putting stakeholders' and citizens' needs first. Challenges and perspectives on the table in front of technical partners and data scientists of BIPED will help educate and raise awareness among all members of the community in doing real collaboration.

The end product in the D3.1 is a booklet with visualised steps and guidance in PED stakeholder mapping and a framework with tools for engaging PED stakeholders within the

³ <https://faellesomaarhus.aarhus.dk/media/us3jfyx5/aarhuskompassetlight-uk.pdf>

city of Aarhus. This document describes the process behind the development of the booklet (Annex 3).

1.2. The importance of the BIPED Community

BIPED will make its digital twin solution human-centric by design, a principle reflected in all pilot phases, as evidenced by the use of quadruple helix model, design thinking, gamification, community driven urban planning that leverages 3D modelling to allow citizens to design neighbourhoods that they want and need while taking into account available resources and planning requirements.

Delivering on this ambition will not be possible without a considered and dedicated stakeholder engagement strategy. BIPED will rely on well-known concepts and methods to make sure the right stakeholders are engaged at the right time throughout the project.



Figure 3: Human-in-the-loop in digital twin development

In order to ensure inclusive, equitable and productive community engagement, BIPED will build a framework with tools particularly for engaging PED stakeholders - the framework will be deepened and revealed in the upcoming pages (See the framework in Annex 2).

1.3. Who are the PED stakeholders and end users?

A requirement in BIPED is to have a high level of stakeholder involvement for validation. And the project aims to have early and continuous engagement activities designed to support the integration of stakeholder and end user needs and preference into the PED solution.

The BIPED project has identified four major stakeholder groups (also see more details in table 1, p. 17):

- 1. Public sector decision makers**
- 2. Private enterprises**
- 3. Citizens, communities & local interest groups**
- 4. Innovation communities e.g. SMEs, institutes, standards organisations**

Many definitions of 'stakeholder' and 'end users' are circulating. Stakeholders and end users are closely related, however there are subtle differences. The BIPED project does not rely on any specific definition, but is trying to understand who the stakeholders and end users are - and that is what is important to the value creation process.

1.3.1. Stakeholders

Stakeholders are those who help to co-create results and have an interest in the project outcomes, they share the project vision. In that context, D3.1 tend to rely on Freemans (1) definition of stakeholders, as it result in a longer list of stakeholders including those without any obvious power to impact the organisation:

*“... any group or individual who can affect or is affected by
the achievement of the project’s objectives”*

- R. Edward Freeman⁴

1.3.2. End Users

End users, on the other hand, are primary beneficiaries with a demonstrable commitment to use results to achieve x, y, z. End users can differ depending on results. For example it is probably safe to claim that the City of Aarhus as a whole is the main end user of the BIPED results. An end user is a hands-on user of a product who uses the delivery on a regular or maybe daily basis.

The definition of the end users and their needs is still in progress in BIPED, but D2.1 in the WP2 in BIPED are using the familiar standard format of user stories to describe the requirements of the different user types: As [User], I want [to perform this action] so that [I can accomplish this goal]. Therefore, a rough definition of a “BIPED end user” could be inferred as follows:

“... the ultimate user for whom the BIPED digital twin as a platform, is designed”

1.4. The importance of stakeholder engagement in BIPED

This section links the importance of the development of the digital twin with stakeholder engagement in the BIPED pilot; the Brabrand district in the city of Aarhus:

Stakeholder and end user involvement is important in the BIPED project, ensuring that the PED and the technical / data development of the digital twin, in WP2, aligns with local needs, fosters community support, and addresses specific challenges within the city of Aarhus (WP3).

More specifically, the mapping, engagement, and involvement of stakeholders and end users provide essential data, context, and validation for an accurate and effective digital twin. Examples can be seen below:

- **Data Collection and Validation:** Stakeholder collected data can provide insights into e.g. real-city processes, strategies, energy consumption patterns, and infrastructure. And end-users’ behaviour data enriches the digital twin e.g. their validation ensures accuracy.

⁴ Freeman, R.E., 1984. Strategic Management: a Stakeholder Approach. Pitman Publishing, Marshfield, Mass. p. 60.

- **Contextualization:** Understanding the local context, urban dynamics, and social aspects through the stakeholders can provide context-specific information. End-users can add value, giving their preferences, routines, and lifestyle choices and contextualising the digital twin.
- **Model calibration and simulation:** Calibration ensures model accuracy by matching its outputs with real-world data and experiences. Stakeholders' feedback ensures accurate representation. E.g End-users' usage patterns fine-tunes the models.
- **Behavioural modelling:** Stakeholders' insights enhance realism. end users' behavioural data informs agent-based models, predicting how people interact with the district.
- **Scenario testing and optimization:** Stakeholders can provide test scenarios with their input and optimise PED strategies. End-users can evaluate scenarios from their perspective e.g. have an impact on convenience.
- **Keeping stakeholders and end Users in the loop (feedback):** By regularly updating the digital twin based on stakeholder feedback, it is possible to address evolving needs. end users' feedback, on the other hand, ensures the twin remains relevant and responsive.

The discussion of stakeholders and end users relates to similar work in T2.5 (engagement with data space stakeholder communities), in WP2, and T4.4 (stakeholder/end user forum engagement), in WP4.

1.5. Roadmap and milestones

This section provides a description and visualisation of the D3.1 roadmap and milestones as well as the relationship between this deliverable and the following steps in WP3 and the task and output flow of D3.1:

1.5.1. Roadmap and milestones D3.1: M01-M06

Figure 4 (below) presents the process that has shaped the creation of both **1)** Visualised steps and guidance in PED stakeholder mapping and **2)** A framework with tools for engaging PED stakeholders. Finally, the figure also shows the finalisation stage process of D3.1.

D3.1: BIPED Community (M6)

Roadmap and Milestones

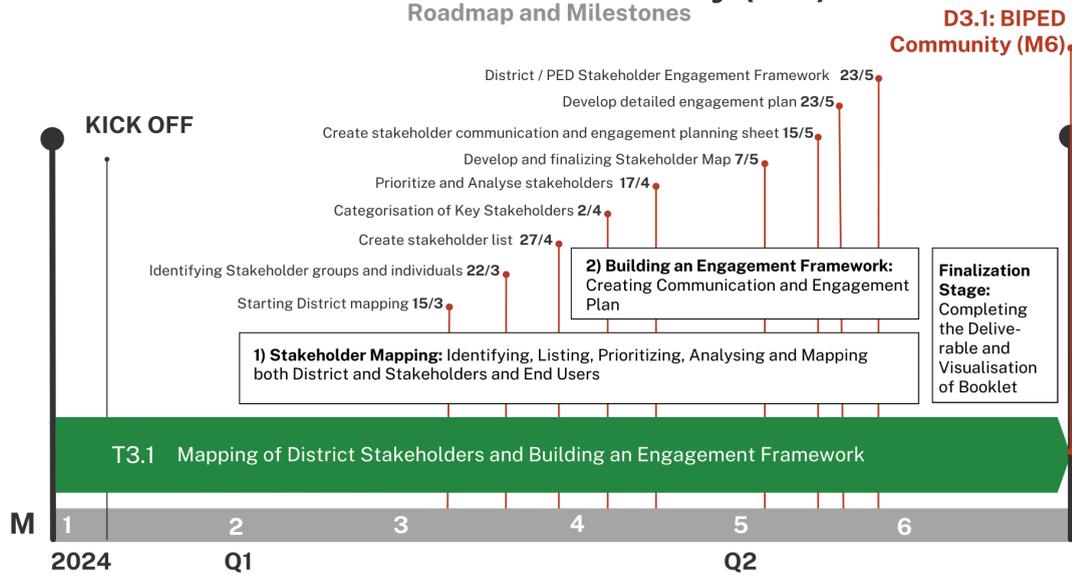


Figure 4: Roadmap and Milestones of BIPED Community: M01-M06

1.5.2. WP3 Deliverables: M01-36

Deliverable 3.1 BIPED community of work package (WP) 3 of the BIPED project is presented in full, in figure 5 (below). The objective is to illustrate how this deliverable is interconnected within the WP3 and the broader process of democratising and implementing the PED. Once the engagement framework is established, it facilitates a more systematic collaboration in the BIPED community dealing with tasks within training programmes, governance practices and the implementation of the PED in the WP3:

BIPED: WP3 Deliverables - Democratising and implementing the PED

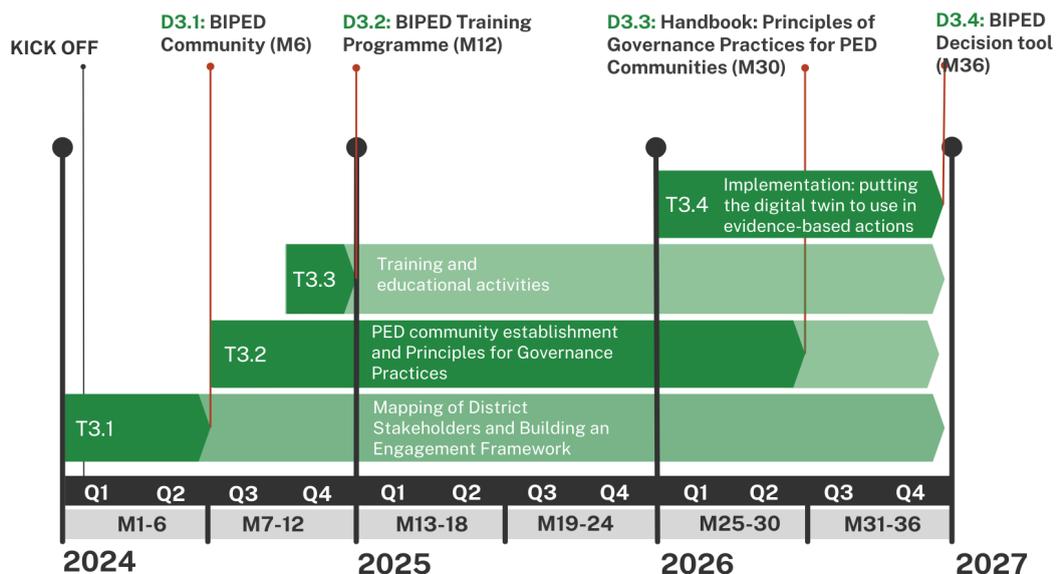


Figure 5: WP3 Deliverables - Democratising and implementing the PED: M01-M36

1.5.3. Task and Output Flow

As an extension of figure 5, figure 6 (below) presents the task and output flow of the D3.1 process. Figure 4 refers to the actions that have occurred to transform the inputs in M0-6 into desired outcomes. The outputs in figure 6 are the end results or changes that are generated as a result of the process of building the (BI) PED engagement framework. Figure 5 also outlines the next steps / phase - namely, the more structured, engaging and involving part of the engagement framework to come:

Building a PED Stakeholder Engagement Framework

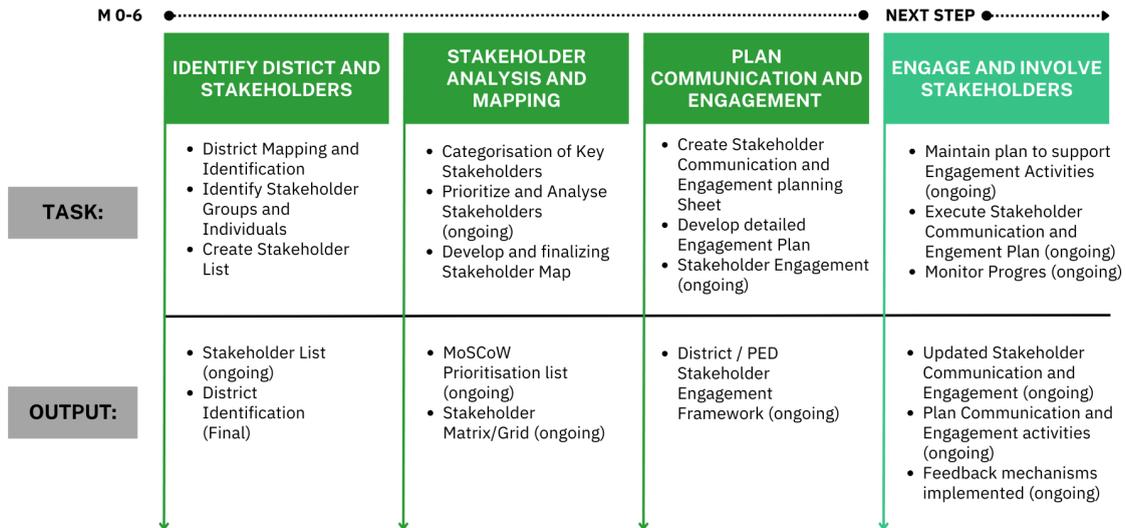


Figure 6: Task and output flow for Building a PED Engagement Framework

It is important to highlight that the task and output flow is an iterative process that the city of Aarhus, alongside the other partners and WPs in BIPED, will regularly revisit, focusing on the points marked with 'ongoing' in Figure 6. This planning and ongoing processes also connects with other stakeholder engagement activities in other BIPED WPs, specifically T2.5 (WP2), with data space communities and T4.4 (WP4) with end users. These activities across different WPs are different yet complement each other.

PART 2

In the second part, the document elaborates on each step of the stakeholder mapping process in D3.1 which includes seven steps in this document. The stakeholder mapping process serves as a bridge to the engagement framework. The engagement framework focuses on four key elements. Lastly, the second part of the document highlights the iterative process through 'The Stakeholder Engagement Life Cycle':

2. Visualised steps and guidance in PED stakeholder mapping

This section will provide a description of part one of the D3.1's end product - looking at each step and the different tools in the process of the stakeholder mapping:

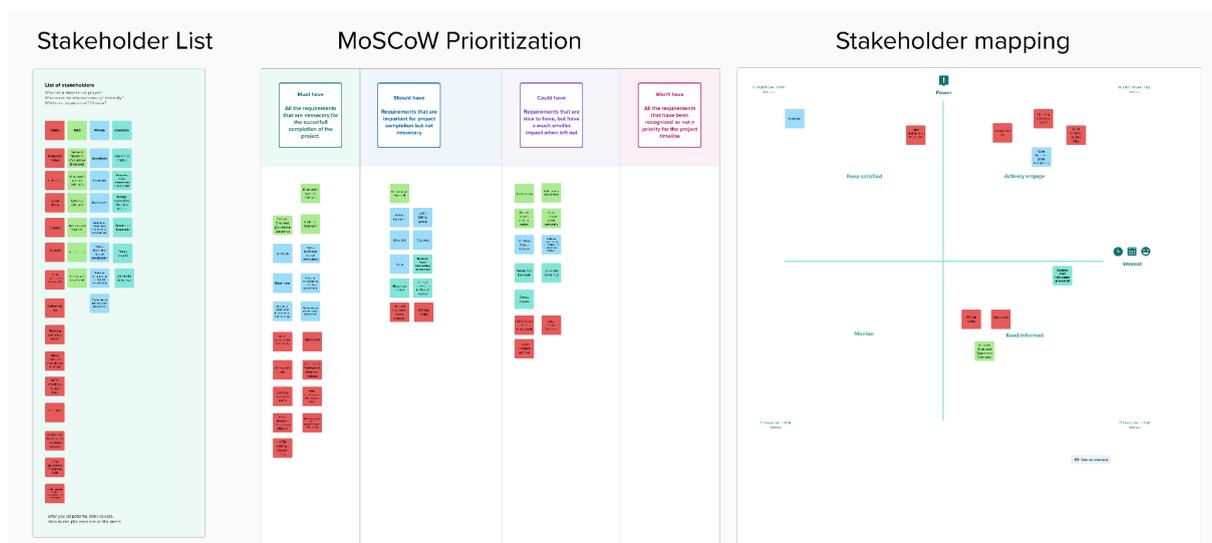
2.1. Steps

When working with a stakeholder mapping and engagement framework, Aarhus, as the BIPED pilot, has taken the following steps (see also figures 3 and 4).

1. Mural board as a working platform
2. District mapping and identification
3. Identify stakeholder groups and individual stakeholders representatives
4. Categorisation of Key Stakeholders
5. Creating a stakeholder list
6. Prioritise and analyse stakeholders - MoSCoW prioritisation list
7. Stakeholder mapping

2.1.1. Step 1: Mural board as a working platform

In the process of stakeholder mapping, going towards building an engagement framework, having the right tools is essential. These tools facilitate effective communication, collaboration, and relationship management with stakeholders. In the stakeholder mapping process, we have used a Mural board, which is a visual work platform (figure 7). The Mural board⁵ enabled the interconnection of different methods and processes. What is seen in figure 7 is a collection of all the tools that have been used in the various steps listed in section 2.1.



⁵ <https://www.mural.co/>

Figure 7: Mural board

2.1.2. Step 2: District Mapping and Identification

An essential milestone in the BIPED project is identifying the district for BIPED⁶. All project partners were engaged in a collaborative process and four key questions were posed:

1. **Building selection:** Which buildings should be part of the district?
2. **Connectivity:** Should the district be interconnected, or can it consist of fragmented parts within Brabrand?
3. **Size considerations:** Is there a limit to the district's size?
4. **Additional comments:** Partners were invited to share any further insights.

Each partner contributed with valuable feedback. Consensus emerged on several points:

- **Diverse buildings:** The PED should include a wide variety of building types, reflecting different uses and architectural features.
- **Connectivity:** The district needed to be interconnected.
- **Scale matters:** A larger district was preferable overall.

Based on these discussions and feedback, the positive energy district in BIPED was defined as the entire Brabrand area, identified by the postcode 8220.

The city of Aarhus has 6 districts. Aarhus A, Aarhus C, Aarhus N, Viby J, Højbjerg and Brabrand. The latter, located 6 km west of the city centre, has set forth a vision to become energy-positive, meaning that in addition to net zero carbon emissions, Brabrand is also striving to achieve an annual surplus of renewable energy, which can be shared with other areas.

Brabrand's diverse character manifests itself in the following facts:

- **Population:** The district has around 20,000 inhabitants, including people from lower socioeconomic backgrounds (immigrants, refugees, ethnic minorities)
- **Building stock:** The mix includes city offices, library, fire station, apartment blocks, private houses, schools, kindergartens, churches, mosques
- **Business community** comprising shops, SMEs and large companies

In the process of Identifying PED in the project, two significant advances emerged:

1) Identifying the district served as the starting point for the stakeholder mapping and community engagement. It kick-started the process of creating the stakeholder list within Aarhus.

2) Gaining clarity on the specific areas, from which we needed to obtain data, also kick-started the data acquisition from both a city and project perspective.

⁶ <https://www.bi-ped.eu/testbed>



Figure 8: The BIPED District

2.1.3. Step 3: Identify stakeholder groups and individual stakeholder representatives

Key stakeholders to be engaged across the BIPED project have been identified through a comprehensive stakeholder mapping process. This mapping exercise seeks to provide a logical and verifiable approach to the structure of the engagement processes – and the appropriate grouping or categorisation of key stakeholders for this purpose.

A requirement in BIPED is to have a high level of stakeholder involvement for validation. The project aims to have early and continuous engagement activities designed to support the integration of stakeholder and end user needs and preferences into the PED solution.

Based on the grant agreement⁷, the BIPED project has identified four primary stakeholder groups:

7

https://drive.google.com/file/d/1MgjJIPYFOCw0c_-YPUfojPnEypp5CnGS/view?usp=drive_link

Group description	Dissemination action	Main message
Public sector decision makers in charge of urban planning and policies designed to make cities more sustainable places to live, work, and invest.	Policy briefs and round tables with quadruple-helix actors. Test clinics & live demos of digital twins at policy events. Case studies with results and lessons learned.	BIPED provides a cost-effective sandbox environment for PED development. A range of plausible scenarios are proposed based on budget and policy needs.
Private enterprises specialising in construction, renovation, solar panel development, and mobility.	Business forums and trade fairs attended by green economy representatives and urban solutions providers.	BIPED shows where the real energy needs are, so that optimal solutions can be developed.
Citizens, communities & local interest groups that want to further their city's green agenda.	Meet-ups, newsletters, social media and testimonials that show benefits of climate neutral cities.	Use BIPED to co-create a Local Green Deal & enjoy co-benefits: e.g. better living standards, and good air.
Innovation communities e.g. SMEs, institutes, standards organisations , working on data standards for smart cities and communities.	Publications and open repositories that publish BIPED data, source code, and case studies for everyone to reuse.	Learn from BIPED's successful PED deployment to make your city climate-neutral, one district at a time.

Table 1. The four primary stakeholder groups in BIPED

In the Mural board the different stakeholders are categorised and divided with colour to get an easier overview if we have stakeholders from all groups:

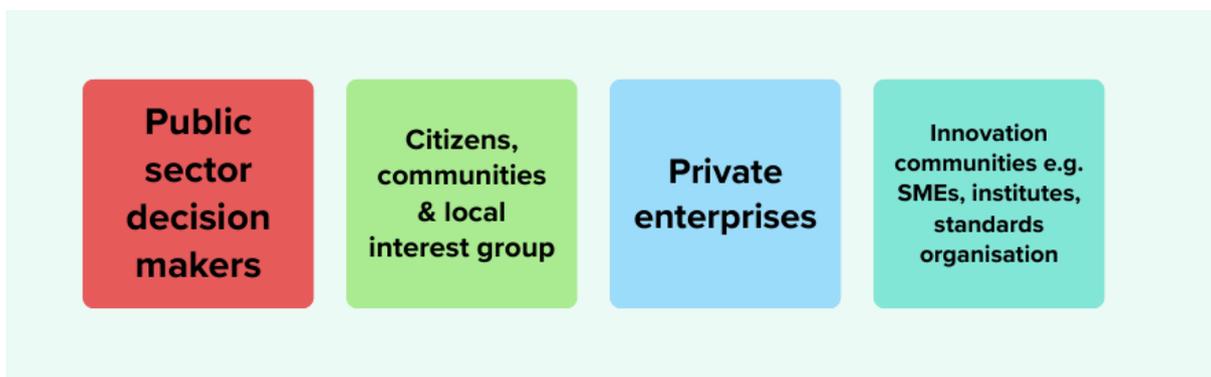


Figure 9: Mapping stakeholder sectors

2.1.4. Step 5: Create stakeholder list

Based on our stakeholder categorisation we had an internal stakeholder workshop in Aarhus, in April (M4). Stakeholders were meticulously listed and categorised into various sectors. This segmentation allows for more targeted engagement strategies and effective communication tailored to each group's specific needs (figure 10).



Figure 10: Stakeholder list

2.1.5. Step 6: Prioritise and analyse stakeholders – MoSCoW prioritisation list

After having the stakeholder list made, it was necessary to prioritise our stakeholders, which is why the MoSCow⁸ method came into use.

The MoSCoW method is a prioritisation technique used in project management and requirements analysis. In BIPED it helps categorise project stakeholders based on their importance.

The acronym stands for:

- **Must-Have:** These are critical requirements that must be implemented for the project's success.
- **Should-Have:** Important requirements that enhance the project but are not strictly necessary.
- **Could-Have:** Desirable features that can be included if resources allow.
- **Won't-Have (or Would-Have):** Features that won't be addressed in the current project but may be considered later.

Using this method, stakeholders and the team in Aarhus and across the BIPED project can align their priorities and make informed decisions.

⁸ <https://link.springer.com/book/10.1007/978-3-031-08169-9>, p. 19.

MoSCoW Prioritization



Figure 11: Prioritising the stakeholders - The MoSCoW prioritisation list

2.1.6. Step 7: Stakeholder mapping

Based on the inclusive Aarhus approach and using the MoSCoW Prioritisation list, BIPED will use the URBACT's⁹ Influence/Interest matrix to map stakeholders. The stakeholder mapping is the process of visually representing the various individuals or groups involved in or affected by a project. It provides a clear picture of who the stakeholders are, their motives, and their interests. Stakeholder maps use a four-quadrant matrix: The y-axis represents the level of interest, from highest (top) to lowest (bottom), indicating how much stakeholders are impacted by the project outcome. The x-axis represents the level of influence (from low on the left to high on the right), showing how much stakeholders can impact the project.

Stakeholders are plotted on this map based on their position in these two metrics.

⁹ <https://urbact.eu/toolbox-home>

D3.1 focuses on the citizen and local stakeholders in the city of Aarhus (both participating in the project and/or impacted by it).

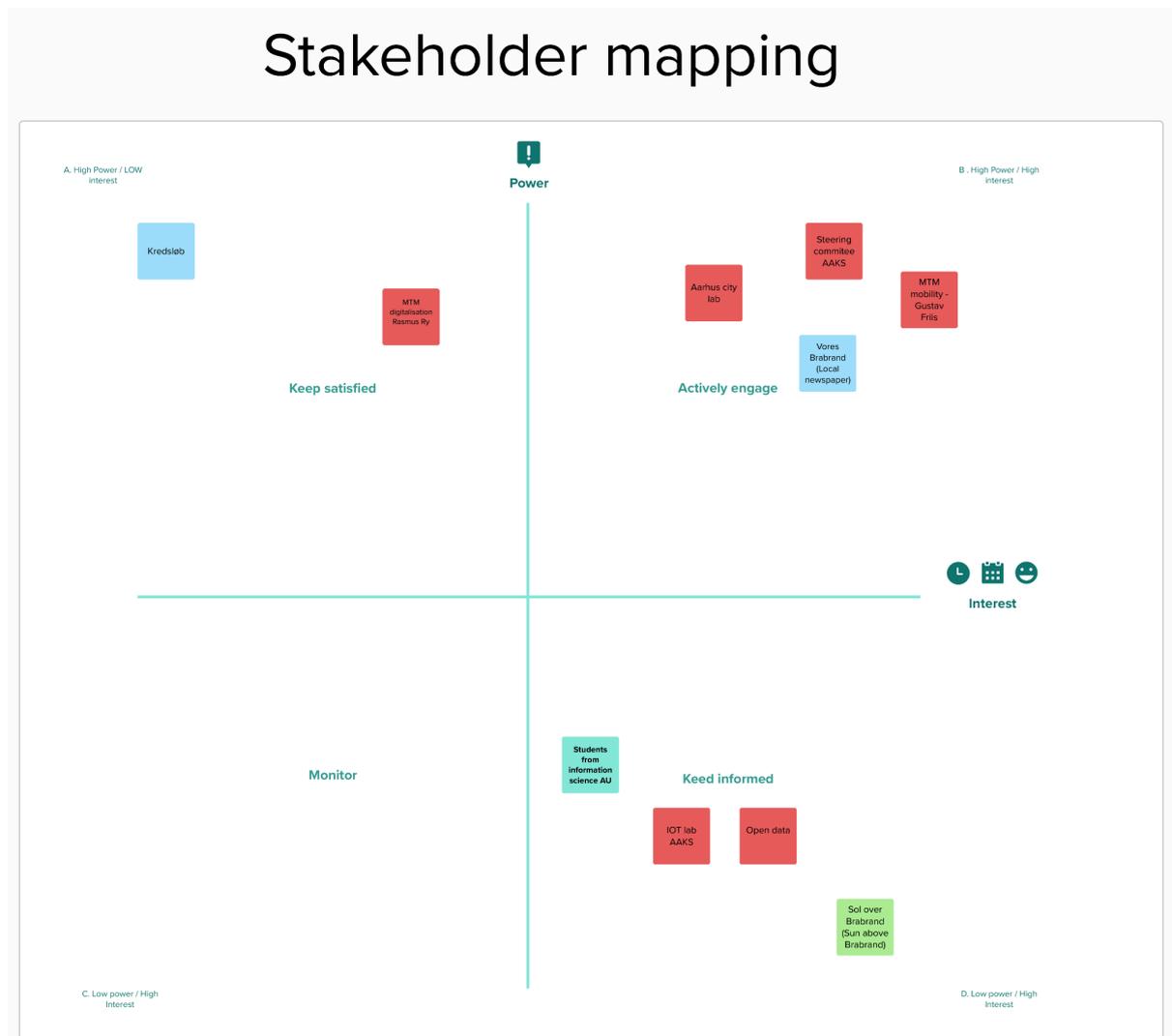


Figure 12: Stakeholder mapping

The PED community will be built on broader stakeholder engagement in a city-wide context ranging from existing energy communities to minority/disadvantaged target groups (e.g., immigrant groups, New Communities and People with Disabilities) is secured. Also, crucial to the collaboration and actual ‘productivity’ of the PEC community, e.g action plans, local authorities and politicians from the city council will also be considered and take part in the PED community events and workshops.

The stakeholder mapping will help BIPED visualise the key individuals and/or groups who can impact/influence the project and see everyone who can influence the work being done in BIPED and the relationships between them in the different stages of the project.

3. Framework with tools for engaging PED stakeholders

This section will provide a description of part two of the D3.1's end product - looking at the Framework with tools for engaging PED stakeholders. As previously indicated in this document, the stakeholder engagement framework is interconnected with other stakeholder activities across various WPs in the BIPED project. Specifically:

- It aligns with Task 2.5, in WP2, which focuses on engaging with data space communities.
- It also connects with Task 4.4, in WP4, emphasising end-user engagement.
- Additionally, close collaboration with WP5 ensures that website and social media activities are considered, ensuring alignment with the BIPED project's communication strategy.

3.1. Stakeholder engagement framework

The stakeholder mapping (section 2) naturally informs the engagement framework. The output from the stakeholder mapping is the identification of individuals, groups and/or organisations with a vested interest in the BIPED project's success. It shows who can influence the work being done in Aarhus/BIPED.

The stakeholder mapping serves as a foundational step in creating an engagement framework. By identifying and categorising stakeholders based on their influence and interest, we pave the way for effective collaboration. The engagement framework provides a clear structure for interactions, ensuring that all stakeholders understand their roles and responsibilities. And aligns everyone toward common goals, preventing misunderstandings and conflicts in BIPED. Note that stakeholders are not placed in the engagement framework before a first contact has been created between partners in BIPED and the stakeholders. Before that it is not possible to know their interests and how to place them in the framework.

In the appendix the entire framework is presented. It is also visible with this link: [PED Stakeholder Engagement Framework](#)

The framework is divided into 4 different categories:

- Stakeholder
- Communication plan
- Engagement
- Stakeholder management

Each category plays a vital role in successful project engagement.

3.1.1. Stakeholder

The first part of the stakeholder engagement framework is 'Stakeholder'.

It is important to clarify the connection between this part's stakeholder discussion in the engagement framework and the previous sections' identification of stakeholder groups since this part connects several elements from the overall stakeholder mapping (section 2) into a single category. The stakeholder category links the following elements (see figure 13):

- The identify stakeholder groups and individual stakeholders representatives

- The stakeholder list
- The Prioritise and analyse stakeholders - MoSCoW prioritisation list
- The Stakeholder mapping.

This category focuses on identifying and understanding key stakeholders in BIPED. It includes stakeholder mapping, assessing their interests, and determining their influence on the project.

Stakeholder	Description / Identification	Sector / Stakeholder Type	Is the stakeholder an end user	End User Description	MoSCoW Prioritization	Level of Interest	Level of Power	Areas of Interest/Power
	Who, What, Where, When and Why	Private and public actors/sector, academic or NGOs	Yes / No	How can the stakeholder use BIPED?	The acronym MoSCoW represents four categories of initiatives: must-have, should-have, could-have, and won't-have, or will not have right now.	Prioritise the stakeholder by means of Interest - Very High, High, Medium, Low, Very Low:	Prioritise the stakeholder by means of Influence - Very High, High, Medium, Low, Very Low:	A. Keep satisfied (Pi) B. Actively engage (PI) C. Monitor (pi), D. Keep informed (pl):
Sol over Brabrand	Newly founded association. Works on establishing a green energy community in 8220 Brabrand. Aims to create an energy community where families, companies and public institutions buy and sell green electricity to each other - produced via solar cells on the many flat roofs in the local area.	NGO	Yes	To predict the effect of solar cells in Brabrand	Must have	Very high	Very high	Keep informed
Kredsløb	Delivers district heating to almost everyone in their supply area and handles waste for 182,000 households in the municipality of Aarhus.	Private	Yes	Not an end user	Must have	Low	Very High	Keep satisfied
Mobility (AAKS), Gustav	Project manager in center for urban development and planning. Owns a large part of mobility data in AAKS	Public	Yes	To predict trafical changes when working with urban planning	Must have	High	Very High	Actively engage

Figure 13: Stakeholders listed: from the Engagement framework

3.1.2. Communication plan

The second part of the stakeholder engagement framework is 'Communication'.

The communication plan is the strategic blueprint that outlines how information will be exchanged among the BIPED project team and stakeholders regarding stakeholder engagement. It covers channels (e.g., meetings, emails), frequency, and content.

A well-structured communication plan ensures clarity and consistency. The communication in the engagement framework will be strongly linked to WP5 activities. Stakeholder communication involves actively involving stakeholders in the project and seeking their input. Project communication refers to the overall strategy for ensuring that stakeholders are informed about the project's progress. Balancing stakeholder communication and project communication is crucial for successful project management in BIPED, especially regarding activities on the websites and social media, making sure that the stakeholder communication fits to the BIPED project communication.

Stakeholder	Communication		
Stakeholder	Engagement Tool/Approach	Message customisation / tailoring	Frequency and timing:
	<ul style="list-style-type: none"> - Face-to-face communication / meetings (in person) - Video calls (online) - Phone calls - Text messages - Instant messaging - Emails - Live chat - Social media - Knowledge database - Online communities - Corporate/Website blog - Trade fair appearances - Workshops - Newsletter - Internet - Meeting Minutes - Forums - Surveys - Data collection - Public comment - Meetings (Staff meeting, Plan meetings, Decion-making meetings, Consensus meetings, Final review meeting, ect) 	<p>Providing relevant and timely information that meets their needs and expectations. We need to identify what information each stakeholder needs, wants, and expects from us, and how often they need it. Consider factors such as their demographics, roles, interests, knowledge level, communications preferences, and challenges they might face. Understand the cultural context of our stakeholders and which language and tone to use.</p>	<p>Daily, Weekly, Monthly, Quaterly OR Regular updates, As-needed communication, Getting information earlier than others</p>
Sol over Brabrand	Face to face, Emails, Social media, Website blog, Workshops, newsletter, Surveys, Meetings	Status of BIPED in a not technical language.	Monthly, As-needed communication
Kredsløb	Emails, Meetings		As-needed communication
Mobility (AAKS), Gustav	Video calls, Phone calls, Meetings, newsletter	Status of BIPED project, status of how he has helped the project	As-needed communication, Monthly

Figure 14: Communication plan: from the Engagement framework

3.1.3. Engagement

The third part of the stakeholder engagement framework is 'Engagement'.

Engagement involves actively involving stakeholders in e.g. decision-making. It includes feedback loops, consultations, collaboration, and levels of engagement. Engaged stakeholders contribute to project success.

The specific engagement in the engagement framework will be strongly linked to WP4 activities regarding M&E elements and KPI data collection, but also to make sure that the PED co-creation know-how generated by BIPED is replicable in other cities. Furthermore, the engagement activities extensively connect with WP2 regarding co-creation and the focus on the end users.

Stakeholder	Engagement					
Stakeholder	Level of engagement	Stakeholder Expectations	User Expectations	Project (BIPED) Expectations	Stakeholder impact	Feedback (formative evaluation)
	Inform: To provide the public with balanced information. Consult: To gather feedback from targeted stakeholders. Involve: To work directly with stakeholders continuously. Collaborate: To partner with stakeholders in each aspect of the decision. Co-Lead: To place final decision-making in the hands of stakeholders.	What are the expectations of the stakeholder?		What do we want from the stakeholder?	Refers to their ability to change the result of the project.	The process of gathering and analyzing feedback addressing ongoing and early challenges or issues.
Sol over Brabrand	Collaborate	Being involved, and remembered		Testing the digital twin, participating in workshops and surveys		They would like to be more informed. We need to remember to give them updates about BIPED.
Kredsløb	Inform			Data supplier		For now they do not see themselves as part of BIPED. Since they are busy with other projects.
Mobility (AAKS), Gustav	Involve	Being involved, getting a tool that can help in his daily work		Test, data, workshops		

Figure 15: Engagement plan: from the Engagement framework

3.1.4. Stakeholder management

The fourth part of the stakeholder engagement framework is ‘Stakeholder management’.

This category encompasses overall stakeholder coordination. It includes planning, execution, monitoring, and risk management as well as choosing the right management tool(s). Effective stakeholder management ensures timely delivery and quality outcomes.

The communication in the engagement framework will be strongly linked to both WP2, WP4 and WP5 activities as it involves elements being coordinated ongoing and throughout the entire project.

Stakeholder		Stakeholder Management	
Stakeholder	Owner	Project Management Tool	Notes
	The person accountable for the contact and process	Managing the proces with Excel, MS Planner evt.	
Sol over Brabrand	Johanne & Iben	Planner	Sun above Brabrand are very interested in hearing updates from us. We therefore need to remember to contact them with all informations we have.
Kredsløb	Johanne & Iben	Planner	At the moment Kredsløb are not involved in the project. We are together with Henrik Madsen and Steen Kramer trying to invite them in to the project
Mobility (AAKS), Gustav	Johanne	Planner	The mobility department are very analog at the moment. And also very busy with other assignments. We therefore need to be sure only to contact them when it makes sence.

Figure 16: Stakeholder management: from the Engagement framework

3.1.5. The stakeholder engagement life cycle

It is important to note that working with stakeholder mapping and engagement frameworks is a living tool that we will have to revisit again and again during the project. Stakeholders can move around in the map during a project, and their interest can change. Stakeholder engagement follows a life cycle, much like a project. Here are the key stages:

The Stakeholder Engagement Life Cycle

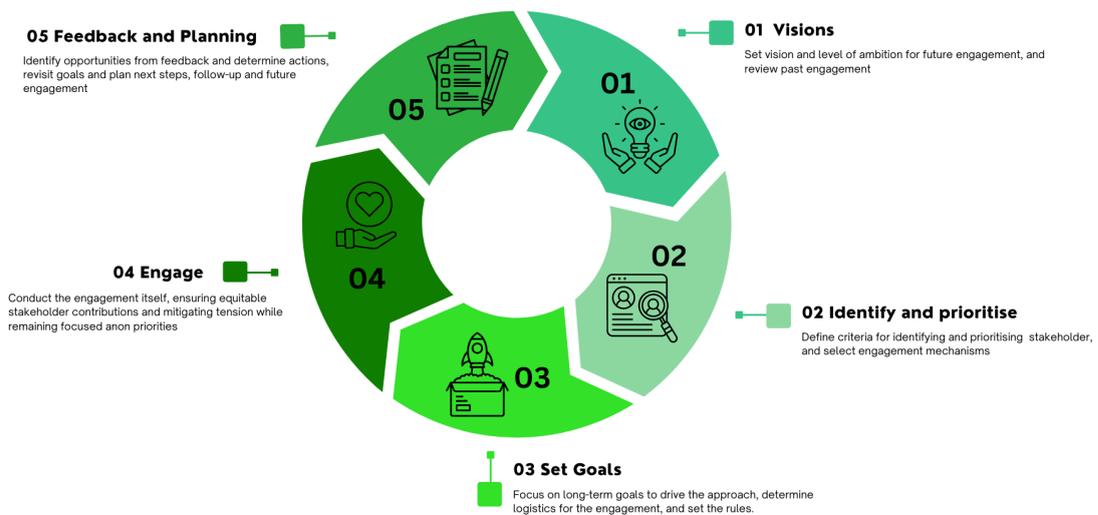


Figure 17: The stakeholder Engagement Life Cycle

1. Set vision and level of ambition for future engagement, and review past engagement
2. Define criteria for identifying and prioritising stakeholder, and select engagement mechanisms.
3. Focus on long-term goals to drive the approach, determine logistics for the engagement, and set the rules.
4. Conduct the engagement itself, ensuring equitable stakeholder contributions and mitigating tension while remaining focused on priorities
5. Identify opportunities from feedback and determine actions, revisit goals and plan next steps follow-up and future engagement.

The stakeholder Engagement Life Cycle supports the deliverables mindset regarding living, iteratively updated stakeholder engagement plan and framework to structure and guide this overarching stakeholder engagement process underpinning BIPED's Digital Twin development.

PART 3

In the third part, the visual booklet is succinctly presented. The D3.1 conclusion underscores the dynamic and iterative nature of the stakeholder engagement plan and framework. The document concludes by highlighting next steps involving targeted stakeholder engagement.

4. The main product of D3.1: The BIPED Community Booklet

As mentioned in the executive summary the BIPED Community Booklet is the main product of D3.1 (see the full version in Annex 3). The process described in this document (mainly Part 2) is visually presented in the form of a booklet. It will be published on BIPED's website. The booklet is a small, compact publication that contains:

1. Visualised steps and guidance in PED stakeholder mapping and
2. A framework with tools for engaging PED stakeholders.

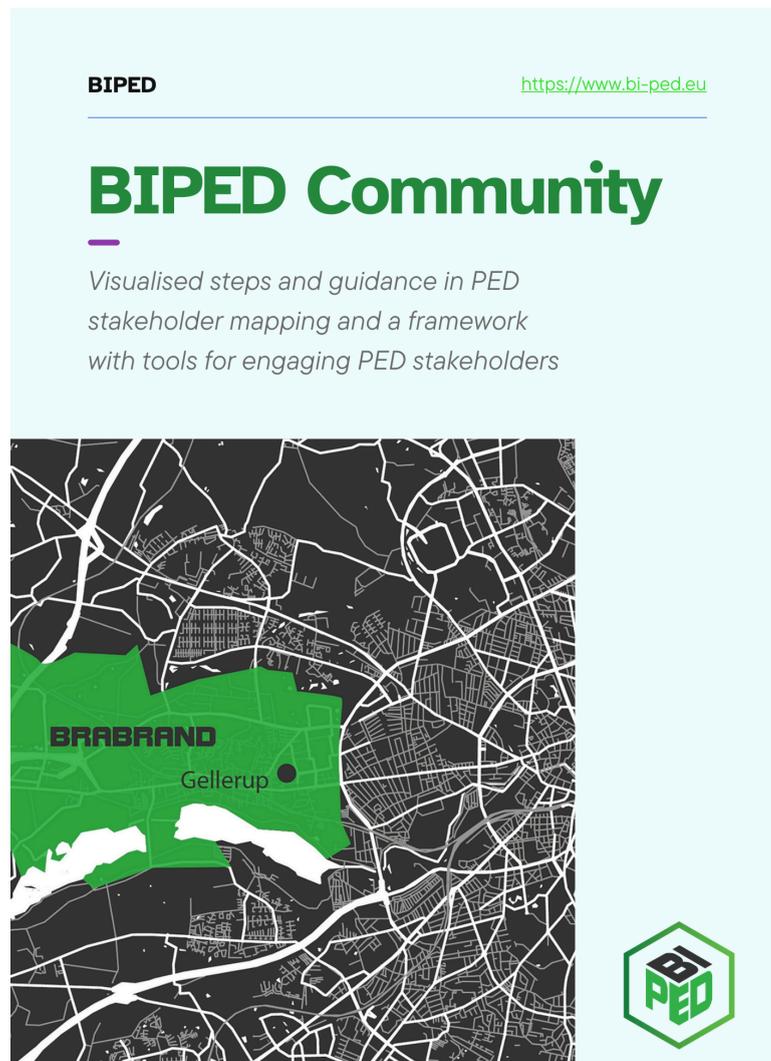


Figure 18: Front page - BIPED Community Booklet

It is intended as a tool that can serve as a user-friendly guide for internal BIPED use as well as inspiration for other cities or projects working with stakeholder engagement in positive energy districts (PEDs) and/or with digital twin development.

5. Conclusion and next steps

D3.1 Process Overview: This document serves as a living, iteratively updated stakeholder engagement plan and framework to structure and guide this overarching stakeholder engagement process underpinning BIPED's Digital Twin development. It sets the framework and principles for engaging with stakeholders at each stage of the project across all work packages BIPED projects. It identifies and categorises key government departments, agencies, partners, and stakeholders relevant to the BIPED project.

The work with stakeholder mapping and the engagement framework is a living tool and the work with stakeholders will continue throughout the BIPED project.

Deliverable Components: The deliverable consists of three main parts:

1. **Visual Booklet:** Visualised steps and guidance in PED stakeholder mapping and a framework with tools for engaging PED stakeholders.
2. **Engagement framework:** Excel sheet with the engagement framework that provides a clear structure for interactions, ensuring that all stakeholders understand their roles and responsibilities
3. **Document:** Additionally, the detailed document provides insights into the PED stakeholder engagement process.

5.1. Next Steps

The next steps in the D3.1 BIPED Community within the stakeholder engagement framework are the more targeted engagement and involvement of stakeholders with details on the specific engagement activities to be pursued. Figure 6 provides a clear reference for highlighting these next steps which include involvement and collaboration across all work packages in the BIPED project. Overall, the next steps within the BIPED Community will be:

Tasks:

- Maintain plan to support engagement activities (ongoing)
- Execute stakeholder communication and engagement plan (ongoing)
- Monitor progress (ongoing)

Outcomes:

- Updated stakeholder communication and engagement (ongoing)
- Plan communication and engagement activities (ongoing)
- Feedback mechanisms implemented (ongoing)

In addition, the task and output flow in BIPED is an iterative process, and the city of Aarhus, along with the other BIPED partners, will regularly revisit the points marked as 'ongoing' in Figure 6."

Furthermore, in the upcoming months, the internal BIPED Community will need to take specific actions, including:

- The establishment of internal onboarding and alignment of the PED stakeholder engagement framework including ongoing workshops and early stage planning regarding stakeholders in the upcoming 6 months across WPs in BIPED
- Identify local key end users connecting to the PEDs and the technical / data development of the digital twin in WP2 and the M12 Deliverable coming up.
- The establishment of Data Space communities across WPs within BIPED embracing the pilot focus and identifying local data spaces, which fall under T2.5 (engagement with data space stakeholder communities), in WP2, and T4.4 (stakeholder/end user forum engagement), in WP4.

6. Reference list

Books/Articles:

The Aarhus Compass:

<https://faellesomaarhus.aarhus.dk/media/us3jfyx5/aarhuskompassetlight-uk.pdf>

Freeman, R.E., 1984. Strategic Management: a Stakeholder Approach. Pitman Publishing, Marshfield, Mass. 60 p.

Moscow Method: Agile Processes in Software Engineering and Extreme Programming (2022) <https://link.springer.com/book/10.1007/978-3-031-08169-9>

Websites:

CFIA: <https://cfiaarhus.dk/procesmodel>

District mapping: <https://www.bi-ped.eu/testbed>

Urbact Toolbox: <https://urbact.eu/toolbox-home>

Mural board: <https://www.mural.co/>

Annexes

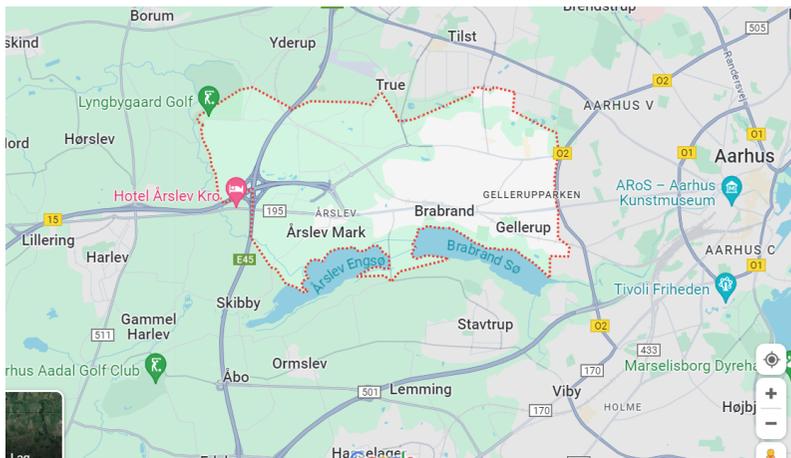
6.1. Annex 1: District mapping

Summary:

- No limits to size, but connected
- Mix/Diversity of Buildings
- European relevance
- OASC: *The identification of specific (sets of) buildings should depend on the problems we are trying to solve. I would therefore suggest that we first identify the key challenges we want to address, either by going back to the proposal itself or by agreeing an approach based on the resources we have available.*

“Conclusion”? Should the BIPED-District be all of Brabrand/Gjellrup?

<https://www.google.com/maps/place/8220+Brabrand/@56.155592,10.0458038,5954m/data=!3m1!1e3!4m6!3m5!1s0x464c14d14332954d:0x9a10e27be642c105!8m2!3d56.153128!4d10.106763!16zL20vMDNtYzZ3?entry=ttu>





Partner	What buildings do we need in the district?	Does the district need to be connected? Or can it be fragmented parts of Brabrand?	Is there a limit to the size of the district?	Other comments?
DTU	A mix of buildings, and also a mix of different owner types		see to the left	
DKSR	Buildings that have a huge impact on energy consumption. Different building functions and ages. public buildings. smart buildings with IoT	could be fragmented. as discussed in workshop	same	From a stakeholder and community perspective I would highly emphasize integrating relevant buildings for the local communities.

	from a data integration perspective. social perspective: recognizable buildings with a social value for the community.			
OASC	see the comment column/	See the comment column	See the comment column	The identification of specific (sets of) buildings should depend on the problems we are trying to solve. I would therefore suggest that we first identify the key challenges we want to address, either by going back to the proposal itself or by agreeing an approach based on the resources we have available.
AAKS				
AIT	a high diversity in terms of building types, their use (land use), architectural properties (footprint, height etc). at the site visit it became clear, there are wealthy parts with mostly single houses & gardens vs. the less-wealthy apartment blocks - that's interesting.	preferably one very diverse area as some cross-sectorial aspects would be challenging to model (accessibility, road network etc).	the bigger the better, as long as we get data for it.	i'm happy to brainstorm and discuss possible options that you have in mind.

AIT	Different building types and uses might be attractive (household, service of different types) for potential synergies for energy optimisation.	it should be connected to ensure a continuous geographical boundary which is important for the district energy balance towards a PED. .	a big district will be challenging in terms of energy modeling. However, if the extension will increase the local RES potential, it is recommended.	We should pay attention to the district energy consumption and existing potential of onsite RES in order to be able to reach the goal of positive annual energy balance.
DRI	mix of buildings of different construction types, age and purpose. The solution should be universal to address different types and purposes of buildings	they should be in one area	no, the solution should be scalable to any size of the district / city / region	
VCS	All buildings as well as garages and sheds		no	
UWB	buildings exteriors and info of material - if noise modelling will take place	Connected	no, as long as it is not bigger than a whole city	
RT	we don't need buildings for creating the traffic model	the district need to be connected in order for traffic model to work	no	
INNO	more types and purposes of buildings, the better	a district is an administrative unit and as such, it should be connected	no	
UTR				

KPMG	A mix of housing and other use buildings is needed. In terms of the renewables, sufficient space and scope for new changes. Buildings with extensive retrofitting are less suitable, due to the costs to retrofit and the short timeline of the project.		Having a manageable size that includes multiple groups would be our recommendation.	When devising the district, having clear borders and highlighting why and why not certain areas were included would help the methodology.
CDK	In order to get data on the energy consumption and production, we need buildings with accessible energy smart meters and IoT sensors.	N.A.	No	

6.2. Annex 2: Engagement framework

Stakeholder	Description / Identification	Sector / Stakeholder Type	Is the stakeholder an end user	End User Description	MoSCoW Prioritization	Level of Interest	Level of Power	Areas of Interest/Power	Communication	Engagement	Stakeholder Expectations	User Expectations	Project (BIPED) Expectations	Stakeholder impact	Feedback (formative evaluation)
Sol over Brabrand	Produce solar energy and sell green electricity to each other - produced via solar cells on the many flat roofs in the local area.	NGO	Yes		Must have	Very high	Very high	Keep informed	Face to face, Emails, Social media, Website blog, Workshops, newsletter, Surveys, Meetings	Status of BIPED in a not technical language.	Monthly, As-needed communication	Status updates	Being involved, and remembered	Testing the digital twin, participating in workshops and surveys	
Kredsløb	Delivers district heating to almost everyone in their supply area and handles waste for 152,000 households in the municipality of Aarhus.	Private	Yes		Must have	Low	Very High	Keep satisfied	Emails, Meetings		As-needed communication			Data supplier	
Mobility (AAKS), Gustav	Project manager in center for urban development and planning. Owns a large part of mobility data in AAKS	Public	Yes		Must have	High	Very High	Actively engage	Video calls, Phone calls, Meetings, newsletter	Status of BIPED project, status of how he has helped the project	As-needed communication, Monthly		Being involved, getting a tool that can help in his daily work	Test, data, workshops	
Students	Bachelor students from information science from AU. Made a project about energy communities	Academic	No		Could have	High, Medium	Very Low	Keep informed	Workshops, Surveys	Invitation to workshops, surveys where it makes sense	As-needed communication		Very committed and eager to learn	Test, workshops, surveys	
Peter From Jacobsen	Journalist at vresbrabrand.dk	Private	Yes		Should have	High	High	Actively engage	Face to face, Emails, Workshops, newsletter, Social media	Status of BIPED in a not technical language. Showing him how BIPED can be a change in Brabrand	Quarterly, As-needed communication		Being involved	Writing articles about BIPED.	
Aarhus City lab	Working with the development, testing and demonstration of new technologies	Public	No		Could have	High	Low	Keep informed	Face to face, Emails, newsletter, Fair appearance, Meetings	Status of BIPED project, making sure they understand the project so they can see where they can help us.	Monthly, As-needed communication		Being involved, reaching their own KPI's	Reaching our KPI's, working with other EU projects	
Steering committee AAKS	In AAKS There is a BIPED steering committee consisting of Bo Fristed CIO of TK and Rolf Johansen Head of Climate and energy in AAKS	Public	No		Must have	Very high	Very high	Actively engage	Face to face, Emails, Meetings, newsletter	They are working with a lot of different projects, we therefore need to be sure they can remember BIPED. And they need to see what they can get out of BIPED	Quarterly, Getting information earlier than others		That BIPED can make a difference.	They can help us open doors in AAKS, and make sure BIPED is on the right track in Aarhus	
Open data denmark	Has a data platform where data is being displayed	Public	No		Must have	Medium	Low	Keep informed	Face to face, newsletter, Emails, Meetings		As-needed communication		Helping BIPED in the right way. Giving them feedback on their platform.	Helping with data needed in the project	
										There are a lot of different Digital twin projects in AAKS. We therefore need to make sure he understands	Monthly, As-needed		Getting a tool that will help his department in	Opening doors to the right employees in the	

6.3. Annex 3: Booklet

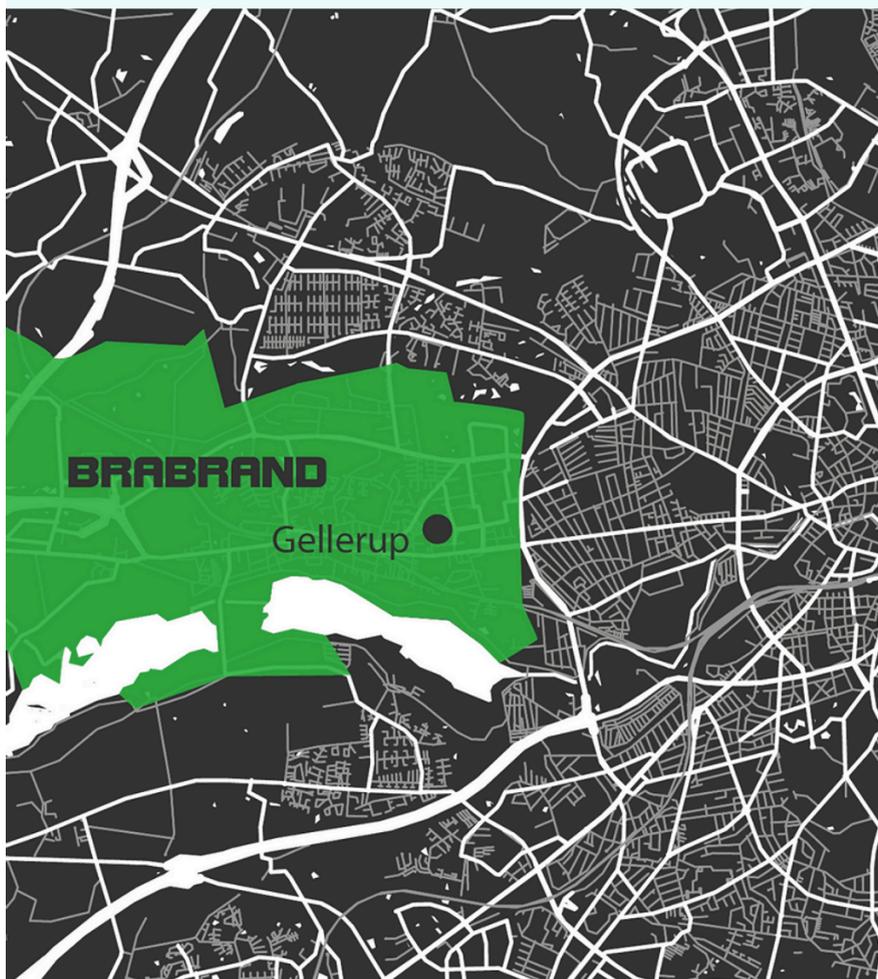
Link to source at [Canva](#)

BIPED

<https://www.bi-ped.eu>

BIPED Community

Visualised steps and guidance in PED stakeholder mapping and a framework with tools for engaging PED stakeholders



BIPED Community



Visualised steps and guidance in PED
stakeholder mapping and a framework with
tools for engaging PED stakeholders

Text & Design:

Johanne Bräuner Nygaard Hansen
Iben Uldahl Søndergård



CONTENT

- 1** *Introduction*
- 2** *The importance of the BIPED Community*
- 3** *Who are the BIPED stakeholders and end users?*
- 4** *Meet PED Stakeholders in the City of Aarhus*
- 5** *Steps and guidance in PED stakeholder mapping*
- 6** *Tools for engaging PED stakeholders*
- 7** *PED engagement Framework*
- 8** *And then what?*
- 9** *Literature*

BIPED?



1. INTRODUCTION

BIPED - Building Intelligent Positive Energy Districts - is a new solution to fast-track energy transition powered by Digital Twins (5).

Positive energy districts (PEDs) are urban areas where energy produced during the year is the same as, or greater than, energy consumed. The BIPED project is building intelligent PEDs to assist cities with decarbonisation efforts aimed at reaching net zero by 2030.

To make BIPED a success the projects depend on effective stakeholder engagement!

The BIPED Community engagement aims to ensure involvement of a wide range of stakeholders, allowing *'any group or individual who can affect or is affected by the achievement of the project's objectives'* (1) in Brabrand/Aarhus to help shape outcomes that align with their needs and preferences.

This booklet aims to guide you through the process of working with PED stakeholder mapping and engagement in BIPED and the City of Aarhus.

Read more: <https://www.bi-ped.eu>

Hope you will feel inspired!



*The BIPED
Community?*



2. THE IMPORTANCE OF THE BIPED COMMUNITY

BIPED will make its digital twin solution human-centric by design, a principle reflected in all pilot phases, as evidenced by the use of quadruple helix model, design thinking, gamification, community driven urban planning that leverages 3D modelling to allow citizens to design neighbourhoods that they want and need while taking into account available resources and planning requirements.

Delivering on this ambition will not be possible without a considered and dedicated stakeholder engagement strategy. BIPED will rely on well-known concepts and methods to make sure the right stakeholders are engaged at the right time throughout the project (3 & 4).



Human-in-the-loop in digital twin development

In order to ensure inclusive, equitable and productive community engagement, BIPED will build a framework with tools particularly for engaging PED stakeholders - the framework will be deepened and revealed in the upcoming pages.

*Stakeholders
and end users?*



3. WHO ARE THE BIPED STAKEHOLDERS AND END USERS?

A requirement in BIPED is to have a high level of stakeholder involvement for validation. And the project aims to have early and continuous engagement activities designed to support the integration of stakeholder and end user needs and preference into the PED solution. The BIPED project has identified four major stakeholder groups:

1. **Public sector decision makers**
2. **Private enterprises**
3. **Citizens, communities & local interest groups**
4. **Innovation communities**

Group description	Dissemination action	Main message
1) Public sector decision makers in charge of urban planning and policies designed to make cities more sustainable places to live, work and invest.	Policy briefs & round tables with quadruple helix actors. Test clinics & live demos of digital twins at policy events. Case studies with results & lessons.	BIPED provides a cost effective sandbox environment for PED development. A range of plausible scenarios are proposed based on budget & policy needs.
2) Private enterprises specialising in construction, renovation, solar panel development, mobility.	Business forums & trade fairs attended by green economy reps & urban solutions providers.	BIPED shows where the real energy needs are so that optimal solutions can be developed.
3) Citizens, communities & local interest groups that want to further their city's green agenda.	Meet-ups, newsletters, social media & testimonials that show benefits of climate neutral cities	Use BIPED to co create a Local Green Deal & enjoy co-benefits: better living standard, good air
4) Innovation communities e.g. SMEs, institutes, standards orgs, working on data standards for smart cities.	Publications and open repositories that publish BIPED data, source code and case studies for everyone to reuse	Learn from BIPED's successful PED deployment to make your city climate-neutral one district at a time

Many definitions of 'stakeholder' and 'end users' are circulating. Stakeholders and end users are closely related, however there are subtle differences. The BIPED project does not rely on any specific definition, but is trying to understand who the stakeholders and end users are - and that is what is important to the value creation process while ensuring alignment.

Stakeholders are those who help to co-create results and have an interest in the project outcomes, they share the project vision. In that context, D3.1 tend to rely on Freemans (1) definition of stakeholders, as it result in a longer list of stakeholders including those without any obvious power to impact the organisation:

Stakeholder Definition:

'... any group or individual who can affect or is affected by the achievement of the project's objectives'

- R. Edward Freeman

BIPED Stakeholders!?

Well, now it makes more sense!



End users, on the other hand, are primary beneficiaries with a demonstrable commitment to use results to achieve x, y, z. End users can differ depending on results. For example it is probably safe to claim that the City of Aarhus as a whole is the main end user of the BIPED results.

The definition of the end users and their needs is still in progress in BIPED, but the technical part of the project are using the familiar standard format of user stories to describe the requirements of the different user types: As [User], I want [to perform this action] so that [I can accomplish this goal].

Therefore, a rough definition of a “BIPED end user” could be inferred as follows:

End User Definition:

“.. the ultimate user for whom the BIPED digital twin as a platform, is designed”

BIPED End Users !?

Oh, now I see, so the end users feedback helps to ensure that the BIPED digital twin as a platform are actually used by the people who need it.

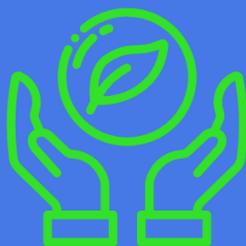
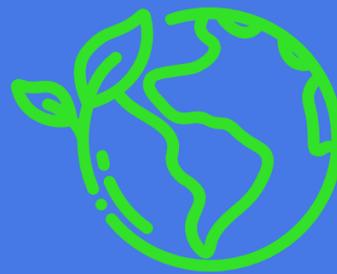


4. MEET PED STAKEHOLDERS IN THE CITY OF AARHUS

Try and find some inspiration for your city among some of our PED Stakeholders below:

Søren Winther Lundby, Energy & Environmental Consultant, The city of Aarhus

“Localized energy solutions will play a crucial role in our overall energy and climate initiatives in the coming years, as will advancements in data and digitalization. We need a finely-tuned, electrified energy system capable of integrating substantial amounts of renewable energy both locally and broadly. This is why the BIPED project aligns perfectly with our goals.”

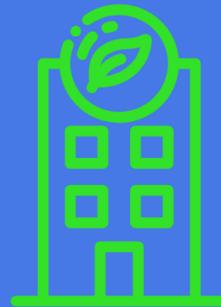


Sun Above Brabrand

“As a fairly newly started association, it means a lot to us to have good partners with big visions. It is inspiring to experience a community of values on the way to development and new results”

**Pernille Thorsen, Team lead, GovTech
Midtjylland (GTM)**

“In GovTech Midtjylland, our focus is on making data-driven decisions, especially concerning buildings. The BIPED project is valuable to us because it broadens our scope beyond the single buildings we typically work with, allowing us to consider the external factors that could provide beneficial insights for our work”



**Gustav Friis, Project manager, The
Mobility department, The city of Aarhus**

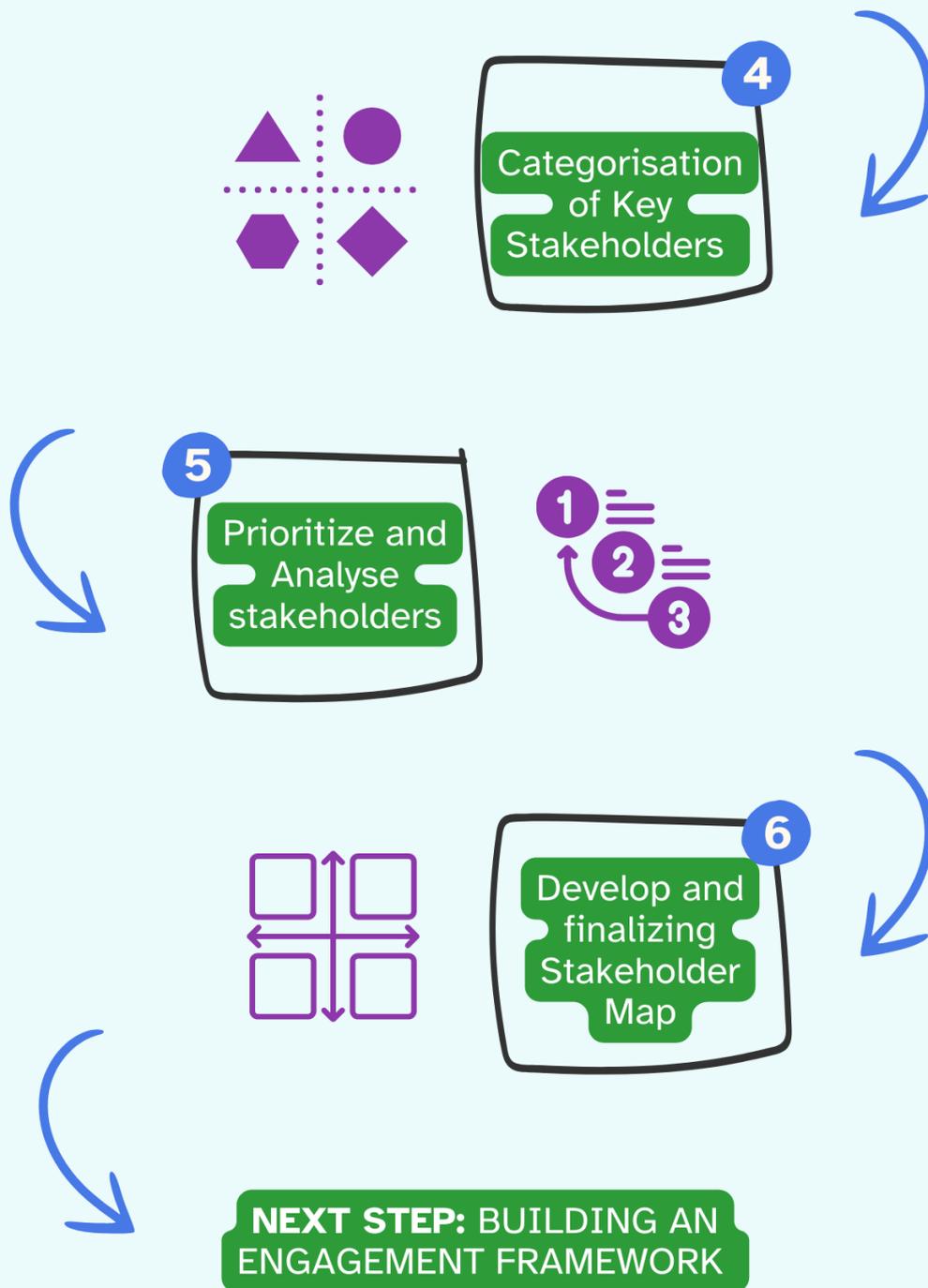
“In the Mobility Department of Aarhus Municipality, we are investigating how digital twins can help create and communicate ideas in the field of mobility, ensuring a just and green transition for the city. BIPED is among several projects where we are trying to use traffic data in a new way. The journey has just begun, but I believe it can help provide answers to a number of questions about the city's continued development”



5. STEPS AND GUIDANCE IN PED STAKEHOLDER MAPPING

When mapping PED stakeholders, consider the following 6 steps and guidance:





*Steps and
guidance in PED
stakeholder
mapping??*

**What and Why use it
How to use it
Tips for success**





✔ What and Why use it?

District Mapping and Identification ensures alignment among the technical development and stakeholders engagement in a PED project. In the process of Identifying the Positive Energy District (PED) in BIPED, two significant advances emerged:

1) Identifying the district served as the starting point for the Stakeholder Mapping and Community Engagement. It kick-started the process of creating the stakeholder list within Aarhus ect..

2) Gaining clarity on the specific areas from which we needed to obtain data also kick-started the Data Acquisition from both a city and project perspective.

✔ How to use it?

District Mapping and Identification refers to the process of uniquely identifying geographic areas in a PED project. In BIPED, we used district mapping and identification to define:

1. **Building Selection:** Which buildings should be part of the district?
2. **Connectivity:** Should the district be interconnected, or can it consist of fragmented parts within Brabrand?
3. **Size Considerations:** Is there a limit to the district's size?

✔ Tips for success

- Ensuring alignment among partners in the process of Identifying the Positive Energy District (PED) is every important. In the BIPED project all project partners were engaged in a collaborative process and each partner contributed with valuable feedback on 'what, why and how'.





✓ What and Why use it?

Stakeholders are individuals or groups with a vested interest or influence in a project's outcome. When stakeholders are not accurately identified, the project and its results may fail to meet all stakeholders' expectations and address their concerns. One of the key stakeholder identification steps is a Brainstorm session; Listing potential stakeholders related to your project.

✓ How to use it?

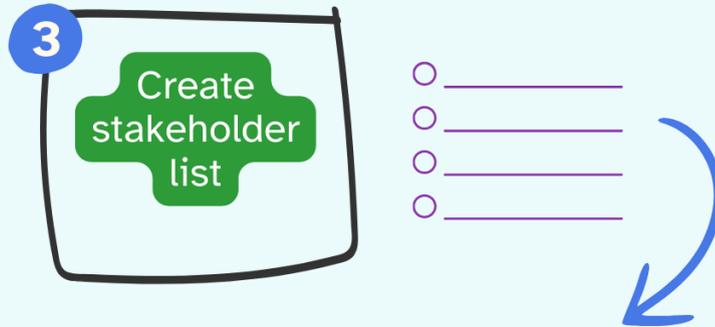
Create a 'Stakeholder Workshop' brainstorming on all possible and different types of stakeholders.

We organized a Brainstorming Session and included people who could provide different perspectives related to the BIPED project. Their insights helped us identify stakeholders effectively.

✓ Tips for success

Invite partners from different areas of the project to help identify stakeholders. It is better to have to many stakeholder then few. You can group them later.





✓ What and Why use it?

A Stakeholder List is a document, for example organized in an Excel sheet, used to identify and categorize all the key players involved in a project or organization. These individuals or groups can be either internal or external - in this booklet we focus on local stakeholders in Aarhus. The list includes essential details about these stakeholders, including their roles, contact information, and interests related to the project.

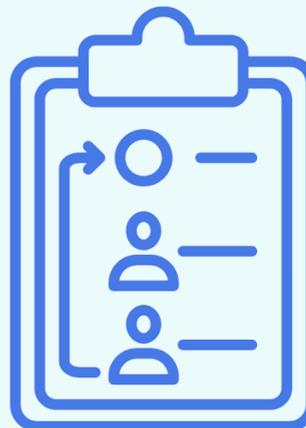
A well-constructed stakeholder list offers several benefits. It provides a clear overview of all stakeholders, minimizing the risk of overlooking critical individuals for project success.

✓ How to use it?

Keeping track of all identified stakeholders with names, contact information etc. When you have had the first contact with the stakeholder make sure to write all their details in the document. It helps you when you need to find the documentation later.

✓ Tips for success

Making sure the list is maintained during the project. Easy access to stakeholders is important.





✓ What and Why use it?

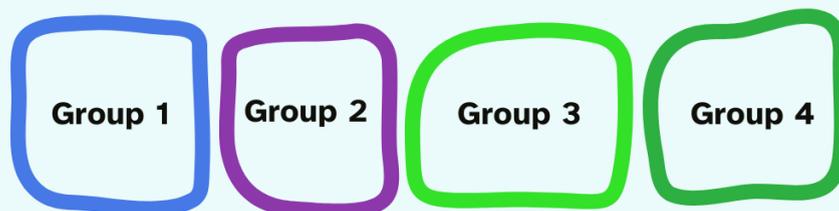
When you have a long list of stakeholders it can be difficult keeping an overview of them. And therefore it is important to categorize them (4). When you categorize your stakeholders, it provides an overview to ensure that you've identified stakeholders from various stakeholder groups. This helps you understand the diverse perspectives and interests involved

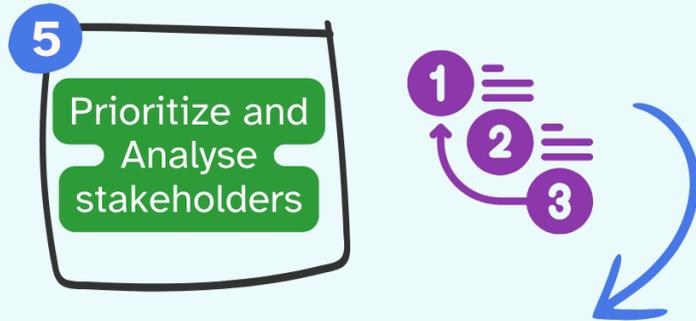
✓ How to use it?

When considering the different major groups you'd like to work with, it's important to recognize that the composition of these groups can vary from project to project. Some projects may require a smaller, more focused group, while others might benefit from a larger, diverse team. Ultimately, tailoring your group size and composition to the specific context and goals of each project is key.

✓ Tips for success

It's essential to align with your project partners and ensure that you have stakeholders represented in all your groups. Having diverse perspectives and engaged stakeholders contributes to successful project outcomes.





✓ What and Why use it?

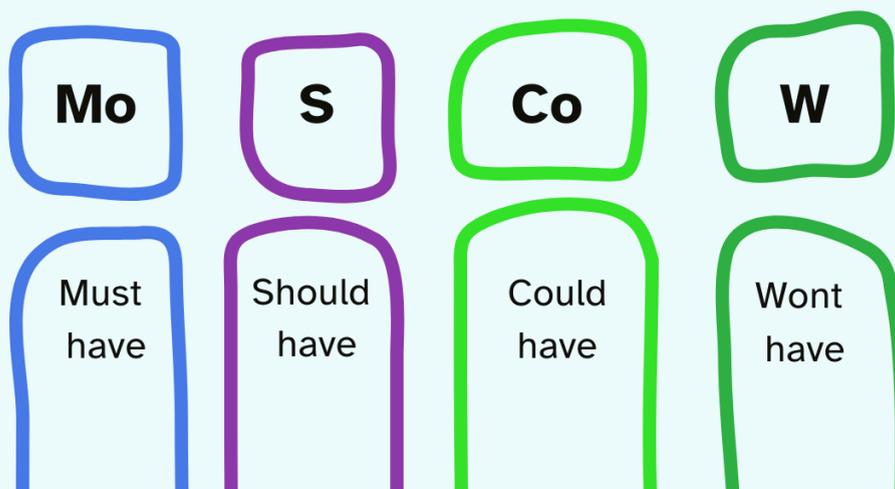
The MoSCoW method is valuable because it categorizes project requirements into four priority levels: Must-Haves, Should-Haves, Could-Haves, and Won't-Haves. By doing so, it ensures that essential elements are addressed first, resources are allocated efficiently, and project goals are achieved effectively within constraints. This approach enhances focus and manages expectations throughout the project lifecycle.

✓ How to use it?

Categorizing stakeholders is a valuable strategy for effective project and stakeholder management. By placing stakeholders into different groups, you can prioritize tasks and allocate resources efficiently. This ensures that essential goals are addressed promptly.

✓ Tips for success

Alignment within your project and with project partners.





✓ What and Why use it?

Stakeholders can vary in their level of influence and interest in the project. A stakeholder map helps categorize them, using a matrix that plots stakeholders based on their power and interest. This prioritization ensures that resources and efforts are focused on the most critical stakeholders.

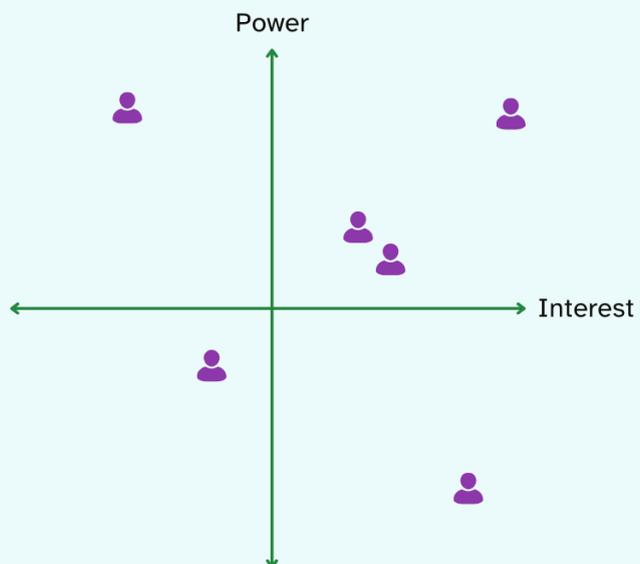
✓ How to use it?

Be flexible and ready to adjust your stakeholder management approach based on feedback and changing circumstances. This dynamic process ensures that stakeholder engagement remains effective and relevant throughout the project lifecycle.

Remember that a stakeholder can move around during a project depending on where your project are in its cycle and phases.

✓ Tips for success

Allowing stakeholders to self-identify their category is indeed a valuable approach. It ensures alignment and avoids assumptions. However, there may be cases where stakeholders perceive their role differently from the project manager's assessment. Open communication and regular feedback can help bridge any gaps and ensure effective collaboration



*Next step! Building
an engagement
framework*



*Tools for engaging
PED stakeholders?*



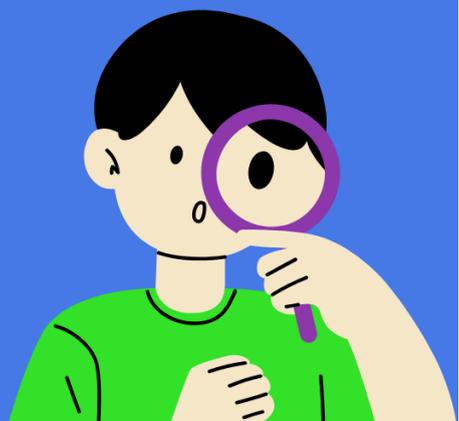
6. TOOLS FOR ENGAGING PED STAKEHOLDERS

Engaging stakeholders effectively requires the use of various tools and techniques that cater to different types of stakeholders and their unique needs. Here are some common tools for engaging stakeholders:

- Face-to-face communication/ meetings (in person)
- Video calls (online)
- Phone call
- Text messages
- Instant messaging
- Emails
- Live chat
- Social media
- Knowledge database
- Online communities
- Corporate / Website blog
- Trade fair appearances
- Workshops
- Newsletter
- Internet
- Meeting Minutes
- Forums
- Surveys
- Booklet
- Data collection
- Public comment
- Meetings
 - Staff meeting
 - Plan meetings
 - Decion-making meetings
 - Consensus meetings
 - Final rewiev meeting



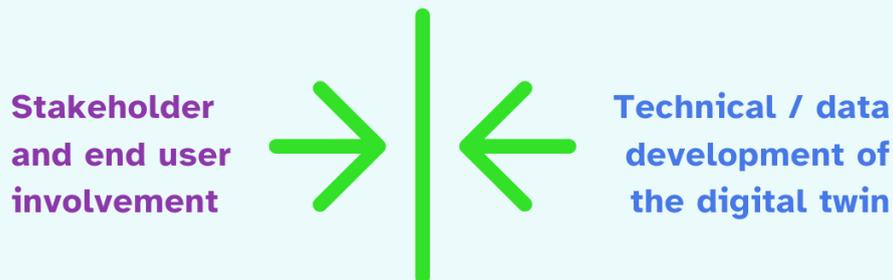
*PED stakeholder
engagement
framework?*



7. PED STAKEHOLDER ENGAGEMENT FRAMEWORK

Creating a stakeholder engagement framework provides a structured approach to gather and consider diverse perspectives, leading to more informed and balanced decision-making. Engaging stakeholders early and throughout the project can reveal potential risks, opportunities, and innovative solutions that might otherwise be overlooked.

Working with stakeholder engagement frameworks also provides a clear plan for communication, ensuring that information is shared effectively and consistently. This helps prevent misunderstandings, manages expectations, and keeps everyone informed of progress and changes.



Stakeholder and end user alignment in the BIPED project

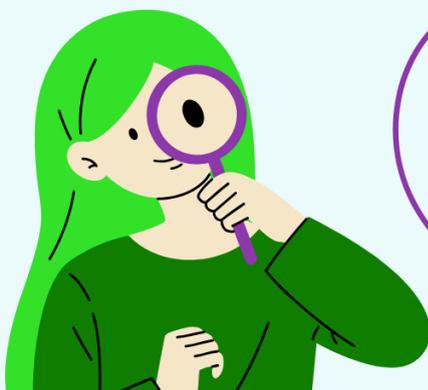
Stakeholder and end user involvement is important in the BIPED project, ensuring that the PED and the technical / data development of the digital twin aligns with local needs, fosters community support, and addresses specific challenges within the city of Aarhus.

More specifically, the mapping, engagement, and involvement of stakeholders and end users provide essential data, context, and validation for an accurate and effective digital twin.

The stakeholder mapping in BIPED serves as a foundational step in creating a stakeholder engagement framework. By identifying and categorising stakeholders based on their influence and interest, we pave the way for effective collaboration. The engagement framework provides a clear structure for interactions, ensuring that all stakeholders understand their roles and responsibilities. And aligns everyone toward common goals, preventing misunderstandings and conflicts in BIPED.

The framework in BIPED is divided into 4 different categories:

1. Stakeholder	2. Communication plan	3. Engagement	4. Stakeholder management
This category focuses on identifying and understanding key stakeholders in BIPED. It includes stakeholder mapping, assessing their interests, and determining their influence on the project.	The communication plan is the strategic blueprint that outlines how information will be exchanged among the BIPED project team and stakeholders. It covers channels (e.g., meetings, emails), frequency, and content.	Engagement involves actively involving stakeholders in e.g. decision-making. It includes feedback loops, consultations, collaboration, and levels of engagement.	This category encompasses overall stakeholder coordination. It includes planning, execution, monitoring, and risk management as well as choosing the right management tools.



Oh! I see, each category emphasizes different stakeholders and outcomes, ensuring effective engagement within diverse contexts.

How? Using an Excel sheet for a stakeholder engagement framework is a practical way to organize and manage stakeholder information:

- Create column headers for relevant stakeholder details.
- Fill in the rows with stakeholder information. Add new rows for each stakeholder.

Here’s how BIPED has structured the projects stakeholder engagement framework using an Excel sheet based on the four categories already mentioned - including a row with explanations or question to be asked in each subcategory:

Stakeholder				
Stakeholder	Description / Identification	Sector / Stakeholder Type	Is the stakeholder an end user	End User Description
Stakeholder name	Who, What, Where, When and Why	Private and public actors/sector, academic or NGOs	Yes / No	How can the stakeholder use BIPED?

Stakeholder (continued)			
MoSCoW Prioritization	Level of Interest	Level of Power	Areas of Interest/Power
The acronym MoSCoW represents four categories of initiatives: must-have, should-have, could-have, and won't-have, or will not have right now.	Prioritise the stakeholder by means of Interest - Very High, High, Medium, Low, Very Low:	Prioritise the stakeholder by means of Influence - Very High, High, Medium, Low, Very Low:	A. Keep satisfied (Pi) B. Actively engage (PI) C. Monitor (pi), D. Keed informed (pl):



Communication		
Engagement Tool/Approach	Message customisation / tailoring	Frequency and timing:
<ul style="list-style-type: none"> • Face-to-face communication / meetings (in person) • Video calls (online) • Phone calls • Text messages • Instant messaging • Emails • Live chat • Social media • Knowledge database • Online communities • Corporate/Website blog • Trade fair appearances • Workshops- Newsletter • Internet • Booklet • Meeting Minutes • Forums • Surveys • Data collection • Public comment • Meetings <ul style="list-style-type: none"> ◦ Staff meeting ◦ Plan meetings ◦ Decion-making meetings ◦ Consensus meetings, ◦ Final review meeting 	<p>Providing relevant and timely information that meets their needs and expectations. We need to identify what information each stakeholder needs, wants, and expects from us, and how often they need it. Consider factors such as their demographics, roles, interests, knowledge level, communications preferences, and challenges they might face. Understand the cultural context of our stakeholders and which language and tone to use.</p>	<p>Daily, Weekly, Monthly, Quarterly OR Regular updates, As-needed communication, Getting information earlier than others</p>

Sure, now I can visualise how to adapt the framework to my specific project!



Engagement					
Level of engagement	Stakeholder Expectations	User Expectations	Project (BIPED) Expectations	Stakeholder impact	Feedback (formative evaluation)
<p>Inform: To provide the public with balanced information.</p> <p>Consult: To gather feedback from targeted stakeholders.</p> <p>Involve: To work directly with stakeholders continuously.</p> <p>Collaborate: To partner with stakeholders in each aspect of the decision.</p> <p>Co-Lead: To place final decision-making in the hands of stakeholders.</p>	What are the expectations of the stakeholder?		What do we want from the stakeholder?	Refers to their ability to change the result of the project.	The proces of gathering and analyzing feedback addressing ongoing and early challenges or issues.

Stakeholder Management		
Owner	Project Management Tool	Notes
The person accountable for the contact and process	Managing the proces with Excel, MS Planner evt.	

Remember:

- Keep the Excel sheet up-to-date as you engage with stakeholders.
- Regularly review and adjust based on changing needs.
- Adapt the framework to your specific project and organizational context.

8. AND THEN WHAT?

It is important to note that working with stakeholder mapping and engagement frameworks is a living tool that you will have to revisit again and again during your project. Stakeholders can move around in the stakeholder mapping you made during a project, and their interest can change. Stakeholder engagement follows a life cycle, much like a project. Here are the key stages:



The Stakeholder Engagement Life Cycle

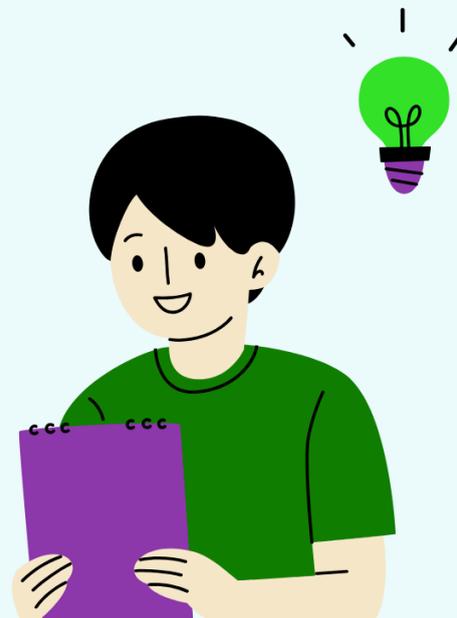
Well, that makes sense, stakeholder engagement is not a one-time event; it's an ongoing process that evolves throughout the project lifecycle!



“

Cities don't just become climate-neutral at once. It's a gradual process that starts at the grassroots level and works its way to the top, covering ever more sectors, dimensions and areas that make up the urban fabric. At BIPED, we help cities to complete this journey through a community-driven systems change that is green, digital, and just..

*- Martin Brynskov
BIPED Coordinator
Technical University of Denmark (DTU)*



9. LITERATURE

- 1) Freeman, R.E., 1984. Strategic Management: a Stakeholder Approach. Pitman Publishing, Marshfield, Mass. 60 p.
- 2) The Aarhus Compass: <https://faellesomaarhus.aarhus.dk/media/us3jfyx5/aarhuskompassetlight-uk.pdf>
- 3) CFIA: The center for innovation in the city of Aarhus: <https://cfiaarhus.dk/>
- 4) Urbact tools for engaging stakeholders: <https://urbact.eu/toolbox-home/implementing/stakeholders-powerinterest-matrix>
- 5) BIPED: <https://www.bi-ped.eu>

