



# Capacity Gap Assessment



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## *Integrated climate, energy and spatial plans*

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## About IN-PLAN

The overarching objective of IN-PLAN (Integrated Energy, Climate and Spatial planning) is to develop, test and roll out the IN-PLAN practice – a long-lasting support structure enabling local and regional authorities to effectively implement their sustainable energy, climate, and spatial plans. They aim to do so by:

- Integrating energy and climate planning with spatial planning (and other types of planning tools, such as mobility, infrastructure, etc.);
- Ensuring commitment at all political levels (through vertical integration); and
- Matching the included measures with specific dedicated local and regional budget lines.

On top of delivering this innovative and effective approach, IN-PLAN intends to empower local and regional governments and their agencies through a *two-step capacity-building programme*. From the start, the IN-PLAN consortium will engage 15 local and regional governments – the Lighthouses – in order to co-create, implement and refine the IN-PLAN practice, its operational guidelines and the capacity-building programme. 30 more local and regional governments – the Pilots – will also benefit, in part, from the IN-PLAN practice.

Once developed, the two-step capacity building will start. Phase one will aim at training the trainers: empowering energy, climate and/or development agencies from across Europe to become IN-PLAN Multipliers. Phase two will aim at passing on the knowledge to local and regional governments, the Replicators. They will be tutored either by the five national project partners or by the trained multipliers.

IN-PLAN's ultimate goal is to empower local and regional authorities in developing and implementing integrated energy, climate, and spatial planning in their territories.



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## 1. Introduction

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Many local and regional governments in Europe and around the world are looking for effective approaches to implement ambitious climate targets till 2050 or even earlier. In particular, the current impacts of climate change in the form of heat waves, droughts, extreme weather events and other related natural hazards have increasingly driven the debate on how to adequately mitigate and adapt to climate change, also at the local level. As they most often directly and indirectly control the spatial development of their areas, local and regional governments are instrumental in enabling and enforcing the implementation of national and European legislation in practice. Spatial planning in particular can be a valuable tool for many municipalities to drive measures and actions relevant to achieving net zero targets, as they are mostly applicable within their own sphere of influence.

The role and integration of climate and energy aspects in spatial planning processes has been increasingly analysed and addressed in recent years. There is a strong correlation between spatial structures when it comes to energy demand and supply as well as mobility. For example, a mix of functions (e.g. living and working) provides for a better balance of peak and base loads in the power grid and limits travel distances, building density supports the efficiency of grid-connected energy systems etc. (Stoeglehner 2020). In general, spatial planning offers a variety of opportunities to shape climate mitigation and adaptation and to advance the energy transition that is necessary to achieve climate neutrality.

Nevertheless, understanding of the role of spatial planning in addressing climate change is still limited within local authorities and the potential of current spatial planning tools is often not yet being adequately exploited. Against this background, this report seeks to identify current gaps and barriers that most often hinder the integration of climate and energy considerations into spatial planning in Europe. This assessment of capacity gaps will ultimately form the basis for the "IN-PLAN Practice," a permanent support structure designed to help local and regional authorities to implement their sustainable energy and climate plans by integrating them into spatial planning (and other types of planning tools, such as mobility, infrastructure, etc.). As such, the "IN-PLAN Practice" will present a set of guidelines and tools to be used in all kinds of spatial planning processes.

The gaps and barriers addressed in this report were collected by a three-fold analysis:

### **Online Survey among municipalities about capacity gaps in current spatial planning**

An online EU Survey was shared with several municipalities and regions within Europe (primarily the project's "lighthouses"<sup>1</sup>) to assess the capacity level and what they think is missing in their planning approaches. The aim of this survey was to gain a general, Europe-wide impression of the extent to which climate, energy and mobility aspects are already integrated into spatial planning within European municipalities, to obtain an overview of the legal framework for spatial planning and to

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<sup>1</sup> The lighthouses are municipalities pre-selected to follow the upcoming IN-PLAN practice until the end of the project and beyond.

identify the gaps and obstacles they face. Answers were received by the following local authorities (mostly departments/offices responsible for spatial planning, climate, energy, and mobility): Pazin, Zagreb, and Križevci from Croatia; Narni, Padua, and Prato from Italy; Sebeş, Cluj-Napoca, and Alba Iulia from Romania; Trollhättan, Mölndal, and Borås from Sweden; Tipperary and Southern Region from Ireland; Rethymno in Greece; and Liège in Belgium. A detailed account of this survey and its results can be found in the appendix.

## **In person / online workshops with the lighthouses**

In the context of this project, several workshops with the so-called "lighthouses" will be used to discuss current local-specific spatial planning practices, needs, gaps and barriers, as well as possible solutions for better integrating climate and energy aspects, which will then be fed into the IN-PLAN practice. Each of the three "lighthouses" per country will be involved in a total of three workshops by the end of March 2023. The first workshop, held in December and early January 2022, served as an initial introduction to the topic of integrated spatial planning. Participants, mainly from the municipality (planning department, chief architects, etc.), were asked about their expectations for the project and were tasked to outline the basics of the local planning processes. The second round of workshops focused on the needs and barriers that currently hinder the integration of climate and energy aspects in spatial planning. The results of these workshops were summarized and textualized for each municipality/county in the form of an internal, non-public "City/County portrait". The third round of workshops, to be held in March, will be used as an initial feedback loop for a first rudimentary "IN-PLAN practice" draft.

## **Analysis of projects & literature**

Lastly, an analysis was conducted of ongoing and completed capacity building projects with cities or municipalities/counties and regions as the main target group and with focus on climate change mitigation/adaptation, energy and mobility. The core question for this analysis was: What type of problem did these projects try to address? The following projects were looked at in more detail:

- URBAN LEARNING<sup>2</sup> (2015-2017)

The URBAN LEARNING project addressed knowledge and capacity gaps in city administrations regarding the decarbonisation of local energy systems and of grid infrastructure by fostering integrated energy planning. An analysis of current governance practice in the context of the project showed that energy aspects, though generally well addressed at building level, are largely lacking at the level of housing or business park developments, quarters or districts. Furthermore, it highlighted that qualities requested at early urban planning stages are often lost in subsequent planning and construction phases. (Schmid 2017)

- Decarb City Pipes 2050<sup>3</sup> (2020-2023)

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<sup>2</sup> Project Urban Learning Website: <http://www.urbanlearning.eu/>.

<sup>3</sup> Project Decarb City Pipes 2050 Website: <https://decarbcitypipes2050.eu/>.

This capacity building project supports cities in decarbonizing their heating and cooling system by jointly developing local-specific “transition roadmaps” that show the way forward. The project primarily targets the following current barriers and hurdles: lack of knowledge about local conditions in terms of heating demand, building stock or heating and cooling sources, insufficient coordination of the issue within the city administration as well as lack of collaboration with key stakeholders, and lack of an appropriate and supportive legal framework.

- CityZen<sup>4</sup> (2019-2023)

Focusing on multi-sectoral benefits of urban farming, this project challenges current approaches and frameworks within cities when it comes to solving conflicts due to differing interests in land use within urban areas, such as residential or commercial buildings, public parks, sport facilities, etc.

- SIMPLA (Sustainable Integrated Multi-sector PLAnning)<sup>5</sup> (2016-2019)

The main objective of the SIMPLA project was to support small and medium-sized authorities in harmonizing their SECAPs and SUMP. The project thus addressed the fact that, despite a large overlap in the underlying climate and environmental issues, local authorities are often organized “in silos”, with energy and mobility managed by different departments without much horizontal cooperation. As a result, policies are often developed in an uncoordinated manner and lack a common strategic vision.

- CITIESMULTIPLY<sup>6</sup> (2018-2022)

The goal of MULTIPLY is to encourage cities and towns to take integrated action on municipal spatial energy planning by participating in a peer-to-peer exchange on experiences. Within this framework, municipalities could exchange ideas and discuss how individual elements of sustainable mobility, energy and spatial planning can be merged into a local municipal spatial energy planning.

- PentaHelix<sup>7</sup> (2018-2021)

This project addressed the lack of horizontal and vertical integration of governance processes on climate and energy issues, so as to improve SECAPs.

A much more detailed analysis of current best practices (and aspects thereof) with regard to integrating energy and climate aspects into spatial planning can be found in the already published *D2.1 Stocktake on available good planning practices*<sup>8</sup>.

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<sup>4</sup> Project CityZen Website: <https://projects2014-2020.interregeurope.eu/cityzen/>.

<sup>5</sup> Project SIMPA Website: <http://www.simpla-project.eu/en/>.

<sup>6</sup> Project CITIESMULTIPLY Website: [www.citiesmultiply.eu/](http://www.citiesmultiply.eu/).

<sup>7</sup> Project PentaHelix Website: [www.pentahelix.eu/](http://www.pentahelix.eu/).

<sup>8</sup> Holodkov, N.; Salvi, F., Süsser, S., Forstinger, V.; Tomasi, F. 2023: Stocktake on available good planning practices. <https://fedarene.org/publication/stocktake-on-available-good-planning-practices/>.

## 2. Analysis of current Gaps and Barriers

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In the survey, a large majority of cities indicated that they "strongly agree" and "agree" that climate change mitigation and adaptation as well as renewable energy and energy planning (and less so mobility and land use) are recognized and already addressed topics in their municipality, city or region. Only one participant "strongly disagreed" that renewable energy and energy planning are already recognized issues. However, with regard to spatial planning, less than half of the participants stated that the above-mentioned aspects are recognized and addressed in the current spatial plans (although slightly more did so for the topics of mobility and land use).

Most participating municipalities (10 out of 16) stated that (a lack of) personnel resources and (a lack of) financial resources are the main issues currently hindering the integration of climate, energy and mobility aspects. 7, 5 and 5 municipalities respectively argued that it is due to (a lack of) knowledge and expertise within the municipality, due to data availability and access and (a lack of) knowledge and expertise in external planning offices. Tied to this finding, 11 of 16 participants have ranked their reliance on external planners for spatial planning a 7 or higher (with 10 being the maximum), indicating that they outsource important shares of their spatial planning.

The following analysis was structured alongside the participants' ranking of aspects that currently hinder further integration of climate and energy aspects into spatial planning:

### 2.1. Personnel and Financial Resources

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#### **Lack of (qualified) personnel within local administrations responsible for spatial planning**

Smaller municipalities in particular often cannot rely on an own department or agency with a number of specialized experts in spatial planning, climate mitigation and adaptation, energy and mobility. Depending on their administration's size, municipalities often do not even have their own staff trained in spatial planning specifically. Thus, most participants in the survey stated that they use and depend on the service of external planners to write up their spatial plans, with one municipality out of 14 even stating that it subcontracts everything. In turn, only one municipality stated to be capable of doing spatial planning fully in-house.

Given the often limited staffing for spatial planning in many communities (especially in case of absence of other specialized departments), it was mentioned in the workshops that taking on additional tasks, such as dealing with other issues, may not be possible due to time constraints of current staff.

#### **Lack of financial resources**

The availability of financial resources significantly determines the course and duration of a spatial planning process. Insufficient financial resources can, among others, limit the number of (experienced) participants taking part in the process (within the administration, but also in external planning offices) or determine whether an (adequate) participation process is carried out. In addition, the amount of



budgetary resources available naturally determines the implementation of measures and actions announced in spatial development plans, such as the creation of public infrastructure.

Optimally, there should be a dedicated budget for the process and/or the departments that work on integrated spatial planning. Furthermore, innovative financing and funding schemes play a fundamental role to make the green transition possible.

## 2.2. Knowledge & Expertise (internal & external)

### **Lack of knowledge to counter certain interests**

Even with own staff assigned for spatial, energy and mobility planning, there is often still a gap in knowledge, especially when it comes to “new” issues, technologies and trends. This lack of knowledge can often lead to weak and/or inadequate responses towards advocacy groups, pushing towards meeting certain interests that might not necessarily be in the public’s interest.

### **Lack of data available**

Basic research is an essential part of spatial planning and must be carried out to an appropriate extent in order to provide qualified justifications of spatially differentiated decisions (necessary not least in case of legal challenges). A thorough analysis of the local situation, policy and territorial system is essential to be able to understand current problems, to build on existing structures and capacities, and to provide a basis for setting local-specific goals and objectives. Such an analysis is immensely aided by the availability of local-specific data.

In many cases, however, data on emissions, actual energy consumption, renovation activities and their impact, and mobility are not available to a sufficient extent. In addition, existing data is often not shared between actors (for (supposedly) legal reasons, among others). Creating a common repository and clear methods and responsibilities for the collection, storage and updating of the data relevant to the integrated spatial planning process, can help in avoiding loss, duplication or misinterpretation of data required to perform an integrative planning approach.

### **Lack of know-how regarding existing planning tools & instruments**

Innovative planning-support techniques and tools, such as urban energy maps, environmental maps, climate maps, and other spatial and temporal visualisation and mapping tools have the potential to facilitate efficiency in use of resources and better decision-making, including by making use of urban systems modelling for mobility and energy consumption in buildings. They can help in gathering information as well as supporting understanding of the need for measures and actions to be set. However, a lack of knowledge about how to use these tools and the extent to which current tools can be used leaves the potential untapped.

## Lack of expertise with external consultants / planning offices

Most participants in the EU survey stated that they depend on the service of external planners to write up their spatial plans. Thus, the knowledge of external planners on climate and energy also determines the extent to which such aspects are included in spatial plans. Not least, since planning offices are in a contractual relationship with the municipality, and as contractors have to comply with the concerns and requirements of the client, a correspondingly well-founded argumentation is also essential to convince clients of the relevance of the consideration of climate and energy aspects if necessary.

It was mentioned during the workshops that especially tender books may be used as a good window of opportunity to push for certain requirements in knowledge for external experts.

## 2.3. Legislative Framework

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### Lack of supporting legal framework conditions

In most cases, there is no legal obligation to integrate climate and energy aspects into spatial planning. If such an approach is already applied within spatial planning, it is usually done on a voluntary basis.

An appropriate legal framework could not only strongly support but also significantly increase the scope for municipalities to make spatially differentiated determinations. Certain aspects are currently not included in spatial planning because municipalities simply lack the legal mandate to do so<sup>9</sup> (e.g. addressing the building stock). Also, most cities have little to no legal power to create or modify laws that govern the spatial planning framework. Aspects where cities do not have legal authority include, in most cases, active support for heating and cooling planning, regulations for energy-efficient materials, heating solutions, etc.

According to the survey, a simple majority of participants stated that charging stations for e-mobility, parking lots (100% “agree” and “strongly agree”), combatting air pollution as well as buildings refurbishment and energy performance requirements, limiting land consumption and climate change adaptation aspects are already covered in spatial plans. However, aspects of renewable energy production and consumption and energy infrastructure planning are only to some extent already dealt with in spatial plans. As also analysed in the context of URBAN LEARNING, spatial planning laws usually still need to provide a basis for achieving energy goals on the basis of spatial differentiation, so that energy aspects can be considered in spatial processes at all. In most situations, this is not yet the case. (Schmid 2017).

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<sup>9</sup> Decarb City Pipes 2050: <https://decarbcitypipes2050.eu/>

## **Unambitious implementation of laws and strategies: Legal potential that remains unused**

In most cases, a complex legal hierarchy of spatial planning laws and instruments defines the legal possibilities, mandates and objectives of the respective levels for spatial planning. However, the existing legal instruments, although already narrowly defined, are often not fully exploited due to lack of knowledge or ambition/will (e.g., only some municipalities in Styria/Austria develop an energy concept despite a supportive legal framework that allows them to e.g. define settlement expansion areas, designate areas for renewable energy production, etc.) (Stoeglehner 2020).

Furthermore, a planning framework in which the roles and responsibilities at the various planning levels as well as the planning steps and framework conditions are clearly defined can support an integrated planning outcome. However, it is often not clearly defined how vertical coherence is to be ensured. As a result, there may be a lack of consistency between existing objectives, measures and activities and insufficiently aligned planning tools.

### **2.4. Governance and Processes**

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#### **Lack of clear overarching long-term strategies on how to achieve climate neutrality**

Having an overall long-term strategy on how to achieve climate neutrality can help steer municipal/urban development and planning in a clear and timely-coordinated manner. Based on such a strategy, measures and actions as well as key levers can be identified and prioritized.

#### **Lack of horizontal cooperation (within municipal departments): Thinking and working in silos**

Depending on the size of the municipality and its administration, aspects of climate change mitigation and adaptation as well as mobility and energy aspects are often handled by different staff in different (often specialized) departments. When multiple departments exist with specific agendas (energy, mobility, spatial/urban planning, neighbourhood planning, etc.), thinking and working in silos can be a challenge that hinders the integration of different aspects into spatial planning. As a result, action plans, strategies (e.g. SECAP, SUMP), etc. are often developed mainly in one department and (almost) not coordinated with other departments. Sometimes, different departments may even pursue conflicting goals.

This challenge can be addressed by clearly defining responsibilities but also collaboration and cooperation between and within departments. Forming flexible interdisciplinary, cross-departmental local discussion or working groups made of representatives of departments to meet up frequently for targeted discussion on topics can also help overcome such a silo-thinking.

## **Lacking coherence and consistency between different strategies**

Most participating municipalities and counties can already draw on distinguished and well-elaborated national, regional /or local strategies and other strategic documents (like for instances energy plans, SECAPs, SUMPS etc). However, outcomes, measures and actions set out in these documents often do not find their way into spatial plans. During the workshops with the lighthouses, a clear need for help in integrating existing strategies and documents with spatial plans was mentioned.

## **Lack of vertical cooperation (between different administrative levels)**

Spatial planning within a country is usually characterized by a strong hierarchical system, with different levels having different competences and tasks. Higher-level entities, with a larger area of consideration, oftentimes take on a different position regarding spatial planning due to their different perspective (the supra-regional interests in focus). Thus, good coordination and communication between the individual levels can significantly benefit the implementation of ambitious climate and energy targets in spatial planning.

## **Thinking solely within one's own administrative borders**

At present, the area under consideration in a spatial plan usually ends at the municipal boundaries. Own settlement developments are often not thought together with developments within adjacent municipalities. However, especially in the field of energy and mobility, coordination and even collaboration across municipal boundaries would be advantageous for containment of commuter flows, orientation of settlement development, expansion of public transport, and the possibility of coordination or bundling of budget resources. As a result, some communities, often supported by changing regulatory frameworks, are pushing for a metropolitan approach that encompasses more than one municipality and includes a larger area in their spatial plan.

## **No monitoring to ensure adequate implementation**

In many cases, the implementation of requirements imposed by spatial plans is not reviewed after adoption. As such, it cannot be ensured that the initial, ambitious intent of spatial plan is put to practice. Thus, a lack of long-term enforcement and monitoring can potentially undermine the initial ambition of spatial plans.

In general, it is suggested that stakeholder engagement should be a dynamic and flexible process that should endure the life cycle of the planning process (planning, evaluation and implementation as well as post-implementation and monitoring) (Holodkov et al. 2023).

## 2.5. Awareness & Political Will

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### **No common vision on future targets**

Oftentimes policy makers (but also other relevant stakeholders) lack a basic understanding of the territorial systems, their interrelations, and a common vision for the long-term objective. This is, however, key to secure political support, to push local action and to guarantee political commitment necessary to mobilise resources to implement plans and to foster synergies among ongoing actions. A lack of a unanimous opinion on the political level on how to move forward on certain issues creates the risk that spatial plans lack in ambition or are watered down due to compromises.

### **Lack of political support, will and/or ambition**

Of course, the political level must take into account a variety of different needs and objectives, and prioritization can take place on a case-by-case basis. Political decisions are therefore necessarily also often a compromise between different issues.

In the survey, only one municipality indicated that a lack of political will was a main hindrance for the integration of climate and energy aspects in spatial planning. In turn, two cities/municipalities do not consider this an issue at all ("strongly disagree"). However, in the context of the workshops with the lighthouses, it was often mentioned that extensive climate and energy ambition, not the least within spatial planning, is often limited due to a lack of political will. Most especially, this is applicable when it comes to the issue of mobility. Having active political support is, however, decisive also for doing vertical and horizontal cooperation.

### **Lack of public awareness / public acceptance**

Some municipalities stated that they are currently faced with either still low awareness or even (strong) opposition for environmental and energy issues (i.e. against PV and wind energy), and/or low participation within the population. Here, a participatory process allow for different viewpoints on needs and interests of citizens and other stakeholders to be considered and could help in generating awareness and support for certain actions and measures. A bottom-up approach strongly including local stakeholders can bring forward solutions also citizens can accept and support during the implementation phase.

### **Lack of engagement of certain stakeholders and citizens**

Further incorporating energy and climate aspects into spatial planning may require coordination with more stakeholders. Cooperation and coordination with utilities, network operators (DSOs), private companies and even citizens, etc. is often not yet common in some municipalities. Often, municipalities also encounter difficulties cooperating with these stakeholders due to existing certain interests. In general, involving relevant stakeholders from the beginning of the planning process is considered essential. It can help to counteract early resistance.

### 3. Conclusions

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Nine of the participating municipalities are Covenant of Mayors - Europe signatories. Five are "Mission-Cities" under the EU framework and aim for a 2030 climate neutrality target. Four other municipalities also indicated that they take part in other international or national initiatives. These numbers indicate that most municipalities participating in the EU survey done in the context of IN-PLAN (most of them are "lighthouses" of the project) have strong energy and climate ambitions.

Nonetheless as was also mentioned in the survey as well as during the workshops, integrating climate and energy aspects into spatial planning is still an underdeveloped approach that is faced by many gaps and barriers. Thus, most "lighthouses" voiced big expectations towards this project during the first series of workshops. For instance, they actively called for support in

- better integrating existing strategies into spatial plans,
- answering certain (technological) questions (e.g. how to tackle locally-specific problems),
- dealing with differing stakeholder interests,
- taking a critical look at current planning processes.

In general, the gaps, barriers, and needs identified above often vary greatly from one community to another. On the one hand, this depends on how large or financially strong a municipality/county is and how urban or rural it is. On the other hand, of course, communities also face region-specific, often very different local issues (e.g., depending on availability of energy sources, vulnerability to natural hazards, etc.). The problems most frequently mentioned during the workshops that need to be addressed (and could potentially be addressed through land use planning) are:

- limiting urban traffic and increasing sustainable mobility
- decarbonizing heating and cooling
- heightening energy efficiency in current building stock
- pushing local renewable energy production (wind, PV, geothermal etc.)
- distribution and storage of locally produced electricity
- urban heat islands
- pushing resilience towards natural hazards (landslides, droughts, floods etc.) and risk mitigation
- air quality and zero emissions zones

However, as mentioned in the survey as well as in the context of the workshops, participating municipalities mentioned manifold current windows of opportunities in which to address climate and energy issues in more detail. In the next three years of this project, these windows of opportunities shall be targeted as opportunities to test out solutions to the aforementioned gaps and barriers in practice.

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## ANNEX 1 - EU Survey results

### Participants profiles

The participants came from 16 local authorities: Pazin, Zagreb, and Križevci from Croatia; Narni, Padua, and Prato from Italy; Sebeş, Cluj-Napoca, and Alba Iulia from Romania; Trollhättan, Mölndal, and Borås from Sweden; Tipperary and Southern Region from Ireland; Rethymno in Greece; and Liège in Belgium.

Their departments/offices are mainly responsible for Spatial planning, Climate, Energy, and Mobility. They could also specify other portfolios when necessary; like economic development, Economic Development & Circular Economy, Nature & Biodiversity, Waste management, International relations, partnerships, urban innovation, or Infrastructure.

Table 1: European initiatives they are registered with to report energy and climate actions

municipality, city, or region	Spatial planning	Climate	Energy	Mobility	Covenant of Mayors - Europe	Climate-neutral and smart cities	Other
Pazin	X				X	X	
Zagreb	X				X	X	
Križevci	X	X	X	X	X		
Narni	X				X		
Padua		X	X		X	X	
Prato				X		X	
Sebeş	X			X	X		
Cluj-Napoca			X			X	
Alba Iulia					X		
Trollhättan	X	X	X	X			
Mölndal		X					Klimatkommunerna
Borås	X	X					
Tipperary	X				X		
Southern Region	X	X	X	X		X	
Rethymno		X	X	X	X		
Liège	X	X	X	X	X		



## Methodology

For 5 statements, the participants used a Likert scale. This scale “is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement”<sup>10</sup>. The scale was: “Strongly agree”, “Agree”, “Neither agree nor disagree”, “Disagree”, “Strongly disagree”. The aim was to evaluate where people are standing.

They had 2 multiple-choice questions to know which area of work was of interest to the participants and to know with which European initiatives they are involved (and report to). They could give several answers.

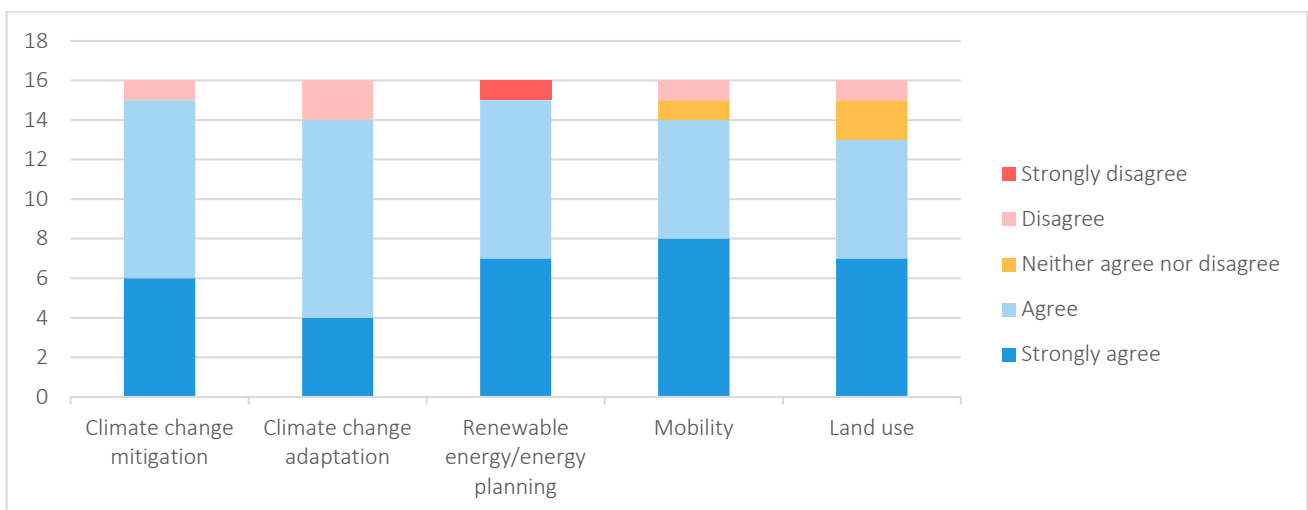
Finally, there were 2 special questions: 1 to know more about the legal context of planning and one to know the importance of sub-contracting and the use of external experts in the planning.

## Results

1. They answered to what extent the following topics are recognised issues within their municipality, city, or region and the local or regional authority is actively working on them:

- Climate mitigation
- Climate adaptation
- Renewable energy/energy planning
- Mobility
- Land use

Figure 1: Recognised issues the participant are actively working on

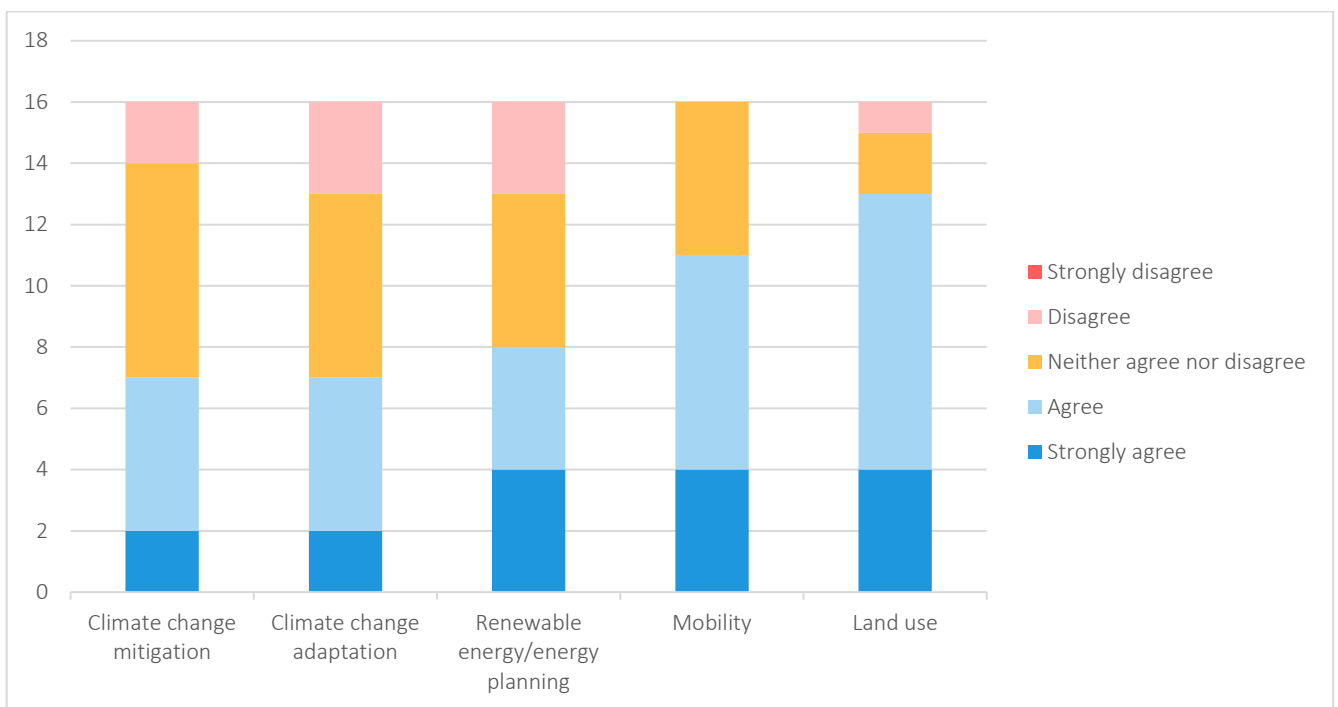


<sup>10</sup> Definition from <https://www.simplypsychology.org/likert-scale.html>

2. They answered to what extent the following topics are already addressed to a sufficient degree in spatial planning in their municipality, city or region:

- climate mitigation
- climate adaptation
- renewable energy/energy planning
- mobility
- land use

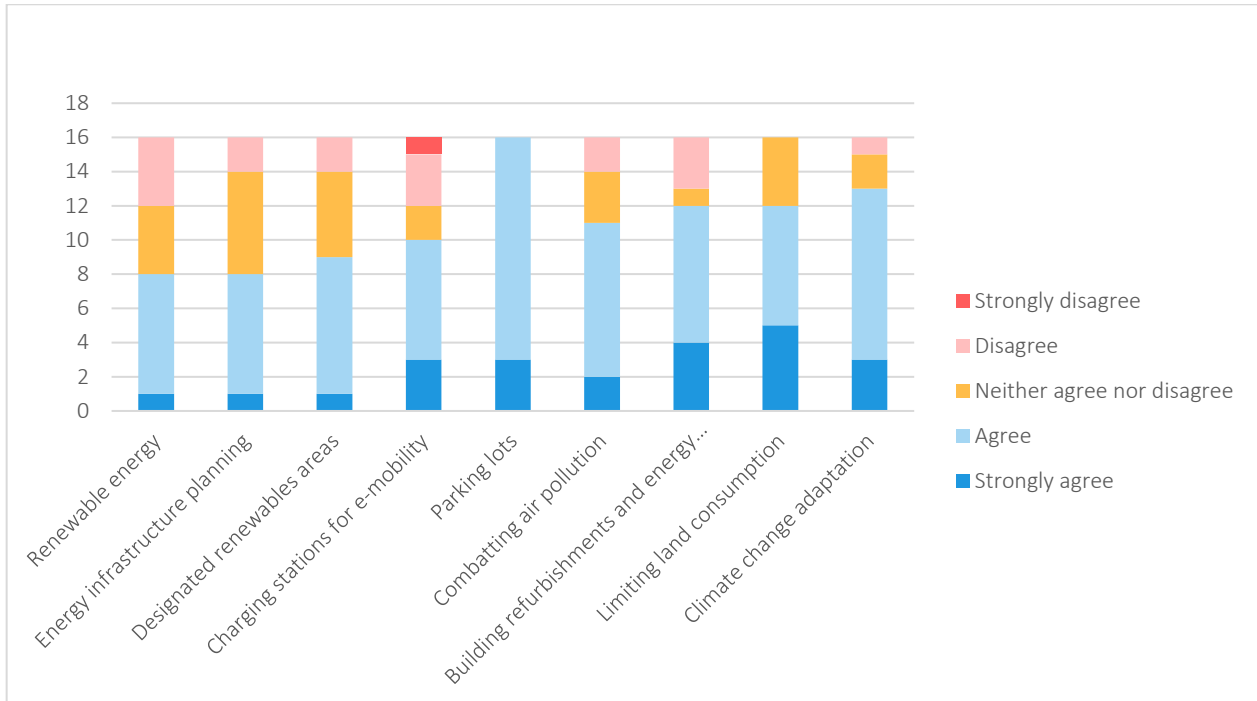
Figure 2: Topics tackled enough by the participants



3. They answered to what extent spatial plans create obligations in your municipality, city or region regarding the following aspects:

- renewable energy (e.g. prohibition of gas/oil/coal use)
- energy infrastructure planning (e.g. district heating network, gas grid, ...)
- designated renewables areas (e.g. PV, wind, ...)
- charging stations for e-mobility
- parking lots
- combatting air pollution
- building refurbishments and energy performance
- limiting land consumption
- climate adaptation (e.g. vertical greening, trees, preventing urban heat islands, ...)

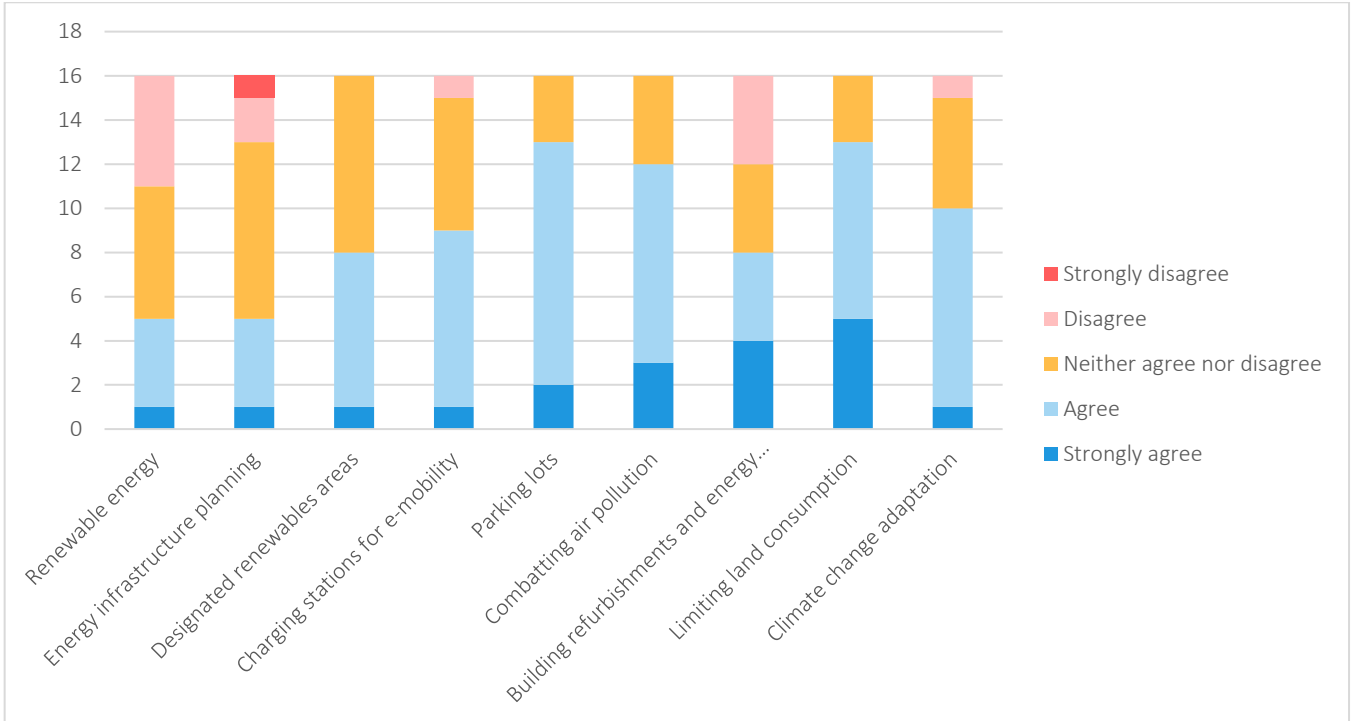
Figure 3: Area of work imposed by the spatial plans



4. They answered to what extent their legal framework allows them to create obligations regarding the following topics within their municipality, city or region:

- renewable energy (e.g. prohibition of gas/oil/coal use)
- energy infrastructure planning (e.g. district heating network, gas grid, ...)
- designated renewables areas (e.g. PV, wind, ...)
- charging stations for e-mobility
- parking lots
- combatting air pollution
- building refurbishments and energy performance
- limiting land consumption
- climate adaptation (e.g. vertical greening, trees, preventing urban heat islands, ...)

Figure 4: Area of work that can be imposed via the legal framework



5. How often are they legally required to adapt/renew their spatial plans?

- Every 5 years or less
- Every 6 to 10 years
- More than 10 years
- No legal obligations

In Croatia, Sweden, Belgium, and Greece, there is no legal obligation to update their spatial plan. It is common practice, however, that plans are updated every 5 years in Croatia, for instance. In Italy, the plans should be updated every 5 years. In Romania and Ireland, they must be updated every 6 to 10 years.

In the sample, some answers differed per country. This can be explained by the wording of the question, which has led to misunderstanding.

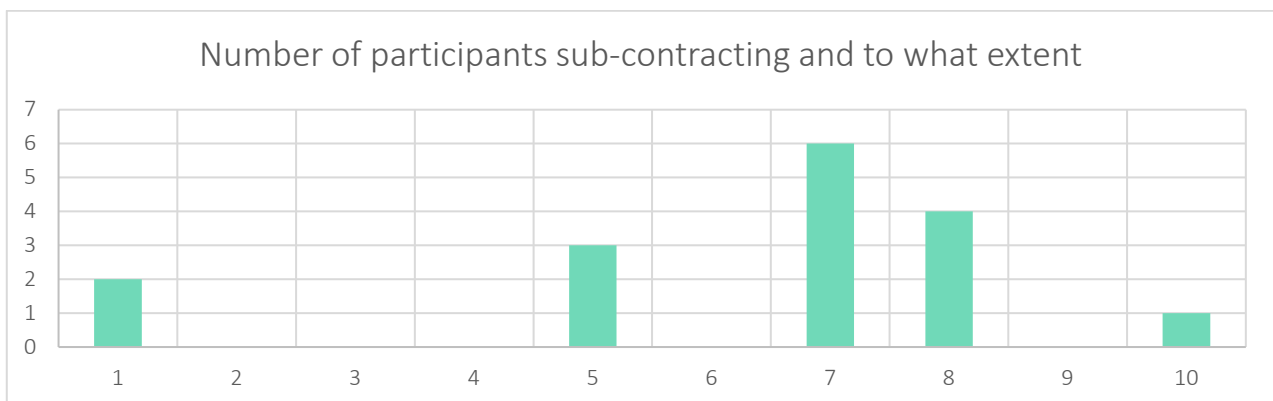
Table 2: Legally binding frequency of updating their spatial planning

Municipality, city or region	Country code	How often are you legally required to adapt/renew your spatial plans?
Pazin	HR	Every 5 years or less
Zagreb	HR	No legal obligations
Križevci	HR	No legal obligations

Narni	IT	No legal obligations
Padua	IT	Every 5 years or less
Prato	IT	Every 5 years or less
Sebeş	RO	Every 6 to 10 years
Cluj-Napoca	RO	More than 10 years
Alba Iulia	RO	Every 6 to 10 years
Trollhättan	SE	No legal obligations
Mölnadal	SE	No legal obligations
Borås	SE	Every 5 years or less
Tipperary	IE	Every 6 to 10 years
Southern Region	IE	Every 6 to 10 years
Rethymno	GR	No legal obligations
Liège	BE	No legal obligations

- On a scale from 1 to 10, they expressed the extent to which their municipality, city or region make use of the services of external planners to write its spatial plans. 1 means they do everything in-house, 10 means they subcontract everything.

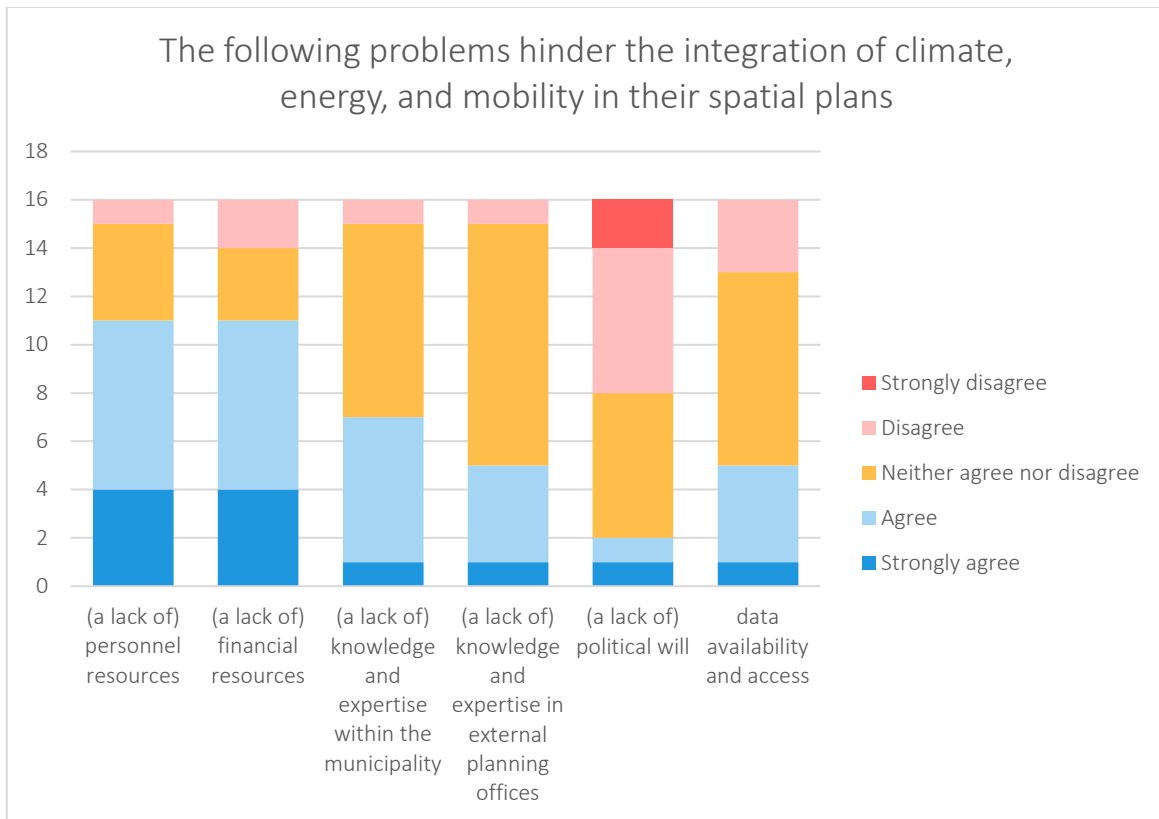
Figure 5: Number of participants sub-contracting their planning process and how much



7. They answered to what extent the following problems are strongly hindering their municipality, city, or region from integrating climate, energy, and mobility aspects in its spatial plans:

- (a lack of) personnel resources
- (a lack of) financial resources
- (a lack of) knowledge and expertise within the municipality
- (a lack of) knowledge and expertise in external planning offices
- (a lack of) political will
- data availability and access

Figure 6: What is hindering the integration of climate, energy, and mobility in spatial plans





*Integrated climate, energy and spatial plans*



<https://fedarene.org/project/in-plan/>



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