



## Report on Insight into the EU Urban Mobility Labour Market

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## Abstract

CIVITAS offers a wide range of capacity building activities in the field of sustainable urban mobility. This report elaborates on the CIVITAS European Urban Mobility Labour Market Research centred on the following question:

Which skills and knowledge are needed by professionals working at and for urban planning authorities?

Based on the outcomes of this research, the upcoming capacity building activities within CIVITAS MUSE (CIVITAS Coordination and Support Action 2023–2027) will be determined. This research targets European urban mobility professionals working at local, regional, and national public urban planning authorities as well as consultants, industry, civil society organisations, knowledge and research institutes, etc. This report corresponds to Deliverable D7.1 and showcases an analysis of the current status quo, trends, and developments of the urban mobility labour market, needs for knowledge and skills, the urban mobility workforce, and capacity building considerations targeting urban mobility professionals in Europe.

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## List of Abbreviations

ADAS – Advanced Driver-Assistance System

AI – Artificial Intelligence

CAV – Connected and Automated Vehicle

CCAM - Connected, Cooperative and Automated Mobility

CIVINET – CIVITAS National Networks

EU – European Union

GHG – Greenhouse gas (emissions)

GIS – Geographic Information System

GVA – Gross Value Added

ICT – Information and communications technology

IT – Information technology

IoT – Internet of Things

MaaS – Mobility-as-a-Service

NECP – National Energy and Climate Plans

PAC – Policy Advisory Committee

PT – Public Transport

SECAP – Sustainable Energy and Climate Action Plan

SDG – Sustainable Development Goal

SULP – Sustainable Urban Logistics Plan

SUMP – Sustainable Urban Mobility Plan

TEN-T – Trans-European Transport Network

UK – United Kingdom

UN – United Nations

V2I – Vehicle-to-infrastructure communications

V2V – Vehicle-to-vehicle communications

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## Executive Summary

This report is the result of the European Urban Mobility Labour Market Research conducted under the CIVITAS MUSE project, the current CIVITAS Coordination and Support Action. The main question this report aims to address is: *Which skills and knowledge are needed by urban mobility professionals working at and for urban mobility planning authorities?*

Within this study, an urban mobility professional is defined as any professional who is involved in the development and implementation of a Sustainable Urban Mobility Plan (SUMP), including SUMP-related research, regulation, and governance structures.

Through a combination of survey, interviews, several consultation sessions, and desk research, valuable insights into the current state of this sector have been acquired. Both general trends and those driven by the European Union impact urban mobility organisations, especially planning authorities, their modus operandi, and the knowledge and skills that are necessary by professionals working in those organisations.

Gaps in critical urban mobility knowledge areas as well as specific skills for urban mobility professionals were identified. Among others, aspects such as variations in city size, the presence of Sustainable Urban Mobility Plans (SUMPs), and gathered insights from managers were considered.

This research underscores the dynamic nature of the European urban mobility labour market. To thrive in this evolving field, it is crucial to address knowledge gaps, encourage the acquisition of necessary skills, and support capacity-building initiatives. Capacity building efforts undertaken by CIVITAS MUSE will build on the results of this research and programme upcoming activities accordingly. The authors of this report would like to express their sincere gratitude to all interviewees and participants of the CIVITAS Educational Network session and the consultation sessions (see table in the Annex) as well as all survey respondents.

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# 1 Introduction

Urban mobility in Europe is undergoing a significant transformation due to increasing urbanization and a growing emphasis on sustainability. The European Commission, through its CIVITAS Initiative, is committed to fostering innovative solutions to enhance urban transportation and promote a greener, more efficient, and inclusive future for the continent.

This research report delves into a critical but often overlooked aspect of this transformation – the human capital within the urban mobility sector. The primary goal of this study is to shed light on the knowledge and skills that are essential for urban mobility professionals, both in the present and foreseeable future.

## 1.1 About CIVITAS MUSE Capacity Building

Capacity building efforts are among the various elements of CIVITAS MUSE. These revolve around the following key objectives:

- (1) *Gaining a Deeper Understanding:* CIVITAS MUSE aims to provide valuable insights into the knowledge and skills that urban mobility professionals and students need to acquire. This knowledge will enable them to effectively address the urban challenges that lie ahead in the near future.
- (2) *Strengthening Knowledge Clusters:* The programme focuses on enhancing the knowledge and skills of urban planning authorities through interactive and hybrid learning journeys. This includes the development of soft skills relevant to mobility planning, such as lobbying, cooperation, and innovation.
- (3) *Enhancing Urban Mobility Education:* CIVITAS MUSE is committed to improving the educational opportunities related to urban mobility. This includes the expansion of CIVITAS Educational Network that was originally initiated in the CIVITAS ELEVATE project, the previous CIVITAS Coordination and Support Action.
- (4) *Engaging Youth Participation:* CIVITAS MUSE aims to increase the involvement of young individuals, including students and young professionals, in the CIVITAS initiative. Building on the success of the Mobility Powered by Youth programme initiated in CIVITAS ELEVATE, CIVITAS MUSE will further develop and expand this programme to foster greater youth engagement in CIVITAS activities.

## 1.2 Objective

To tackle the urban mobility challenges of today and tomorrow, planning authorities need skilled staff both in terms of hard and soft skills. The urban mobility labour market is growing and undergoing big changes. Next to traditional knowledge and skills about traffic and mobility, curricula and training need to foster topics such as innovation, active modes, e-mobility, software-based solutions (such as sharing, autonomy, data, and mobility services), and inclusive and just societies.

Therefore, the main question this report addresses is: *Which skills and knowledge are needed by urban mobility professionals working at and for urban mobility planning authorities?*

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## 1.3 Scope

The study is conducted in the context of the CIVITAS Initiative, a flagship programme of the European Commission on sustainable urban mobility. The target audience of this research is urban mobility professionals. This group is defined in this study as experts that are professionally involved in the development and implementation of a SUMP, including SUMP-related research, regulation, and governance structures at local, regional, national, and international level.

The research presents findings for knowledge and skills needs of this segment of the labour market in Europe.

## 1.4 Methodology

The research employed a multi-faceted approach, combining a survey, desk research, sessions, and interviews. By combining these research methods, the authors of this study had a solid basis to come to a comprehensive and nuanced understanding of the EU urban mobility labour market.

This research (2023) is based on the following methods:

- Desk research on various topics from national and European policies, EU-funded project deliverables, scientific articles, and consultancy reports.
- *CIVITAS European Urban Mobility Labour Market Survey* with a focus on questions from part 2 of the survey: *Current and future trends and needs in your field of work (topics, skills, and knowledge)*.
- Interviews and consultation sessions with relevant urban mobility stakeholders.
- A dedicated session featuring a discussion about the survey results with the CIVITAS Educational Network.

To gain quantitative insights, the survey was conducted targeting a diverse group of urban mobility professionals across the EU. The survey was designed to collect data on various aspects, including job roles, knowledge, skills, and challenges faced by professionals working in urban mobility as well as capacity building aspects. The survey ran from June until September 2023. It was promoted through various communication channels (e.g. mailings and social media) from, amongst others, CIVITAS, CIVINETs, individual project partners and others (e.g. the Dutch Cycling Embassy, with a reach of 50,000+ followers). In total, 102 individual responses were collected, of which 99 were used for the analysis.

The European Urban Mobility Labour Market Survey contained single-select and multi-select multiple-choice questions and single-choice questions. Throughout this report, most figures depict only a limited number of answer options, reflecting only those that got the most votes. In some cases, the percentages shown do not sum to 100% because respondents could submit multiple answers to a question. The respective numbers and percentages shown next to the graphs correspond to the respondents who gave that particular answer. In cases where more than six answers were possible, only the top six were analysed and displayed in the

respective graphs. For questions relating to city size, this refers to the size of the place the respondents work for or in.

The desk research related to this study was carried out to gather existing data, reports, and academic literature related to the EU urban mobility labour market. This included studies by governmental agencies, international organizations, and academic institutions. The desk research helped establish a baseline understanding of the market, identified trends, and provided a context for the findings.

Qualitative insights were gathered through a series of interviews with the CIVINET secretariats – key stakeholders in the CIVITAS Initiative capable of assessing the situation at the workplace in their countries, including the smaller municipalities. Furthermore, interviews with stakeholders from the CIVINETs and consultation sessions with urban mobility professionals contributed to a more in-depth impression. The interviews were complemented by a session with the CIVITAS Educational Network, in which universities from across Europe are represented. These were able to shed light on the research topic from an educational point of view. The interviews and different sessions, which included about 50 mobility experts in total, provided a rich source of qualitative data that allowed the authors of this study to complement and better understand the quantitative insights collected through the survey.

By combining these research methods, the authors of this study were able to triangulate findings and cross-verify data, ensuring the reliability and robustness of the analysis. The integration of quantitative survey results with qualitative insights from interviews and the context provided by the desk research led to a presentation of a comprehensive and well-rounded picture of the EU urban mobility labour market. This approach not only facilitated a deeper understanding of the sector but also enabled the authors of this study to offer informed recommendations and insights to guide stakeholders in addressing the evolving demands related to the urban mobility labour market and the urban mobility workforce.

## 1.5 Reading guide

In the remainder of this report, the following topics are covered:

Chapter 2 provides insights into the current European urban mobility labour market presenting relevant facts and figures. It serves as context for subsequent chapters.

Chapter 3 explores general and EU-driven urban mobility trends and examines their impact on organizations, especially planning authorities.

Chapter 4 identifies the gaps in urban mobility knowledge. City size, SUMP presence, managers' perspective, and geographical similarities and differences are considered.

Chapter 5 highlights the skills urban mobility professionals require in relation to the aspects mentioned under Chapter 4.

Chapter 6 consists of an overview of the workforce and its challenges and opportunities. Capacity building activities and perspectives to bridge the skills gap are explored.

Chapter 7 provides a conclusion and outlook on the future capacity building work under CIVITAS MUSE.

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## 2 The current European urban mobility labour market

According to the New EU Urban Mobility Framework, mobility is considered “a critical aspect of social inclusion and an important determinant of human well-being, especially for disadvantaged groups” (European Commission, 2021). At the same time, transport is recognised “as an essential service in the European Pillar of Social Rights” (European Commission, 2021). Moreover, it points out that to achieve the EU strategic objectives on several critical fields (e.g. climate, environment, digitisation, and health), “the EU needs to take more decisive action on urban mobility to shift from the current approach based on traffic flows to an approach based on moving people and goods more sustainably” (European Commission, 2021).

The New Urban Mobility Framework also stresses that to achieve this shift, “a stronger collective / public transport backbone, better active mobility (e.g. walking, cycling) options and efficient zero-emission urban logistics and last mile deliveries” are needed (European Commission, 2021). Multimodality, zero-emission mobility, digitisation, and connected and automated mobility are identified as key elements in this process.

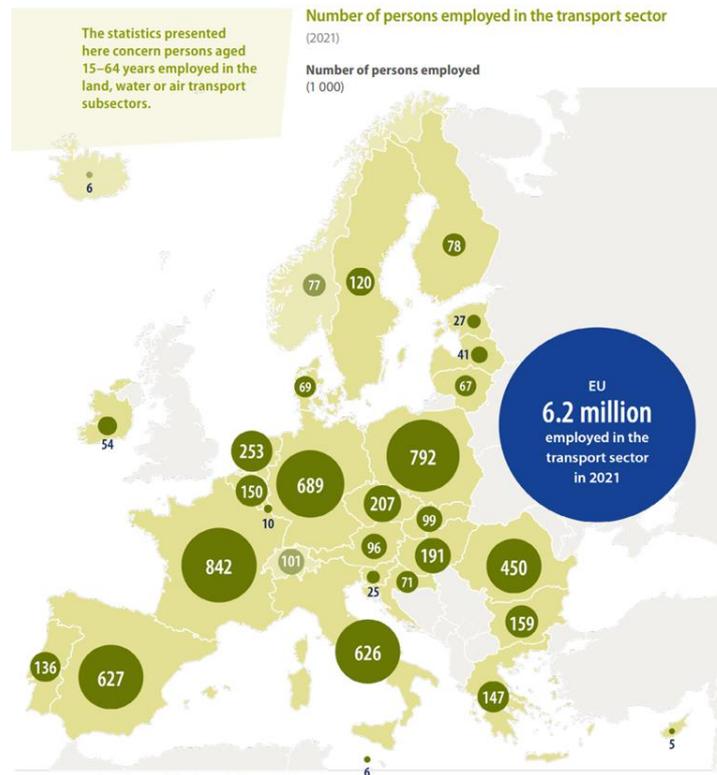
Future urban mobility practitioners will need to develop skills and expertise in these areas and become proficient and competitive in these fields. This will help ensure that the EU can effectively realise sustainable, efficient, and climate-neutral mobility while simultaneously ensuring the continued relevance of mobility and transport sectors for the EU economy.

### 2.1 Facts and figures

The transport and storage services sector (including postal and courier activities) accounted for about 5% of total GVA in the EU-27 in 2020, with around EUR 555 billion in Gross Value Added (GVA) at current prices (European Commission, 2022). Additionally, in 2019, 1,251,000 enterprises worked on transportation and storage activities (including postal and courier services), 44% and 33% of which worked on the road freight and passenger transport, respectively (European Commission, 2022).

Transport is also a major contributor to EU employment, employing more than 6 million people in 2021 and representing 3.1% of total employment in the EU (Eurostat, 2022). When considering the postal and courier activities and warehousing and supporting activities, this increases to 10 million employees and 5.2% of the total workforce (European Commission, 2022).

Land transport (both road and rail) was the subsector with the highest number of people employed in 2021, accounting for 89.6% of those employed in the transport sector (Eurostat, 2022). Water transport (inland waterways or maritime) and air transport only accounted for 4.7% and 5.7%, respectively (Eurostat, 2022).

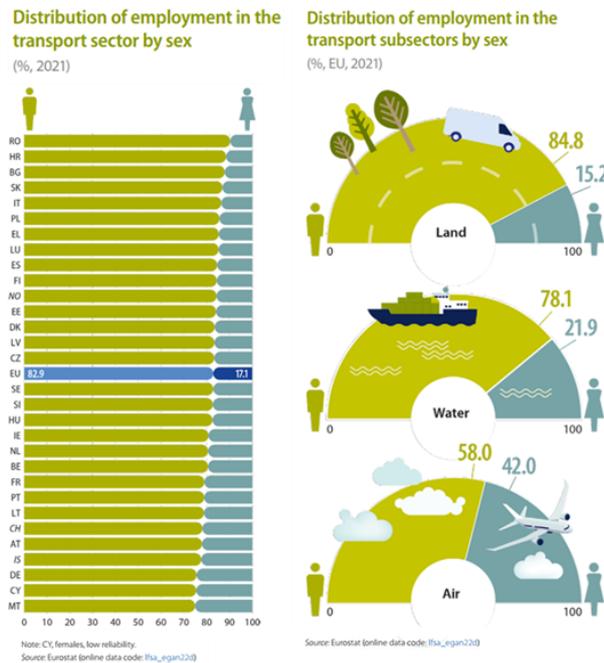


**Figure 1.** Number of persons aged 15–64 years employed in the land, water, or air transport subsectors - units: 1.000 persons employed (Eurostat, 2022)

In 2021, France (842,000), Poland (792,000), Germany (689,000), Spain (627,000) and Italy (626,000) were the five countries with the largest transport workforces (see Figure 1). Together they represented 57% of the total EU transport workforce. Cyprus and Malta had the smallest transport workforces.

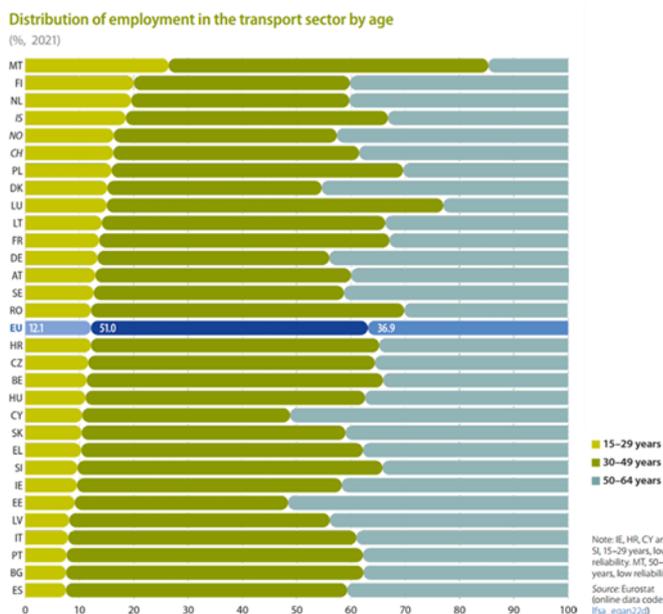
In general, land transport was the main contributor to the transport workforce in all countries. Only two EU countries had a contribution from land transport lower than 70%: Greece (64.5%) and Malta (46.4%) (Eurostat, 2022).

Regarding gender distribution in transport, in 2021 only 17% of the workforce was female (Eurostat, 2022). This pattern is common in all EU countries. As it can be derived from the figures below, Malta was the country with the largest female share in transport workforce (25%), while Romania recorded the lowest share (9.7%). There are clear differences in the female share of the workforce by transport subsector. While the land transport workforce is predominantly male (only 15.2% female), water transport and especially air transport have a higher female share in their workforces (21.9% and 42%, respectively) (Eurostat, 2022).



**Figure 2.** Distribution of employment in the transport sector by sex per country in 2021 and distribution of employment in the transport subsectors by sex (Eurostat, 2022)

The age of employees is another relevant aspect to consider. On average, about half (51%) of the EU transport sector workforce in 2021 was aged 30–49 years, with 36.9% older (aged 50–64 years) and 12.1% younger (aged 15–29 years) (Eurostat, 2022). Spain, Belgium, Portugal, Italy, and Latvia have the oldest transport workforce (90% aged 30 or more), while Malta, Finland, and the Netherlands have the highest shares of younger transport workers.

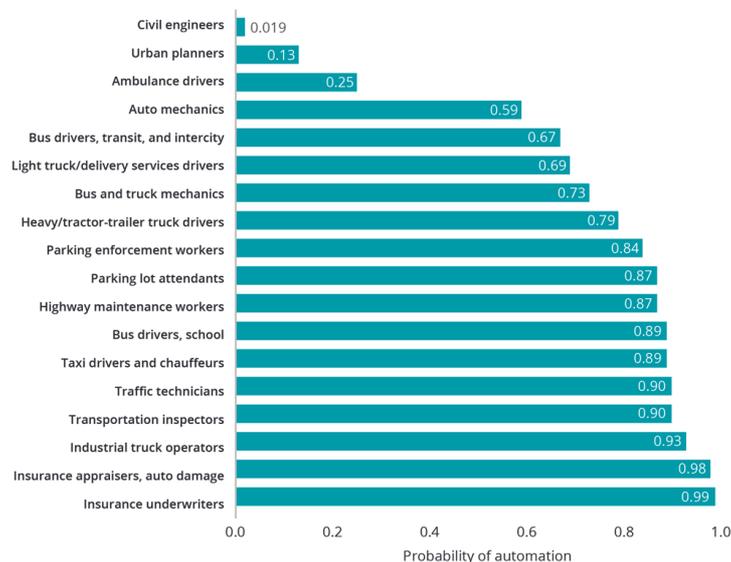


**Figure 3.** Distribution of employment in the transport sector by age per country in 2021 (Eurostat, 2022)

## 2.2 Impact for urban mobility professionals

The digital and green twin transition, together with new and disruptive technologies like Artificial Intelligence (AI) and robotics, will have an impact on the labour market, and urban mobility will not be an exception. Some jobs will disappear, others will be transformed, and many new jobs will be created.

Automation is one of the areas that will have a great impact on transportation jobs. By 2040, some predict that more than 60 percent of passenger miles travelled could be in fully autonomous vehicles (Corwin et al., 2016). Even a more modest shift will have significant implications for mobility-related occupations that could be highly susceptible to automation, such as taxi drivers, truckers, and traffic technicians (Rea et al., 2017). In the United Kingdom alone, it is estimated that connected and automated mobility has the potential to directly create 49,000 new jobs by 2035 and indirectly create 23,000 additional jobs in the innovation ecosystem (Connected Places Catapult, 2020).



**Figure 4.** Automation potential of select mobility-related occupations (Frey & Osborne, 2017)

In the research conducted for this report, many urban mobility practitioners identified a shortage of technical skills in topics like data (collection, analysis, and privacy), cybersecurity, and robotics. Active mobility, public transport, demand/space management, and urban logistics are also topics considered to be of utmost importance in terms of necessary knowledge to be prepared for the future (see Chapters 4 and 6).

The survey further pointed out that IT engineers, finance/funding experts, and social and human sciences experts are the main practitioners missing in their urban mobility departments.

The shortage of these profiles prevents departments from proceeding with data collection/exploitation, applying for EU and other international funding programmes, carrying out evaluation and assessment activities, or implementing all required aspects of their SUMP.

Respondents shared that they depend on the support of external consultants to carry out certain activities related to these expert profiles and tasks (see Chapter 6).

Besides the shortage of technical skills, it is apparent that today's urban mobility labour market is experiencing a shortage of skills on social topics like citizen engagement, effective public participation, behavioural change, accessibility, inclusion, equity, and communication. This leads to a poor identification and management of residents' problems and needs, which increases the risk of lack of trust between residents and local authorities (see Chapters 4 and 5).

Some experts point out that the acquisition of knowledge and skills by local authorities to address urban mobility challenges often varies depending on the size of each administration. Generally, larger administrations are better equipped and have the necessary knowledge and skills. However, smaller and mid-sized public administrations may lack the resources to employ specialists in various fields.

Furthermore, there is a growing demand for versatile professionals who can function effectively in diverse environments. Various organizations identify a shortage of qualified personnel capable of quickly adapting and transitioning between different roles or areas as the need arises.

### 3 Trends and developments

This chapter provides a comprehensive overview of the key trends and developments that have a concrete impact on the (urban) mobility labour market within the EU – and particularly on the future direction of city and planning authorities.

#### 3.1 Global outlook

This chapter delves into globally recognised trends and developments acting as push forces and enablers of the changing mobility labour market. Table 1 provides an overview of the trends and developments. The sections below the table describe these in detail.

**Table 1.** Overview of trends and developments, their impact on the mobility labour market, and their link to the SDGs.

TREND	IMPACT ON MOBILITY LABOUR MARKET	SDG LINK
 <p><b>Urbanisation</b></p>	<p>Appearance of new mobility service providers to address space scarcity, congestion, and pollution in cities.</p> <p style="text-align: center;">↓</p> <p>Experts needed to handle the new wave of mobility services, equipped with shared data management capabilities to optimize traffic flows and mobility usage.</p>	
 <p><b>Ageing population</b></p>	<p>Existence of labour supply shortages and a potential economic decline.</p> <p style="text-align: center;">↓</p> <p>New policies needed targeting employment gaps reduction, inclusion, education, and life-long learning for upskilling and reskilling the existing workforce.</p>	 
 <p><b>Autonomous and unmanned transport systems</b></p>	<p>Uptake of autonomous and connected mobility.</p> <p style="text-align: center;">↓</p> <p>Certain driving jobs might disappear and driving schools need to adapt their offerings. Engineers, security, and cybersecurity experts highly demanded for the development/management of new technology. Ethics and law experts highly needed to manage the regulatory side. Designers and planners to be reskilled for the redesign of infrastructure.</p>	 

 <p><b>Big Data and digitalization of city data &amp; services</b></p>	<p>Leaps in AI, increased availability of Big Data and IoT devices leading to digitalisation of city data and services.</p> <p style="text-align: center;">↓</p> <p>Digital skills for handling data and working with new technological advancements becomes a necessity for planning authorities. Educational institutions demanded to address such developments in their curricula to prepare the future workforce.</p>	 
 <p><b>Climate change and sustainability</b></p>	<p>Sustainable mobility modal shift as a necessary step to address climate change and its impacts.</p> <p style="text-align: center;">↓</p> <p>Experts with interdisciplinary backgrounds increasingly demanded to integrate transport planning with other policy domains.</p>	 
 <p><b>Retrofitted and resilient urbanities</b></p>	<p>Sustainable neighbourhood planning and sustainable urban mobility plans as necessary strategies to boost the resilience of urban areas.</p> <p style="text-align: center;">↓</p> <p>Experts with interdisciplinary backgrounds and skills in stakeholder management increasingly demanded to ensure efficient stakeholder participation in planning practices.</p>	  



## URBANISATION

During the past few decades, states worldwide have experienced significant population growth coupled with an increasingly urbanised society and urban sprawl. The share of population in cities is projected to reach 58% in 2070, a trend which already demonstrates implications for economic and social development and environmental sustainability (UN-Habitat, 2022). Urbanization presents myriad challenges for cities, including rising congestion and crowding levels (especially in cases where cities' expansion is not properly planned and managed), increased energy consumption and pollution, and uneven and inequitable distribution of services. All these effects impose pressure on the resources, infrastructure, and scarce space of cities and can exacerbate poverty and inequality. To ensure a sustainable future in line with SDG target 11.3 “enhancing inclusive and sustainable urbanization,” population growth in cities requires adequate management and planning (United Nations, n.d.).

As a response to that, and particularly to the resource constraints and the overloading of infrastructure, mobility providers are disrupting the traditional ownership models by introducing alternative collaborative consumption services, such as car-sharing and bike-sharing (Ernst & Young Global Limited, 2015). Cities are increasingly interested in welcoming such providers and experimenting with new policies and partnerships to foster shared mobility. Micromobility providers now play a major role in cities' mobility, and Mobility-as-a-Service platforms provide travellers with a fully integrated offering of different providers (Arcadis, 2022). In terms of the labour market, planning authorities need to be equipped with expertise to handle this new wave of mobility in cities. In particular, with the existence of and capabilities to use shared data, policy makers could get better insight into the traffic flows, concentration of (micro-) mobility usage, and user groups (Arcadis, 2022).



### [Link to SDG 11](#)

*[Make cities and human settlements inclusive, safe, resilient, and sustainable](#)*



## AGEING POPULATION

Population ageing is a development that has been evident for several decades in Europe, driven primarily by historically low fertility rates and increasing life expectancy. Population projections show that the population of older people (aged 65 years or more) in the EU will increase significantly – from 90.5 million in 2019 to 129.8 million by 2050. In contrast, there will be 13.5% fewer people aged less than 55 years in the EU by 2050 (Eurostat, 2023). In the transport sector, 53% of workers in 2016 were 45 years or older, which is 9% more than the average in Europe (Bekiaris et al., 2017). As a result, on average, 300,000 employees need to be hired annually in transport services to replace retiring and exiting staff or to meet increased demand (Christidis et al., 2014).

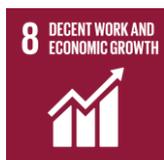
This demographic shift could lead to labour supply shortages and economic decline (UN-Habitat, 2022). An older workforce also faces more challenges related to health, work patterns, and adaptation to digitalisation (Bekiaris et al., 2017). Elderly people are less likely to be digitally literate or connected, which makes it more difficult for them to access information, engage in work-related tasks requiring a certain set of digital skills, and engage with the increasingly digitalised transport networks (Steer, 2022).

To address this challenge, authorities need to deploy policies targeting employment gaps reduction, inclusion, education, and life-long learning for upskilling and reskilling the existing workforce. This relates to SDGs target 4.4, “by 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship,” and target 8.5, “by 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value” (United Nations, n.d.).



### Link to SDG 4

*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*



### Link to SDG 8

*Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all*



## AUTONOMOUS AND UNMANNED TRANSPORT SYSTEMS

Vehicle manufacturers are progressively developing next-generation connected and automated vehicles (CAVs), which are vehicles that can drive themselves with limited or no supervision by human operators. The technology integrated in such vehicles allows for vehicle-to-vehicle (V2V) or vehicle-to-infrastructure (V2I) communications that enable more efficient management of the traffic network (Steer, 2022). They are also considered an important development with regard to reducing traffic crashes and injuries, as human error is a contributing factor in about 95% of crashes (European Parliament, 2021); to reducing travel time due to route optimization and thus reducing transport emissions; and to providing an alternative to car travel, thereby increasing accessibility and connectivity for vulnerable population groups and areas underserved by public transport (Steer, 2022). Despite this potential, estimates vary regarding how soon we can expect fully autonomous vehicles that are capable of driving themselves under all traffic conditions.

In terms of the labour force, significant changes are expected as a result of the appearance of fully autonomous transport systems. The occupation expected to be affected the most is driver (e.g. taxi, bus, urban rail, public transport). The driver training process will also be affected, with driving schools having to adapt their offers (Bekiaris et al., 2017). On the other hand, there is a new demand for engineers equipped with the right skillset and knowledge to develop the technology necessary for autonomous and connected vehicles to meet road security requirements (Edler et al., 2019) and for ethics and law specialists to manage the regulatory side of autonomous mobility. Safety experts and cybersecurity specialists will also increasingly be needed to set safety policies for this new vehicle type and the protection of infrastructures, including security of vehicle fleet operation and secured data transfer and privacy protection (Bekiaris et al., 2017). Designers and planners will be met with the complex task of redesigning existing infrastructure to accommodate autonomous mobility while ensuring the safety and well-being of all road users. This relates to SDG target 9.1, “develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all,” and SDG target 11.2, “by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons” (United Nations, n.d.).



### Link to SDG 9

*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*



### Link to SDG 11

*Make cities and human settlements inclusive, safe, resilient, and sustainable*



## BIG DATA AND DIGITALIZATION OF CITY DATA AND SERVICES

Utilizing the great leaps in Artificial Intelligence (AI), the increasing availability of Big Data, and Internet of Things (IoT) connected devices, city authorities are digitalising city data to achieve more efficiently managed public services. For instance, AI is increasingly deployed by municipal governments for road traffic management and in the form of virtual agents issuing parking permits (UN-Habitat, 2022). Insights provided by AI's algorithmic processing of big data collected via IoT devices help for the real-time optimization of journeys, allowing for a more efficient use of existing mobility services and a reduction of traffic in cities (Van Audenhove et al., 2018). The use of digital twins – that is, virtual representations of urban objects at various scales used as planning tools – supports diagnostic and prognostic analysis and model-making (UN-Habitat, 2022).

This technological progress necessitates an agile skill adaptation from workers. Being skilled in working with digitalised Big Data becomes a necessity for planning authority representatives. This results in a higher competition for vacancies at city authorities (e.g. data analysts, IoT developers, and engineers), with candidates with digital skills being preferred over those who lack certain IT literacy. These developments call for an upskilling and reskilling of the existing workforce with a focus on relevant digital skills for handling data and working with new technological advancements. They also call for educational institutions to address such developments in their curricula to prepare the future workforce for the increasingly demanded digital skills. This is in line with SDG target 4.4.

These developments come together with the challenge of addressing the potential outcomes of digitalizing city data and public services – the risk of increased inequalities due to the exclusion of certain users from accessing and using digital services. For instance, a digitalised public transport network would require users to use a smartphone to navigate and pay for services, potentially excluding those with poor IT literacy, older people, and those with low income (Steer, 2022). This relates to SDG target 9.c: “significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries” (United Nations, n.d.).



### Link to SDG 4

*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*



### Link to SDG 9

*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*



## CLIMATE CHANGE AND SUSTAINABILITY

The climate crisis, targets to keep the global average temperature change below 1.5 degrees Celsius, and avoiding mass extinction are now a top priority on the global agenda. Cities are at the forefront of environmental and sustainability action (UN-Habitat, 2022). Globally, by 2050, over 800 million people living in 570 cities will be vulnerable to sea level rise and coastal flooding (C40 Cities Climate Leadership Group, 2018). In Europe, most cities have already experienced an increased sea level, and this is projected to continue with global sea level rise (IPCC, 2019).

Interventions in the transport sector play a significant role in achieving sustainable urban futures. In 2019, the greenhouse gas emissions from transport accounted for 27% of global emissions (UN-Habitat, 2022). Road transport emissions require special attention, as they account for three-quarters of all transport emissions. The COVID-19 pandemic temporarily reduced emissions from the transport sector; however, rebounding demand and anticipated growth are leading to a steady increase of emissions to pre-pandemic levels (UN-Habitat, 2022). The transport sector is not only a significant contributor to the global climate crisis but is also heavily affected by the impacts of climate change. Examples of such impacts include delays, service interruptions, pavement deterioration, and rail buckling (European Environment Agency, 2014). Sustainable transport options are key to securing greener urban futures, helping to reduce air and noise pollution, GHG emissions, and energy consumption. They further help to improve the well-being and health of people and the quality of life in cities. This calls for the development of policies targeting a modal shift from private automobility to sustainable mobility – public transport, active, and shared mobility. Approaches to sustainable urban mobility include investments in an efficient, reliable, and affordable public transport system, the introduction of low-emission zones, the reallocation of road space for walking and cycling, and the provision of shared mobility options. This comes along with a consideration of the complex mobility needs of urban communities – affordability, convenience, ease of travel, availability of options, distances in cities, and safety (UN-Habitat, 2022).

Achieving a sustainable mobility modal shift in line with SDG target 11.2 and goal 13 – “take urgent action to combat climate change and its impacts” – requires integrating transport planning with other policy domains (UN-Habitat, 2022). For example, using health impact assessments for transport and mobility interventions requires a certain knowledge on the topic of public health. The increasing need to monitor the various impacts of transport interventions requires professionals with an interdisciplinary background, especially for those involved in policy development and evaluation.



### [Link to SDG 11](#)

*Make cities and human settlements inclusive, safe, resilient, and sustainable*



### [Link to SDG 13](#)

*Take urgent action to combat climate change and its impacts*



## RETROFITTED AND RESILIENT URBANITIES

Planning for urban resilience is a popular topic among policymakers in terms of climate change and disruptive events. The United Nations defines urban resilience as the “measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming toward sustainability” (UN-Habitat, n.d.). Resilience is regarded as the catalyst for sustainable development, as it ensures the maintenance of development gains when cities face shocks. Hence, it is essential to retrofit urban spaces to enhance their resilience to crises. The COVID-19 pandemic has shown that multi-purpose urban spaces are needed to ensure adaptability. Diverse strategies have already proven effective in boosting the resilience of urban areas, such as sustainable neighbourhood planning and SUMP (UN-Habitat, 2022).

There is consensus that sustainable neighbourhoods are inclusive, walkable, socially mixed, integrate mixed uses and open/green spaces, and promote a circular economy and green and renewable infrastructure, including energy and mobility. They help to address urban challenges like inequality, congestion, biodiversity loss, and inefficient resource consumption (Sharifi, 2016). Since 2020, many of these initiatives have been promoted as the  $\pm 15$ -Minute City concept, which advocates for integrated land use and mobility planning and design that allows residents to meet their daily needs within a  $\pm 15$ -minute walk or bike ride. This structure enables better resilience to adverse events (UN-Habitat, 2022). The increased uptake of SUMP by city authorities is another notable development, which have the objectives to increase the efficiency, accessibility, and affordability of transport services for all users, reduce pollution, and contribute to better quality of life. SUMP emphasise the need for interdisciplinary dialogues enabling the participation of the quadruple helix stakeholders in decision-making to address transport challenges alongside societal, economic, environmental, and political ones (Rupprecht Consult, 2019).

These planning trends relate to SDG targets 11.2, 11.3, 13.1, “strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries,” and 17.17 “encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships” (United Nations, n.d.). Among others, they call for a new demand of urban mobility professionals equipped with knowledge in different domains and skills in stakeholder management. Retrofitting urban spaces increasingly involves stakeholders in ideation, co-creation, and validation/evaluation through understanding user preferences and mobility needs via, for example, surveying and focus groups for collecting data to inform decision-making.



### Link to SDG 11

*Make cities and human settlements inclusive, safe, resilient, and sustainable*



### Link to SDG 13

*Take urgent action to combat climate change and its impacts*



### Link to SDG 17

*Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development*

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## 3.2 EU outlook

Within the EU, the transport sector is responsible for nearly 25% of EU's total greenhouse gas emissions (European Commission, n.d.). The decarbonisation of EU's transport system is thus a key element in achieving the goals presented in the European Green Deal – which targets a reduction of 55% of greenhouse gas (GHG) emissions in the EU by 2030 compared with 1990 levels – and to achieve climate neutrality by 2050 (European Commission, 2019). With its European Green Deal, and particularly the *Sustainable and Smart Mobility Strategy*, the European Union targets a 90% reduction in the transport sector's emissions by 2050 compared with 1990 levels (European Commission, 2021).

The scale and complexity of this challenge requires combined efforts in all governance levels – national, regional, and local. At the national level, in 2019, Member States submitted their National Energy and Climate Plans (NECP), providing a national overview of their decarbonisation plans (European Commission, 2020).

At the local level, a wide range of projects, partnerships, and programmes aim to assist with decarbonisation. For example, the European Commission supports the adoption and implementation of SUMP to reduce emissions and improve quality of life. As stated in the *Sustainable and Smart Mobility Strategy*, the Commission aims to engage cities to ensure that all large and medium-sized cities that are urban nodes on the Trans-European Transport network (TEN-T) have SUMP developed by 2030 (European Commission, 2021). In March 2023, the Commission adopted a recommendation to help countries support their towns and cities in cutting transport emissions and improving urban mobility. Support will be provided to 430 major cities along the TEN-T to develop their SUMP (Directorate-General for Mobility and Transport, 2023). Cities undertaking the SUMP approach are encouraged to follow a transparent and participatory approach where relevant actors – citizens, as well as representatives of civil society and economic actors – are involved in developing and implementing the plans to ensure high levels of support and acceptance (European Commission, 2013). Eltis has a dedicated section [Mobility Plans](#) that offers a hub of information on how to develop and implement SUMP.

Another initiative through which the EU supports decarbonisation is the [Climate Neutral and Smart Cities Mission](#), one of five missions under the Horizon Europe research and innovation programme for the years 2021–2027. Through this initiative, the Commission supports 100 European cities to act as hubs of experimentation and innovation for green, digital, and inclusive transformations. Each city is presented the task to develop its own Climate City Contract, a plan for climate neutrality in various sectors that is co-created with citizens, research organisations, and the private sector (European Commission, 2022).

The [EU Covenant of Mayors for Climate & Energy](#) is also an initiative for the local level supported by the European Commission. Launched in 2008 and continuing through 2030, the initiative brings together thousands of local governments voluntarily committed to implementing EU climate and energy objectives (European Commission, n.d.). Signatory cities commit to developing a *Sustainable Energy and Climate Action Plan (SECAP)* with actions in the building, transport, and energy sectors. Key success factors of the initiative include its bottom-up governance, fostering community building and citizen engagement, its multi-level cooperation model, and its context-driven framework for action (United Nations, n.d.).

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[CIVITAS](#), one of the flagship programmes helping the European Commission achieve its ambitious mobility and transport goals, acts as a network of cities, for cities, dedicated to sustainable urban mobility. Launched in 2002, it has been fostering political commitment and boosting collective expertise through a range of mobility projects, peer exchange, networking, and training to equip cities to put mobility at the centre of decarbonisation and the achievement of climate-neutral and resilient cities. Over 370 local authorities are currently CIVITAS members (CIVITAS, n.d.).

Various European Partnerships under Horizon Europe are also actively contributing to the mobility transition. Examples of these partnerships include (European Commission, n.d.):

- [Towards Zero-Emission Road Transport \(2Zero\)](#)  
Aims to accelerate the development of zero tailpipe emission transport in Europe with a systems approach, develop a common vision and deliver a multi-stakeholder roadmap for a climate neutral and clean road transport system.
- [Connected, Cooperative & Automated Mobility \(CCAM\)](#)  
Aims to accelerate the implementation of innovative, connected, cooperative, and automated mobility (CCAM) technologies and services by bringing together the actors of the complex cross-sectoral value chain.
- [Driving Urban Transitions \(DUT\)](#)  
Aims to co-create innovative, systemic, and people-centric approaches, tools, methods, and services in support of urban transformative transitions by engaging and enabling the whole spectrum of urban stakeholders (local authorities, municipalities, business, and citizens).
- [Built4People](#)  
Aims to contribute to the development of high quality, low carbon, energy and resource efficient built environments which drive the transition towards sustainability through a user-centric approach.

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### 3.3 Implications for urban mobility organisations

As noted in the previous chapters, the accelerated pace of transformation enabled by various social, technological, environmental, economic, and political trends calls for the continuous development of talent and skills for the achievement of a resilient and productive urban mobility labour market. Cities need to focus on human capacity development investments to build a workforce in sync with rapid transformations and emerging trends. This aligns with SDG 8 promoting full and productive employment and decent work for all, as a right-skilled workforce is a prerequisite for an efficiently functioning and resilient transport sector (UN-Habitat, 2022). This requires both upskilling and reskilling the existing workforce and training the future generation to keep pace with transformations and meet the requirements of the transport sector.

Certain transport jobs will be significantly affected by current trends and anticipated developments, but new job demands are also appearing, and new skills and knowledge are increasingly demanded.

For instance, addressing climate and urban challenges, such as urbanisation, through the adoption of sustainable mobility calls for new expertise in mobility and planning. New sustainable mobility services require experts equipped with data management and analytics capabilities. Interdisciplinary backgrounds become important to bridge the gap between mobility planning and other policy domains. Skills in stakeholder management are also demanded by planning authorities to ensure efficient stakeholder participation in planning practices. These findings from the trends review are further confirmed through the European Urban Mobility Labour Market Survey, the session with the CIVITAS Educational Network representatives, and interviews with diverse urban mobility stakeholders (see Chapter 1).



## TRENDS IN KNOWLEDGE AREAS

Active and sustainable mobility were identified among the top three most relevant topics of necessary knowledge to be prepared for the future by all four quadruple helix stakeholders surveyed (see

Figure 5). For instance, 73% of industry stakeholders (22 respondents) place *active mobility modes* (focus on walking and cycling) as the most relevant topic, and 63% (19 respondents) identified *public transport* as a relevant mobility topic – the third most selected choice. Public authority stakeholders similarly consider *active mobility modes* and *public transport* as the most relevant topics along with *behavioural change*. For academia and civil society respondents, *active mobility modes* are selected as the most important trend topic (88% and 81% of total academia and civil society respondents respectively). In the context of the [Urban Mobility Days](#) in Seville in October 2023, the European Commission adopted the proposal for a European Declaration on Cycling, which recognises cycling as a sustainable, accessible, inclusive, affordable, and healthy means of transport, with strong added value for the EU economy. The declaration lists principles to boost cycling that will guide future action in the EU. This development further highlights the rising importance of active mobility for cities and the future mobility professional (Directorate-General for Mobility and Transport, 2023).

*Behavioural change* is present in the top three choices for all quadruple helix stakeholders. For public authority representatives, it comes as the number one topic alongside *public transport*. *Behavioural change* was noted as a crucial topic of future interest for mobility experts and planners, including by a representative from Zaragoza Logistics Center (ES) during the CIVITAS Educational Network session dedicated to the CIVITAS European Urban Mobility Labour Market Research:

Change management and the willingness to adapt to new ways of doing things is always the most difficult. Having the right skills to understand behaviour, adapt behaviour or even influence behaviour is key, but not easy. (Cipres, 2023)

Notably, the topic of *digitalisation, data, and ICT* is among the three most selected choices only for academia respondents (75%, 12 respondents). Still, adaptation to technological changes is a critical aspect city authorities need to address through various policy directions. As noted from the trends review, the uptake of autonomous and connected mobility could result in certain driving jobs completely disappearing.

However, new demands are appearing for engineers, security, and cybersecurity experts for the development and management of this new vehicle technology. Ethics and law expertise is also highly demanded to manage the regulatory side of the uptake of autonomous mobility. It is particularly important for planning authorities that designers and planners will require new knowledge and skills for the redesign of existing infrastructure to accommodate these vehicle types. Technological improvements in vehicles, regulation and cybersecurity were also mentioned as key areas that have a significant impact on the mobility labour force during an interview with the Future Mobility Research Hub CARNET (Batlle & Buxadé, 2023).

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The interviewees highlight the role of their research institute in preparing professionals for facing the new trends in the transport sector. CARNET (ES) produces syllabus templates that can be used by Spanish universities when developing certain courses and postgraduate degrees. The courses are focused on the reskilling or upskilling of professionals in the sector who need to retrain or want to gain new knowledge while obtaining an official certification.

Representatives from Zaragoza Logistics Center (ES) and Technical University of Crete (GR) further stress the importance of digital skills and knowledge of technological trends and their integration into educational curricula:

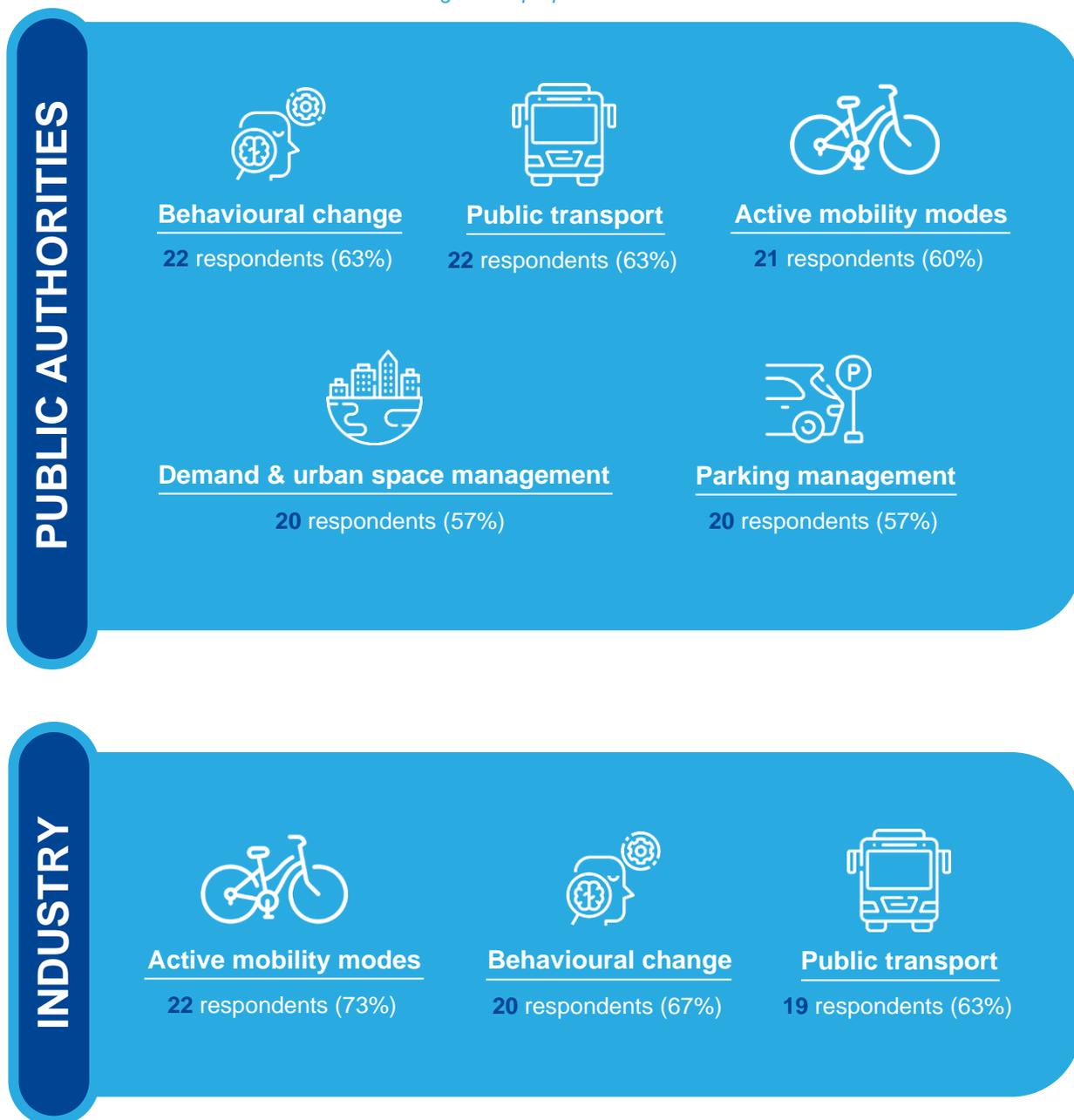
Without data and ICT skills, the younger generation will not be able to perform their work in the future. This applies not only for the mobility sector, but in general. (Cipres, 2023)

The new needs and trends – greening and ICT – define the future of the mobility labour market. Future generations need to be equipped with the right skillset to respond to the new needs and trends... We need to address this aspect as well – how to attract young talent in this market, because trends like AI are becoming more and more popular in contrast to mobility. We need to address the usage of new technologies in our industry as well. (Tsoutsos, 2023)

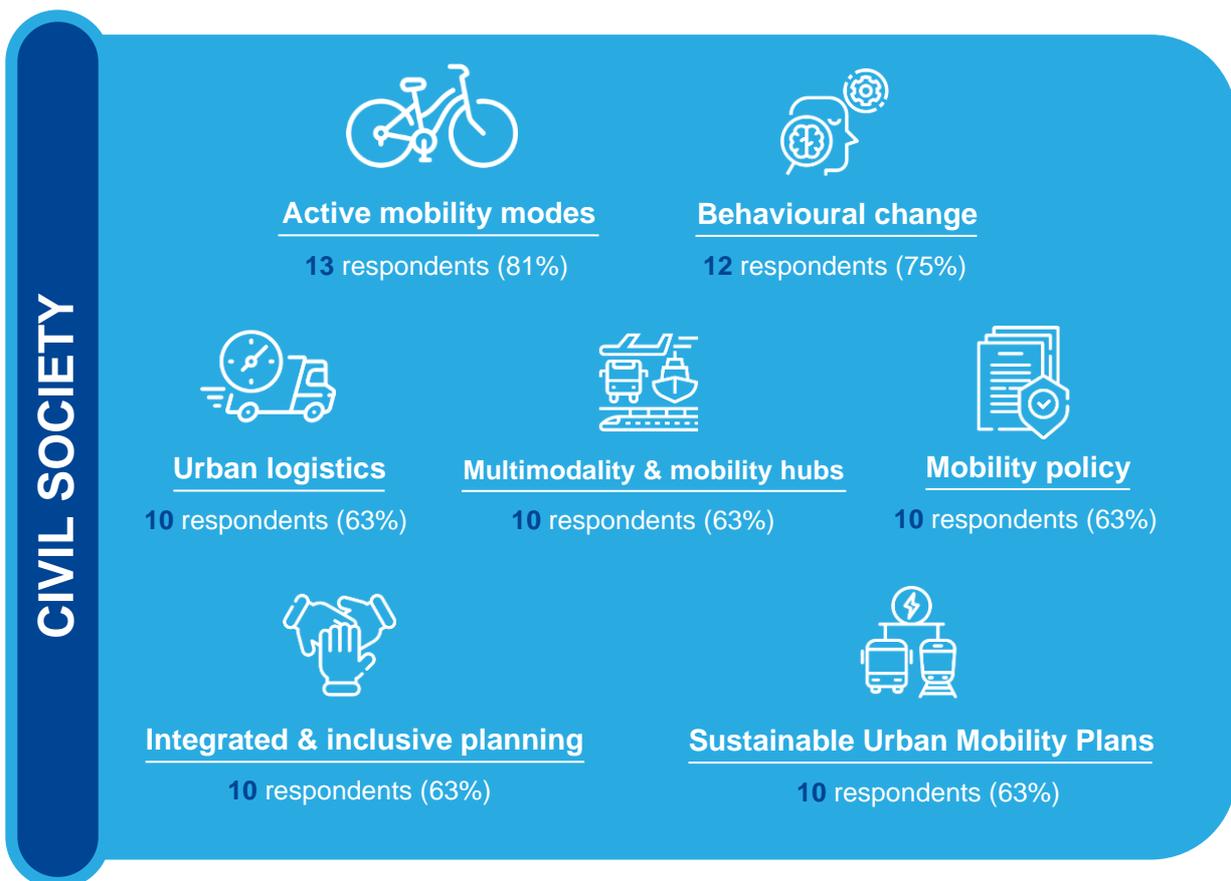
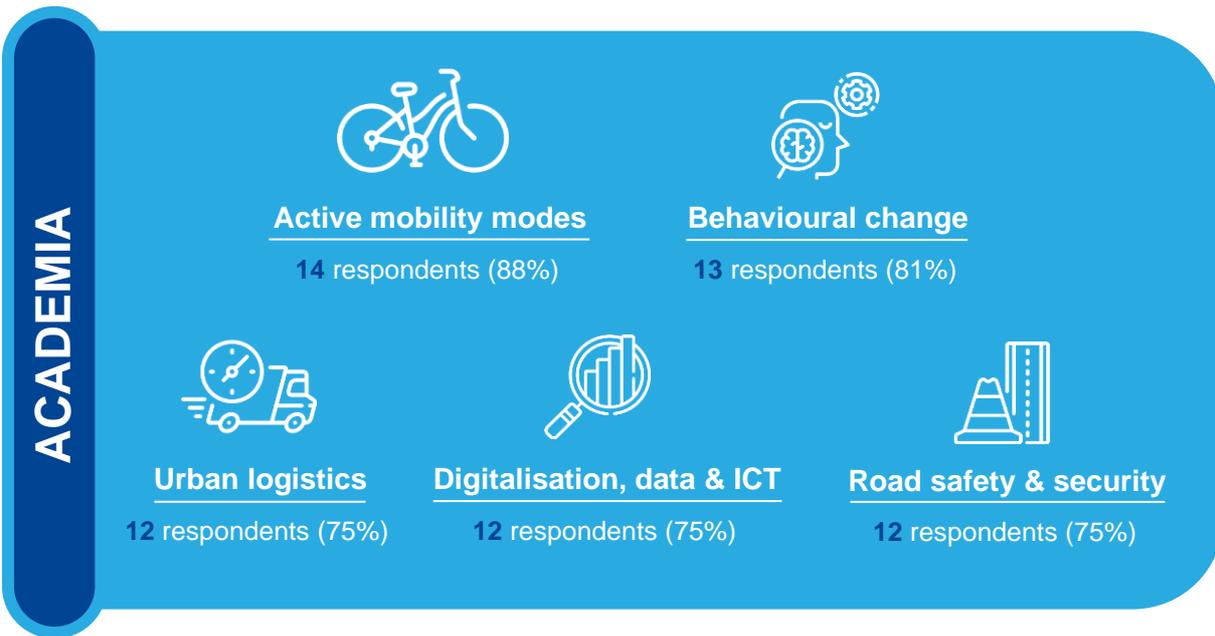
Similarly to CARNET (ES), the Technical University of Crete (GR) offers trainings with certifications for people working in the port industry, which aims to equip professionals with knowledge and skills relating to climate change and the green transition and complemented by certain necessary digital skills. These types of trainings contribute to life-long learning opportunities to tackle the challenges related to the ageing population of Europe.

Digital skills for data management and working with new technological developments such as Digital Twins and IoT devices become a necessity for planning authorities based on findings from the trends review. CARNET (ES) also mentions that digital twins, IoT sensor connectivity for data collection and real-time optimizations, and data spaces for data sharing are of increasing importance for public authorities (Batlle & Buxadé, 2023).

*Trends: Which topics in the field of urban mobility do you consider the most relevant ones in terms of necessary knowledge to be prepared for the future?*



**Figure 5.** Urban mobility trends considered most relevant in terms of necessary knowledge to be prepared for the future per stakeholder type (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)





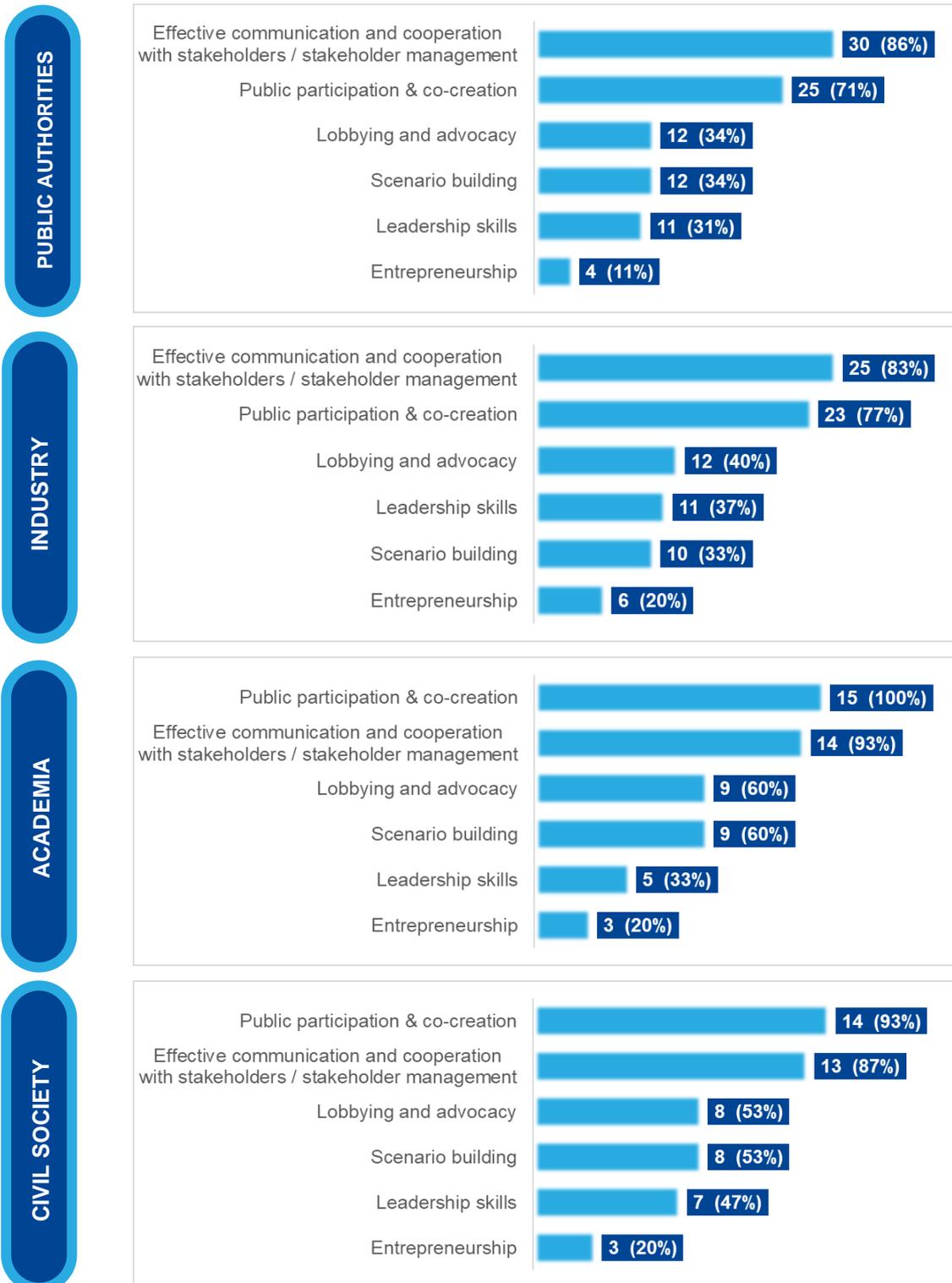
## TRENDS IN SOFT SKILLS

In terms of trends in soft skills, data from the CIVITAS European Urban Mobility Labour Market Survey shows that *effective communication and cooperation with stakeholders* and *public participation and co-creation* are the most relevant areas in which professionals need skills at to be prepared for future mobility labour market demands (see Figure 6). For industry and public authority representatives, *effective communication and cooperation with stakeholders* ranks first with 25 respondents (83%) and 30 respondents (86%), respectively. For academia and civil society representatives, *public participation and co-creation* ranks first with 16 respondents (100%) and 15 respondents (94%), respectively. The least selected trend topic is *entrepreneurship*, which appears last in the list of relevant trend topics for the future market among all stakeholder groups. This data is confirmed by representatives from the CIVITAS Educational Network, several of whom stressed the importance of soft skills like communication:

We have an innovative approach where we take an actor from the theatre to teach students communication skills, for example, to prepare them for presenting their master's thesis. He uses storytelling in his classes and provides students with the skills they use at the theatre. We really see improvements after these sessions with the actor. (Cipres, 2023)

In Pardubice, the role of the university currently is to make a bridge between city, university, and private companies (e.g., the local shops). Without the university, the direct communication between companies and city becomes more difficult. For example, for logistics companies, we are able to facilitate a platform for discussions where we are moderators, we develop the methodology and support the city with the implementation of the SULP. (Bauer, 2023)

*Trends: Which topics in the field of urban mobility do you consider the most relevant ones in terms of necessary skills to be prepared for the future?*



**Figure 6.** Urban mobility trends considered most relevant in terms of necessary skills to be prepared for the future per stakeholder type (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

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## 4 Needs for urban mobility knowledge

Key urban mobility trends and developments have a direct impact on the labour market within the EU and, particularly, on the future direction of city and planning authorities, as described and elaborated in the previous chapters. This chapter provides an overview of the future needs for urban mobility knowledge.

### 4.1 Knowledge gaps in urban mobility

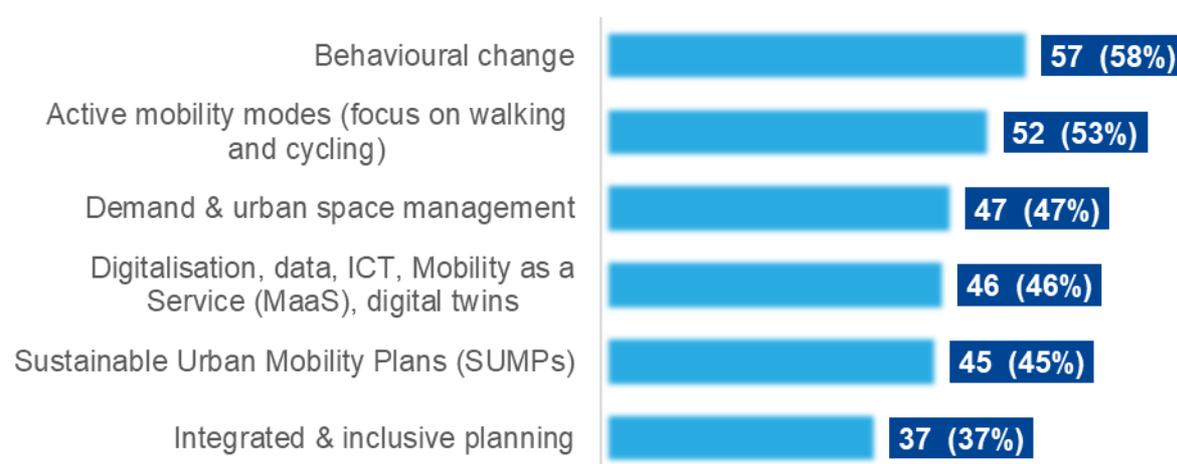
As new technologies emerge, the decarbonisation process is ongoing, and the digital transition takes place, EU guidelines arise for the development and implementation of SUMPs in member states and a focus is set on equity and inclusiveness. What does this mean for urban mobility professionals when it comes to their expertise? Are they equipped to work on future urban mobility challenges, or are they experiencing knowledge gaps? Or perhaps knowledge gaps are not yet identified?

As described in the previous chapters, the urban mobility sector needs highly educated and well-trained urban mobility professionals to continue functioning efficiently. The mobility sector as such in the future will need professionals from various domains, such as behavioural scientists and psychology experts, to facilitate a multidisciplinary working environment where these disciplines come together to tackle urban mobility challenges (Bekiaris et al., 2017).

Based on results of the CIVITAS European Urban Mobility Labour Market Survey, the topics of greatest interest to acquire new knowledge are *behavioural change* and *active mobility modes*, but these are closely followed by other topics (see Figure 7 and Table 2).

All stakeholder groups identified a need for knowledge related to *behavioural change*, *active mobility modes*, and *digitalisation*. Public authorities wish to know more about *road safety and security*, whereas industry representatives are more interested in *mobility policy*. Research and knowledge institutes (academia) are more focused on *innovation* and *multimodality* and less so on *SUMP*s, whereas the civil society organisations would like to acquire more knowledge on *low and zero emission zones*, *micromobility*, and *policy* but less on *digitalisation*, *demand and urban space management*, and *integrated and inclusive planning*.

*Which topics are you most interested in to acquire new knowledge?*



**Figure 7.** Urban mobility topics of most interest for acquiring new knowledge (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

**Table 2.** Urban mobility topics of most interest for acquiring new knowledge per stakeholder type (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Topics	Public authorities	Industry	Academia	Civil society
Behavioural change	59%	59%	63%	63%
Active mobility modes	53%	41%	75%	63%
Digitalisation, data, ICT, Mobility as a Service, digital twins	50%	52%	63%	
Demand & urban space management	47%	45%	69%	
Road safety & security	41%			
Sustainable Urban Mobility Plans (SUMP)	41%	48%		63%
Mobility policy		38%		50%
Innovation			50%	
Multimodality and mobility hubs			50%	
Low & zero emission zones				50%
Micromobility				50%

These findings were partially confirmed in the interviews with the CIVINETs representatives, in the consultation sessions with urban mobility professionals, and in the session with the CIVITAS Educational Network. *Behavioural change* was identified by CIVINET Secretariats and stakeholders as well as the CIVITAS Educational Network as the most important topic. Several members of the CIVITAS Educational Network emphasized the importance of behavioural change; for example, for students and young professionals, the coordinator for International Study of the University of Pardubice (CZ) stated:

We need to address these gaps with the younger generation and the education system is the best way to do that. We need to focus on behaviour change. I believe that effective communication and public participation are very important means to achieve that. (Pašek, 2023)

Stakeholders of the CIVINETs from all over Europe confirmed the critical need to change the behaviour and mentality of mobility users – and hence for knowledge of how to influence such a change. Maria Androutsou, Mayor of Agios Dimitrios and President of CIVINET Greece-Cyprus PAC, explains that such a mentality shift entails incrementally focusing more on walking and cycling, motivating mobility users to move away from cars, and creating cities for bicycle users and pedestrians (Androutsou, 2023). Magyar CIVINET adds that a different mindset is needed on a short-term basis, next to knowledge about citizen participation, Artificial Intelligence (AI), and digitisation (Gertheis & Csörgö, 2023). Grigoris Konstantellos, Mayor of Vari Voula Vouliagmeni and vice-president of CIVITAS PAC, proposes a step-by-step approach to reach such a mentality shift: educate pupils in schools, teach citizens how to get rid of their car, get the attention of people, explain how to use public transport for short-, medium-, and long distances, and provide an organised plan that is achievable, context-related, and with local characteristics. Then the chance of success is much higher (Konstantellos, 2023).

However, other topics were considered equally or even more important than those identified by respondents of the survey. The topics with the highest priority for acquiring new knowledge mentioned in the interviews were:

- *Behavioural change strategies*: Understanding how to shift people's behaviour from traditional, less sustainable modes of transport to more sustainable options like public transport, cycling, and walking is crucial according to the interviewees. This involves understanding people's motivations and creating the right incentives.
- *Digitalisation, including data analysis and GIS*: The ability to analyse and utilize data is essential for making informed decisions and planning for urban mobility. Regional differences in data and knowledge should also be considered. Proficiency in Geographic Information Systems (GIS) and digital data analysis is important for effective urban planning and decision-making.
- *Sustainable Urban Mobility Plans expertise*: Knowledge of SUMP and its principles is essential for developing sustainable mobility strategies. The representatives of the CIVINET networks and the CIVITAS Educational Network both highlighted the need for knowledge on how to develop, implement, and continuously improve a SUMP.
- *Traffic safety and planning*: Basic planning skills are needed to manage suburban trends and the continued presence of cars. Knowledge of sustainable urban

development practices is vital. Traffic safety will remain a priority, especially as new mobility solutions like connected autonomous driving and smart mobility emerge. In this context, the CIVINETs also stressed the need for planners and designers with a more contemporary view on mobility – one that focuses more on active modes like walking and cycling rather than continuing with the car-centric approach of the twentieth century.

Another knowledge gap to be addressed according to the representatives of the CIVINET Secretariats is knowledge related to funding. Although not among the top five topics of greatest interest to gain knowledge according to survey respondents, the CIVINETs all stressed the importance of knowing how to connect with funding sources, including on the EU level, to support mobility projects and initiatives. They also stressed the importance of knowing how to write project proposals to get access to these funding sources.

In summary, a combination of communication, knowledge on behavioural strategies, knowing how to connect to and access funding resources, and more technical knowledge on SUMP, road safety, and digitalisation in the broader sense are crucial for addressing current and future challenges in urban mobility.

The survey also pointed out that missing urban mobility experts are IT engineers, finance/funding experts, and social and human sciences experts, which is largely consistent with the knowledge gaps identified. The lack of these profiles prevents cities from carrying out the tasks in these fields of expertise, hindering the implementation of a SUMP or communications with stakeholders in the process.

The required knowledge is also dependent on the changing needs. One example is the situation of public transport operators, such as the public transport operator Zagreb Electric Tramway (ZET). A ZET representative noted that drivers need training to learn how to eco-drive and do so safely. More and more transport on demand is required, such as for elderly people, children, and those with mental and physical disadvantages. A modal shift is needed, including aspects like garages that are suitable for the new technology (Butković, 2023).

## 4.2 Urban mobility knowledge gaps in relation to city size

In the interviews with the CIVINET Secretariats, it was often mentioned that there is a difference between larger and smaller cities. Larger cities are most likely to have more mobility staff available and can hence work in specialised areas of expertise. Smaller cities or municipalities often have less staff available or are unable to even find the right people for the job. Smaller cities tend to employ people with more general qualifications and abilities. This is partially confirmed by survey respondents (see Table 3).

Respondents working for or in smaller cities (Cities of < 100,000 inhabitants) are looking for knowledge in *behavioural change*, *SUMPs* in general, and practical topics like *active mobility modes*, *road safety*, *demand and urban space management*, and *micromobility*.

**Table 3.** Urban mobility topics of most interest for acquiring new knowledge per city size (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Topics	Cities of < 100,000 inhabitants	Cities of ≥ 100,000 - 500,000 inhabitants	Cities of ≥ 500,000 - 1,000,000 inhabitants	Cities of ≥ 1,000,000 inhabitants
Behavioural change	70%	58%	69%	48%
Active mobility modes	60%	56%	63%	
Digitalisation, data, ICT, Mobility as a Service, digital twins		58%	44%	48%
Demand & urban space management	50%		69%	61%
Road safety & security	55%			
Sustainable Urban Mobility Plans (SUMP)	60%	42%		
Mobility policy				52%
Artificial Intelligence in mobility			44%	57%
Innovation		36%		
Urban logistics		39%	44%	
Integrated & inclusive planning				52%
Micromobility	50%			

In medium-sized cities (Cities of ≥ 100,000 - 500,000 inhabitants), the need for knowledge shifts from these towards *digitalisation*, closely followed by *behavioural change* and *active mobility modes*. The top six topics is completed with needs for knowledge on *SUMPs*, *urban logistics*, and *innovation*.

In large cities (Cities of ≥ 500,000 – 1,000,000 inhabitants), the top six priorities for knowledge favour *demand and urban space management*, *behavioural change*, and *active mobility modes*. *Digitalisation*, *Artificial Intelligence*, and *urban logistics* are also among the top six topics.

In very large cities or metropolitan areas (Cities of ≥ 1,000,000 inhabitants), the need for knowledge shifts considerably with a focus on *demand and urban space management*, closely followed by *Artificial Intelligence*, *mobility policy*, *integrated and inclusive planning*, *digitalisation*, and *behavioural change*.

It can be concluded that *behavioural change* is an important topic to acquire knowledge on in cities, regardless of their size. The respondents of the larger cities or metropolitan areas do not prioritise knowledge on *SUMPs* as do the smaller and medium-sized cities. Respondents of metropolitan areas are more interested in acquiring new knowledge on *demand and urban space management*, *digitalisation*, and *mobility policy*. This is in line with findings from the interviews, where smaller cities have more staff with general qualifications looking for information and knowledge on specific topics, whereas larger cities have more specialized staff at hand.

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### 4.3 Geographical differences and similarities

In most of the interviews with the CIVINETs, the differences in city size and the location of cities were mentioned as important factors for the presence of certain knowledge gaps. The common assumption amongst the CIVINETs is that smaller cities in rural areas are more likely to lack basic knowledge on sustainable urban mobility in general and developing and implementing SUMP in particular. “They are still lacking basic mobility solutions” (Anagnostopoulos & Nikolopoulou, 2023).

Based on the survey results, differences are observed regarding the knowledge gaps by country of residence. In general, active mobility, behavioural change, digitalisation, demand and urban space management, and SUMP are topics for which knowledge is still needed for all country representatives. However, some nuances between countries were identified:

- *Active mobility modes* are seen as a top-priority topic by all country representatives except those from Spain, Italy, and Germany.
- *Behavioural change* was identified by all except representatives from Greece, Poland, and Spain.
- *Artificial Intelligence* is of interest by representatives from only four countries.
- *Clean and energy efficient vehicles* are of interest for representatives from Italy and Norway.
- *Digitalisation* is a priority topic for all except experts from Portugal, Italy, Greece, and the Czech Republic.
- *Demand and urban space management* is a topic of interest for all country representatives except those from Norway, Romania, and Spain.
- *Road safety* is a priority topic only for experts from Greece.
- *Parking management* and *micromobility* are relevant knowledge gap areas only among the Czech Republic experts.
- *Financing and funding* is a priority topic only for experts from Germany.

In the region Slovenia, Croatia and South-East Europe, there are differences with a wide range of knowledge and data choices. However, knowledge regarding data analysis, communication strategies, lobbying, public relations, and marketing is needed in these Eastern European regions (Lampelj & Makar, 2023). Many other European regions confirm this point.

## 4.4 Urban mobility knowledge gaps in relation to the presence of SUMP in cities

If a SUMP has already been developed in a city, would this affect their knowledge needs? A large majority of the interviewed CIVINETs acknowledged that the need for knowledge on SUMP is high and pointed to the fact that larger cities have more staff available to specialise in this topic, whereas smaller cities usually do not have this option. In the interviews, it was also noted that the knowledge required is not limited to developing a SUMP but also how to implement and evaluate it.

Based on the survey results, *active mobility modes* are in the top list of topics for cities with a SUMP, whereas in cities where a SUMP is in development, respondents are still keen on acquiring knowledge on *SUMPs*. Notably, in cities without an adopted SUMP, no need was identified for knowledge on this topic.

**Table 4.** Urban mobility topics of most interest for acquiring new knowledge per SUMP availability in cities (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Topics	Cities with a SUMP in place	Cities with a SUMP in development	Cities without a SUMP
Behavioural change	53%		75%
Active mobility modes	58%		63%
Digitalisation, data, ICT, Mobility as a Service, digital twins	49%	60%	
Demand & urban space management	49%	53%	56%
Road safety & security		53%	
Sustainable Urban Mobility Plans (SUMPs)	40%	73%	
Mobility policy		53%	
Artificial Intelligence in mobility	43%		
Financing and funding		53%	
Urban logistics			50%
Integrated and inclusive planning			63%
Multimodality and mobility hubs			63%

## 4.5 The managers' perspective

The managers' perspective in this chapter refers to the knowledge needs identified by survey respondents who have a managerial occupation at their respective working place. Are the same topics prioritised or do they differ? How do managers perceive the urgency to fill the gaps?

Based on the survey results, managers perceive the following topics as important to gain knowledge in to be prepared for the future market demands: *behavioural change, financing and funding, innovation, demand and urban space management, SUMP*s, and *active mobility modes* (see Figure 8). Interestingly, *digitalisation* is not amongst the top choices for knowledge gaps, although IT engineers are identified as an important missing expertise by the survey respondents. Also, when asked which tasks or activities they would like to carry out but are either unable or less able than they would like, *data collection and exploitation* was the topic chosen by most managerial respondents.

Most managers indicated that they seek support from an external consultancy as a solution to missing staff members or competencies, but often even external experts are unable to implement the activities related to the specific needs.

*Which topics are you most interested in to acquire new knowledge?*



**Figure 8.** Managers' perspective: urban mobility topics of most interest for acquiring new knowledge (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

## 5 Needs for urban mobility skills

Skills are as important as knowledge in the transition towards sustainable urban mobility and have gotten extra attention in 2023, the European Year of Skills. This chapter summarizes the findings of this study regarding urban mobility skills. It provides insights into the needs of urban mobility professionals working at or for urban mobility planning authorities focussing on soft skills. Based on these findings, CIVITAS Summer Courses – a capacity building activity focused on the development of soft skills – will be organised within CIVITAS MUSE.

The transport and mobility sector faces a number of challenges (see also Chapter 3.3). Among them, employability, the alteration of jobs, and finding sufficient staff as well as appropriately trained and experienced personnel are influenced by developments such as greening, automation, and electrification (Sitányiová et al., 2018). Future scenarios predict that many jobs in the transport sector and their competence requirements will be affected by these and more changes. The workforce is experiencing a dynamic transition influenced by behavioural, socioeconomic, cultural and demographic factors (Bekiaris & Loukea, 2019).

In this chapter, selected urban mobility skills as well as skills in relation to the size of the town or city and to SUMP in place will be analysed. Insights into the perspective of managers and geographical differences and similarities in the European regions analysed are also presented.

### 5.1 Urban mobility skill gaps

In the CIVITAS European Urban Mobility Labour Market Survey, *effective communication and public participation and co-creation* are the two topics respondents are the most interested in to acquire new skills (see Figure 9). About 75% of the respondents selected these topics. Also, *scenario building* and *lobbying and advocacy* were selected by about half of all respondents (56% and 51%, respectively). *Leadership skills* got a bit less attention (48% of respondents), and *entrepreneurship* was seen as particularly low priority (28% of respondents).



**Figure 9.** Topics of most interest for acquiring new skills (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Similar prioritisation is apparent when reflecting on the segmentation of survey responses by different expert groups (see Table 5). It can be concluded that public authorities, industry, and academia consider *effective communication* the highest priority in terms of needed urban mobility skills. Civil society organisations agree this is an important topic but consider *public participation and co-creation* even more important. *Scenario building* ranks third for all organisations, in some cases together with another topic. *Lobbying and advocacy* skills play an important role for all groups but to a lesser extent for public authorities. *Entrepreneurship* is considered the least important skill topic to be acquired by respondents from all organisation types.

**Table 5.** Topics of most interest for acquiring new skills per stakeholder type (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Skills	Public authorities	Industry	Academia	Civil society
Effective communication and cooperation with stakeholders / stakeholder management	82%	75%	81%	75%
Public participation & co-creation	79%	71%	81%	81%
Scenario building	59%	46%	69%	69%
Leadership skills	46%	46%	50%	56%
Lobbying & advocacy	47%	54%	50%	69%
Entrepreneurship	32%	43%	6%	25%

The correlation between the needs for knowledge and the needs for skills should be noted. In Chapter 4, it was concluded that *behavioural change* is the knowledge most in demand among survey respondents. To influence a change in behaviour among mobility users, *effective communication and stakeholder management* is essential. *Public participation and co-creation* skills also play an important role. Hence, there is a clear correlation between the knowledge and skills needs of urban mobility professionals working at and for urban mobility planning authorities.

That insight was confirmed in the interviews and different sessions. CIVINET Iberia expressed it thusly: “What is important is actually having the skills to understand people’s motivations and what is actually required to change their behaviour” (Schaj, 2023). CIVINET Romania added that participation and communication that involves citizens as well as lobbying are key skills (Mihalache & Trasca, 2023). A representative of a Hungarian municipality stated that also in the future, “it is required to see through the whole mobility spectrum [...]. As we are in contact with people, communication and negotiation skills are required” (Papp, 2023).

Participation and communication skills are vital, as noted by representative of the Municipality of Zagreb. There, long-time staff members at the municipality do not have the necessary experience with these skills and often have a more car-oriented mindset – and misalignment between the local legal traffic framework and the national legal framework only leads to further challenges (Vuger, 2023). A representative of CIVINET .BE (Belgium) elaborates:

[...] Skills and knowledge concerning citizen engagement, participation and a just transition towards more sustainable mobility, through communication and outreach towards vulnerable societal groups, are of utmost importance. In general, it is important for all professionals in the mobility sector to acknowledge, and act upon, the fact that mobility is about more than just traffic engineering. Each citizen is a mobility expert, has something to add to the conversation, and should therefore be engaged through bottom-up initiatives. (De Kinderen, 2023)

Communicating effectively does not only create awareness and influence behavioural change towards the use of sustainable modes of transportation. It also contributes to more inclusive and accessible sustainable urban mobility as well as mutual understanding and trust between citizens, planners, and decision-makers.

Responses to several open-ended questions in the survey showcased interesting findings regarding skills that are needed. Novel topics identified included attention to the legal framework, adaptation of policies in urban and rural areas, gender equality, and inclusion for vulnerable groups (e.g. children). Additional skills that are required to be future proof were discussed in the interviews, the consultation sessions, the session with the CIVITAS Educational Network, and several sessions at the [2023 Urban Mobility Days](#). Some of the needed skills identified included up-to-date digital skills, dealing with data appropriately and a data-driven approach, understanding changes and the reasons behind resistance, multidisciplinary skills, a multi-stakeholder approach and strategic planning, and predicting and innovating in a broad and holistic sense.

Critical thinking and interdisciplinarity are also considered important for future mobility professionals, as noted by university representatives:

We need to educate open-minded individuals who have critical thinking. They should not only think in terms of one discipline, mobility or urban space, but consider all the consequences. In Austria, we have elections every 4 years, so that's the periods for which these visions are made. Students need to critically assess these visions/plans and think in terms of the bigger picture. Thus, our role as a university is to educate people not to blindly believe everything but be very open and at the same time very critical. Say your own opinion because you are the expert who has the knowledge. (Kiers, 2023)

The university of the future has the role to work with the Sustainable Development Goals. We teach the key competences that are identified as essential to be able to work towards achieving the sustainable development goals. Some of these include being able to collaborate, to have critical and system thinking. (Sandow, 2023)

It is very important to combine all mobility operators as part of urban mobility and continue with the interdisciplinary approach. We would also like to focus on the legislative framework of the curriculum – changing the legislation on national level, but it is also on the wish list for an EU level. (Slavulj, 2023)

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Representatives of CIVINET Czech & Slovak Republics and the Municipality of Pardubice (CZ) noted that the lack of a multidisciplinary approach and the corresponding skills, particularly in small- and medium-sized cities, has led to incomplete or non-existent implementation of SUMP. Similarly, cooperation with other partners is also important. These same representatives gave the example of the Interreg Danube CityWalk project, which fostered knowledge-sharing among partners and led to positive results. This cooperative approach was very important for addressing the multidisciplinary challenges in that region (Klímová, 2023).

The Head of Department of the Transportation System Planning Department of Trenecon (HU), a Magyar CIVINET stakeholder, reflected on a multidisciplinary approach and the broader picture as well:

It is not enough to consider it as a transport system when planning mobility. Thus, the mobility context must take into account all urban users, taking into account not only the livability of public spaces, equitable access to services, traffic safety, but also environmental impacts (air pollution, traffic noise, etc.). This requires a very open approach from mobility planners. In the context of future challenges, it is also useful to be aware of the developments already presented in new technologies like electromobility and the potential of micromobility too. (Schimmer-Tóth, 2023)

Furthermore, in some cases, it is vital to successfully seek funding opportunities, particularly EU funds – as noted in Chapter 4. Current developments such as smart mobility technologies require the urban mobility professionals working at or for urban planning authorities to understand these developments and adapt their mindset and work accordingly.

## 5.2 Urban mobility skill gaps in relation to city size

When considering the priorities identified for skills needed relative to respondents' city size, there is common ground among the top priorities as well as some notable differences (see Table 6). In small-, medium-sized, and large cities, there is agreement on the need of *effective communication* and *public participation and co-creation*. However, the third-ranking priority is not the same for all city sizes. The need for *lobbying and advocacy* skills is higher in smaller cities, which could be caused by the more difficult situation of smaller places in terms of awareness, staff, and financial resources for ambitious SUMP. Although all types of cities rate *entrepreneurship* lowest, medium-sized cities (100,000 – 500,000 inhabitants) seem to consider this skill more important than cities of other sizes.

**Table 6.** Topics of most interest for acquiring new skills per city size (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Skills	Cities of < 100,000 inhabitants	Cities of ≥ 100,000 - 500,000 inhabitants	Cities of ≥ 500,000 - 1,000,000 inhabitants	Cities of ≥ 1,000,000 inhabitants
Effective communication and cooperation with stakeholders / stakeholder management	85%	83%	60%	74%
Public participation & co-creation	85%	78%	60%	78%
Scenario building	60%	78%	40%	39%
Leadership skills	45%	69%	53%	30%
Lobbying & advocacy	60%	56%	47%	43%
Entrepreneurship	30%	36%	20%	30%

### 5.3 Geographical differences and similarities

Different European countries and regions have different priorities related to needed skills. There is a correlation between the way a country can respond to demand for a mode of transport and the available trainings for this mode in that country. Consider for example the high response to rail transport demand in the UK, where there is a corresponding high supply of rail-oriented degree programmes, trainings, and information availability (Goger, 2017).

The CIVITAS European Urban Mobility Labour Market Survey offered insight into the different priorities of respondents from several countries (see Table 7). *Entrepreneurship* was identified by more than half of Romanian respondents, whereas Greece does not consider it important at all. As in previous categories, it can be concluded that *effective communication and stakeholder management* is considered the most important skill in most countries – except in Belgium (second), Poland (fourth), and the Netherlands (fifth).

**Table 7.** Segmented display of regional differences of needed skills (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Country	Effective communication & stakeholder management	Public participation & co-creation	Scenario building	Leadership skills	Lobby & advocacy	Entrepreneurship
Belgium	50%	83%	33%	33%	33%	17%
Czech Republic	86%	86%	57%	86%	43%	14%
Germany	83%	83%	50%	67%	50%	17%
Greece	80%	60%	80%	20%	40%	0%
Italy	100%	100%	83%	50%	67%	33%
Norway	75%	75%	50%	0%	0%	25%
Poland	50%	50%	100%	75%	100%	25%
Portugal	100%	100%	60%	80%	40%	20%
Romania	82%	73%	73%	36%	45%	55%
Spain	71%	57%	0%	43%	14%	29%
The Netherlands	45%	55%	55%	64%	73%	36%

## 5.4 Urban mobility skill gaps in relation to the presence of SUMP in cities

Whether a city has adopted a SUMP, or whether a SUMP is in development, can have an influence on the desired skills to be acquired. For example, *effective communication and stakeholder management* seems to be most prioritised in cities with a SUMP in development (see Table 8). Survey respondents working in cities without a SUMP indicated that there is a high priority for *effective communication and stakeholder management* skills but also for *scenario building, lobbying and advocacy*, and *leadership* skills. A possible explanation is that these skills are even more important in cities without a SUMP in place than in cities where there is at least already a framework that is paving the way for sustainable urban mobility and hence influencing the citizens of those cities that way.

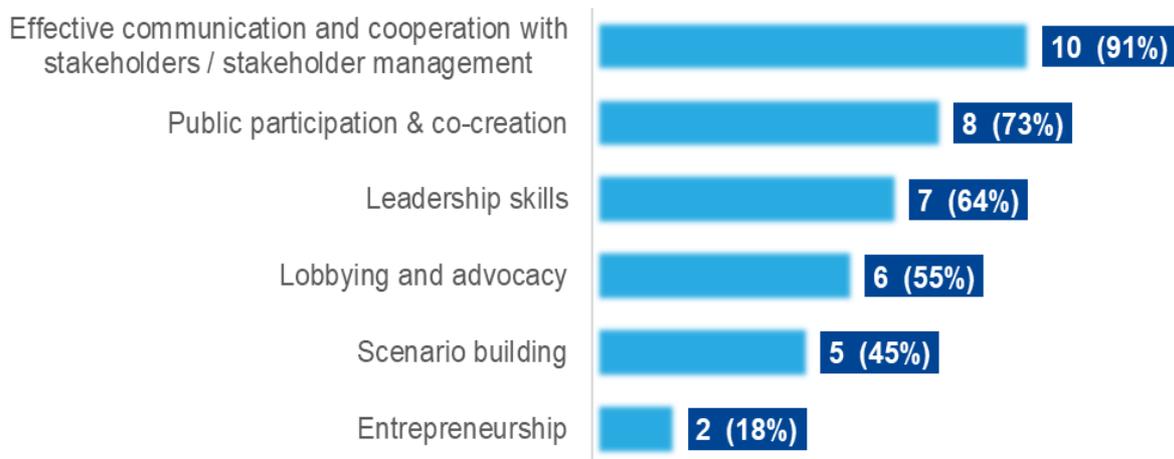
**Table 8.** Topics of most interest for acquiring new skills per SUMP availability in cities (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Skills	Cities with a SUMP in place	Cities with a SUMP in development	Cities without a SUMP
Effective communication and cooperation with stakeholders / stakeholder management	75%	100%	88%
Public participation & co-creation	75%	80%	88%
Scenario building	60%	53%	75%
Leadership skills	50%	53%	56%
Lobbying & advocacy	48%	47%	63%
Entrepreneurship	33%	27%	31%

## 5.5 The managers' perspective

The perspective of the managers who took part in this survey is particularly notable – they make decisions and usually have a broader view on their field of work. Like many other groups, the managers indicated that *effective communication and the cooperation with stakeholders* is the most important skill that should be acquired, followed by *public participation and co-creation* and *leadership* skills. Similarly, managers also consider *entrepreneurship* the least important skill.

*Which topics are you most interested in to acquire new skills?*



**Figure 10.** Manager's perspective: topics of most interest for acquiring new skills (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

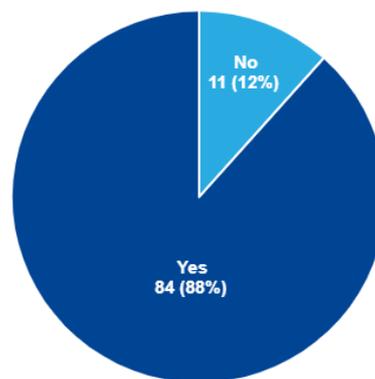
## 6 Urban mobility workforce

This chapter describes the challenging situation of the urban mobility labour market and the consequences for urban mobility stakeholders and sustainable urban mobility measures. Furthermore, it elaborates on possible solutions, such as a wide range of capacity building activities.

### 6.1 The current situation

Roughly nine out of ten (88%) respondents to the CIVITAS European Urban Mobility Labour Market Survey stated that the urban mobility experts needed to implement the tasks of the respective department are missing (see Figure 11).

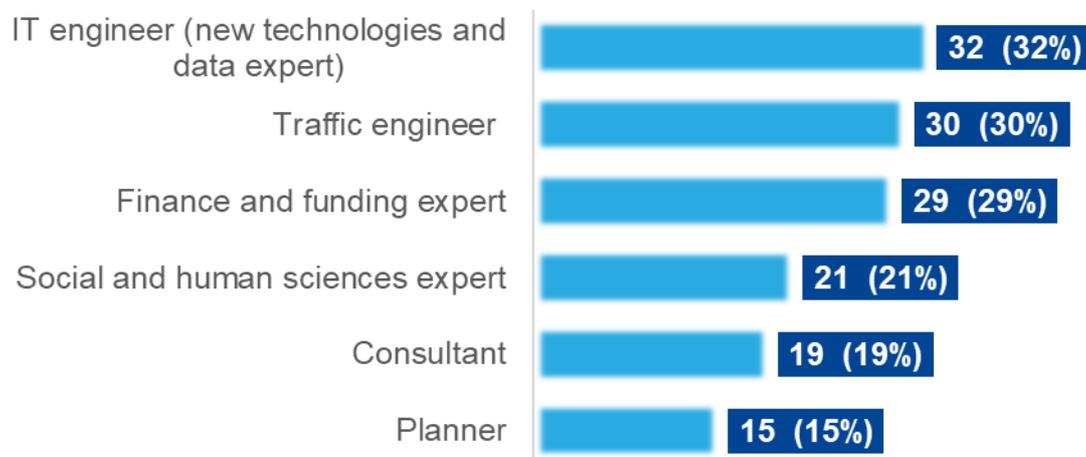
*Do you miss any urban mobility expert in your department/organisation when implementing the tasks that fall under your department's/organisation's responsibility?*



**Figure 11.** Urban mobility expertise gaps in organisations (CIVITAS European Urban Mobility Labour Market Survey, 2023; single-select multiple-choice question)

When asked what type of expertise is missing, traditional experts like traffic engineer and planner continue to be considered needed. However, experts from other domains are similarly important – and missing – including IT engineers, funding and finance experts, and experts in the field of social and human behaviour (see Figure 12). Other missing expertise include consultants, project managers, electric and mechanical engineers, and politicians are missing as well – albeit to a lesser extent.

Do you miss any urban mobility expert in your department/organisation when implementing the tasks that fall under your department's/organisation's responsibility?



**Figure 12.** Missing urban mobility experts in organisations (CIVITAS European Urban Mobility Labour Market Survey, 2023; multi-select multiple-choice question)

The interviews with CIVINETs provided additional insights into shortages in skills and knowledge within the domain of sustainable and smart urban mobility. Many urban areas lack professionals with expertise in sustainable mobility practices. This includes knowledge gaps in topics like managing parking solutions and optimizing the use of public spaces, which are vital for creating more environmentally friendly and efficient urban transportation systems. In many regions, local experts with the appropriate knowledge, skills, and mindset are missing.

In Romanian public authorities, for example, urban mobility experts with a focus on cycling are often missing – many of the urban mobility professionals there are still car-focused, a representative of the NGO Bike in Time explains (Maftai, 2023). An interviewee from the Agenția de Dezvoltare Regională Nord-Vest (RO) elaborates further that Romanian authorities suffer from staff shortages and a partial lack of skills and knowledge such as a broad understanding of sustainable urban mobility issues and the proper implementation of SUMP (Andriesei, 2023).

Building trust and fostering active citizen engagement in urban mobility decisions are ongoing challenges. Professionals who can effectively communicate with and involve the public in decision-making processes are in high demand as mistrust in municipal authorities persists.

Ensuring inclusivity and equity in urban mobility solutions is a growing concern. There is a need for skills and knowledge in designing transportation systems that are accessible and beneficial to all segments of the population, especially vulnerable groups.

While innovation is important, there is a growing recognition that a solid foundation in the basics of sustainable and smart urban mobility is essential. Proficiency in core concepts provides the groundwork for effective problem-solving and innovation.

As pointed out in previous chapters, professionals who possess inter- and multidisciplinary knowledge and skills are increasingly valuable. They can bridge gaps between various

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domains like transportation, environmental sustainability, and urban planning, enabling a more holistic approach to urban mobility challenges.

As the urban mobility labour market is precarious, many organisations notice a shortage of well-trained and suitable staff. In the consultation sessions with urban mobility stakeholders, this situation and some examples were described.

At Rupprecht Consult, we are in a special situation because we are we are working in an international market. So we always have applicants [...] applying from all over the world. But when it comes to topics like finance, funding, and data experts, etc., then we experience a lack of suitable candidates. For quite a while now. We are really looking for German-speaking people because we have a few new German projects now and actually, it is even a bigger challenge to find these people at the moment in Germany. (Backhaus, 2023)

Another participant of a consultation session gave an example of her company in Bulgaria. As industry partner for universities, that organisation introduces findings from the work field to students to get acquainted with the implementation of urban mobility skills and knowledge and the identified gaps (Betovska, 2023).

The Deputy Mayor of the City of Križevci presented a case of his city and region. As it was very difficult to find suitable staff with knowledge, skills, and experience in the field of sustainable urban mobility, the requirements for a vacant job position in this field had to be adjusted to include significantly fewer mandatory qualifications. The profile changed from a subject matter expert to an employee who could have been basically anyone with a fresh mind and the willingness to look at new and different perspectives (Šaško, 2023).

Shortages also affect jobs that are responsible for delivering mobility services. For example, the public transport service provider in Timișoara, Romania experienced a critical shortage of about 150 bus drivers. Such a shortage demonstrates that a local crisis can have a negative impact on the implementation of a shift towards sustainable urban mobility (Mihalache & Trasca, 2023).

## 6.2 The effects

The effects that result from an expertise shortage are presented in Figure 14. The top three domains affected by the shortage of urban mobility experts are data collection or using data sources for the work involved in the department, attracting international funding, and all aspects of implementing SUMP – a core activity of urban mobility work.

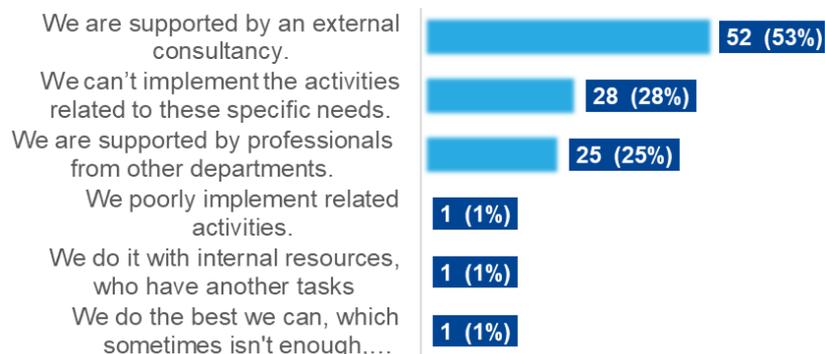
*Which urban mobility tasks/activities would you like to carry out in your department/organisation but cannot do now or to a lesser extent than you would like?*



**Figure 13.** Urban mobility tasks/activities organisations are struggling to perform (CIVITAS European Urban Mobility Labour Market Survey, 2023; multi-select multiple-choice question)

When considering the impact, it can be noted that 28% of respondents stated that activities cannot be implemented because of this situation. However, 80% of the respondents indicated that a solution can be found by either sourcing professionals from other departments or by sourcing external consultancies.

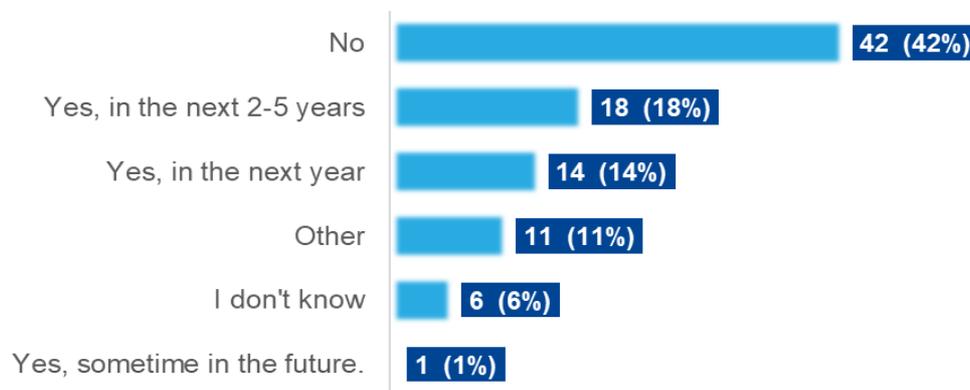
*In case you are missing a specific professional profile, how are you currently solving these needs?*



**Figure 14.** Actions organisations are taking to tackle gaps in their employment (CIVITAS European Urban Mobility Labour Market Survey, 2023; multi-select multiple-choice question)

Despite the shortages identified, 42% of the respondents indicated that they do not intend to hire or train urban mobility experts to address these needs. This might be interpreted to mean that sourcing external consultancies or other colleagues is a strategy that suits. About a third (32%) of respondents plan to hire or train mobility experts within five years.

*Do you plan to hire or train an urban mobility expert that can cover these needs?*



**Figure 15.** Organisations' plans to hire or train an urban mobility expert (CIVITAS European Urban Mobility Labour Market Survey, 2023; single-select multiple-choice question)

From the interviews conducted for this research, it can be concluded that cities typically do not have well-defined, long-term hiring strategies in place specifically for mobility professionals. This means that there may not be a systematic approach to identifying the staffing needs in the field of mobility over an extended period. Staff is usually hired ad-hoc. Organisations often search for new staff to address particular mobility related domains or themes, such as road safety and parking.

A representative of CIVINET Nederland describes an example from the Netherlands:

Cities in the Netherlands are planning to hire more staff or train their staff more than ever before. However, you need to make the work field of mobility and transport more sexy to attract well-trained staff. It's a question of how to frame it – specifically for the new generations. (Buijs, 2023)

In Greece, a restriction regarding hiring new staff influences the public authorities in their implementation of SUMP, the approach staff take to street design – prioritising cars rather than people cycling and walking – and the types of employees on staff. There are not enough engineers, project managers, project officers, and planners with a background in sustainable urban mobility (Anagnostopoulos & Nikolopoulou, 2023).

There is also a mismatch between the terms used in job descriptions and the specific urban mobility professionals public authorities would like to hire. A finding from the interviews shows that the job descriptions of a advertisement are too generic and do not mention the specific terms needed for the respective profiles.

Parallel to this, CIVINETs mention that municipalities sometimes combine their resources and create a regional consultancy to outsource their work to.

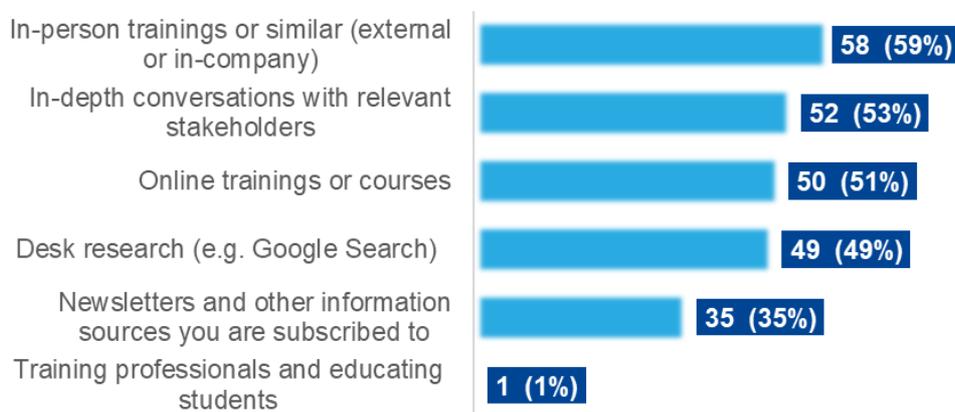
When it comes to outsourcing work – for example to consultancies – CIVINET.BE (Belgium) recognizes the organisations “are very busy, as municipalities outsource a lot. As a result, the workload within existing consultancy firms is increasing. It is difficult for them to find suitable profiles” (De Kinderen, 2023). In some cases, interviewees concluded that municipalities should adopt training or capacity building as a strategy to cope with the effects of expertise shortage.

### 6.3 Capacity building

A correlation between the knowledge and skill needs of urban mobility professionals was identified in previous chapters. Chapter 4 presented what professionals want to learn more about, with behavioural change and active mobility modes ranking highest (refer back to Figure 7). Chapter 5 presented findings that communication and participation rank as the most in demand skills – both relevant to fostering behaviour change (refer back to Figure 9).

Here we examine how respondents prefer to learn (see Figure 16). Two categories of in-person learning rank highest – *in-person trainings*, which can be regarded as learning from experts, and *in-depth conversations with relevant stakeholders*, which can be regarded as learning from peers. Remote (*online trainings or courses*) and independent (*desk research*) learning methods are also favoured.

*What is your preferred way of getting more/other knowledge and skills?*



**Figure 16.** Preferred way of getting more/other knowledge and skills (CIVITAS European Urban Mobility Labour Market Survey, 2023; multiple-select multiple-choice question)

Respondents of the CIVITAS European Urban Mobility Labour Market Survey pointed out in a open response questions that there are many interesting CIVITAS and non-CIVITAS capacity building options, including in-company and external sessions, online and in-person trainings and workshops, webinars, e-courses, conferences, public discussions with designers, blended learning, transport modelling games, Fresh Brains weeks with students, internships, and more.

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Similar conclusions can be derived from the interviews conducted for this research. Capacity building activities can begin with webinars, serving as an initial step. More comprehensive outcomes are achieved through summer schools, while site visits and study tours provide practical, hands-on experiences. Representatives of CIVINET Slovenia, Croatia and South-East Europe stated that it is important to choose topics that cater to the diverse needs of the participants. On-site activities are preferred as they often are fully booked and receive positive feedback (Lampelj & Makar, 2023). Past study tours (co-)organised by a few CIVINET Secretariats were very successful. More study tours are thus foreseen as part of CIVITAS MUSE. On-site activities are preferred and tend to receive positive feedback, emphasizing their effectiveness. It is crucial to tailor these activities to address specific target groups, such as young professionals and more experienced individuals. This ensures that the content and format of capacity building activities are relevant and engaging for the intended audience.

A representative of CIVINET Italy expressed that it can be beneficial to exchange visits and learn about best practices. It can be of particular interest to link to cities in another region with similar circumstances – for example, a city of southern Italy might feel more connected to the situation and progress of a city in Spain than to a city in the Netherlands. Regions with common characteristics may find it easier to relate to and learn from one another's experiences, fostering a sense of connection and shared progress (Proietti, 2023).

Exchange of best practices is of course important and relevant, but so too are suboptimal solutions, how they were dealt with, and how they can be avoided in the future (Trnka, 2023).

Language preferences play a role in these activities. The local language is often preferred in smaller cities, while English is generally acceptable in larger urban centres. Tailoring capacity building to these preferences ensures accessibility and effectiveness across different urban contexts.

Capacity building activities aimed at enhancing financial expertise, including EU project financing, are considered valuable. Some interesting best practices shared that have proven effective for building capacity include:

- *Official-to-official mentoring and city-to-city contacts:* These approaches involve establishing mentoring relationships between experienced urban mobility professionals and their counterparts. Additionally, fostering city-to-city contacts, both bilaterally and in groups, has been found to be efficient and effective. What makes these initiatives successful is their focus on addressing specific, tangible topics, problems, and solutions. This targeted approach ensures that knowledge and expertise are shared in a practical and applicable manner.
- *Working with children:* Engaging with children in primary schools and kindergartens is a creative way to raise awareness about urban mobility and sustainability. Children are often receptive and eager to learn, making them an ideal audience for educational initiatives. Their involvement can have a long-term impact on shaping attitudes and behaviours related to urban mobility.

A member of the CIVITAS Educational Network provided additional perspective highlighting how the link to capacity building is maintained but also identifying some additional knowledge areas and skills sets. “We do not have expert committees, but we are always in contact with

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industry or other stakeholders, so we do actively adapt curriculums based on the market/industry needs every year” (Biškup, 2023).

Representatives of the CIVINET Greece Secretariat emphasized that it is important for the CIVINETs to take part in the CIVITAS capacity building activities. It would also be valuable in the future to structurally involve the CIVINETs as an active part of new CIVITAS projects – ideally already at the proposal stage of new projects. This was said to have worked well in previous cases. An interesting aspect of this integration is also the overall learning process. If the CIVINETs are trained in these projects, they can pass on that knowledge after the projects end. Making use of the network in a broad sense could also mean linking CIVITAS stakeholders of a certain CIVITAS capacity building activity to representatives of ministries of the respective country to ensure long-term effects and enable possible policy changes (Anagnostopoulos & Nikolopoulou, 2023).

When asked if they are open to new, tailor-made CIVITAS capacity building activities, many interviewees and participants in sessions said that they would be open to such activities.

Yes. Participating in most workshops that took place in the framework of CIVINET Greece - Cyprus was an excellent experience, and I am looking forward for new capacity building activities. By developing skills and acquiring knowledge in these areas, I will be better prepared to address the current and future challenges in the field of sustainable urban mobility. (Yiayia, 2023)

Such activities could certainly give us some value, especially best practice examples [...]. I think there is a potential for these international CIVITAS capacity building activities. We can really get something out of it if the right topics are addressed. (Suk, 2023)

However, representatives of Magyar CIVINET felt their own capacity building activities – including study tours, workshops with site visits, the Budapest Initiative, webinars, a series of round (hybrid) tables, and more, which are all conducted in Hungarian – would reach their network members more effectively than international CIVITAS capacity building activities like in-person summer courses. This is because their stakeholders would feel limited by the language, travel requirements, and lost working hours due to the distance. A CIVITAS Summer Course might be interesting if the added value is clearly presented and it is distinguished from the activities offered by other organisations like EIT Urban Mobility (Gertheis & Csörgö, 2023). Magyar Kerékpárosklub (Hungarian Cyclists' Club) adds to this point that the Hungarian Cyclists' Club had a very positive experience with a cooperation between the State Secretary for Active Hungary, the Prime Minister's Office, and the Active and Ecotourism Development Centre when successfully organising a cycling study tour (Emődy, 2023).

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## 7 Conclusions and outlook

The time has come to act on the shortage of staff, skills, and knowledge in the urban mobility sector. Previous chapters of this report describe the state of the European urban mobility labour market and the findings of the research conducted by CIVITAS MUSE focussed on urban mobility knowledge, skills, trends, and workforce. This chapter reflects and elaborates on these findings.

The central question of this study is: *Which skills and knowledge are needed by professionals working at and for urban planning authorities?* Reflecting on the research results presented here, it can be concluded that the highest priority topics for professionals to acquire knowledge in to be prepared for the future are behavioural change (how to influence the behaviour of mobility users), active mobility modes, and digitalisation. It was further found that to be a future-proof professional in the domain of urban mobility, skills in the following areas are of utmost importance: effective communication and cooperation with stakeholders and public participation and co-creation.

Most interviewees emphasized the critical importance of skills and knowledge related to citizen engagement, participation, and facilitating a just transition towards more sustainable mobility. This involves effective communication and outreach, particularly targeting vulnerable societal groups. Skills in citizen engagement were highlighted as essential. This involves understanding and addressing issues related to trust in authorities, behavioural change, and the use of public relations and communications to simplify scientific concepts and drive urban transformation. Furthermore, being prepared for the future requires the ability to analyse and unlock data effectively. This skill is considered vital for making informed decisions and shaping communication strategies. Several methods on how to deal with the shortage of staff with the appropriate set of skills and knowledge were analysed. Insights on different types of organisations, the perspective of managers, the existence of SUMP in the respective cities and geographical similarities and differences were presented. All sectors agree on the main findings. A more in-depth analysis can be found in Chapter 4, 5, and 6.

Across many interviews and expert sessions, there was a consensus that a multidisciplinary approach – and therefore skills that go beyond one discipline – is required for a future-proof sustainable urban mobility in cities. It was also found that small and medium-sized cities need experienced and skilled staff even more than big cities. A lack of suitable knowledge and skills can prevent cities from proceeding with the implementation of their SUMP. Capacity building perspectives were discussed, as was how training the urban mobility professionals can provide solutions to current challenges. It was noted that there are regional differences in knowledge and data preferences. Understanding these variations is crucial when developing capacity building activities. Many of this research's interviewees and session participants stated that they are open for (partially) tailor-made CIVITAS capacity building activities. Some of them have had positive experiences with such activities organised by previous CIVITAS Coordination and Support Actions.

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There are many factors that influence sustainable urban mobility and how it can be implemented in European cities. Among these are changing behaviours, mindsets, and politics. A representative of CIVINET Poland summarises:

There are positive changes in Poland, with many young people getting in charge and also getting experience abroad. They have bold ideas and bold campaigns. The political arena is very important here. [...] [In Poland,] the biggest political party is very conservative, they have absolutely no priority for sustainable mobility. (Pydzińska Azevedo, 2023)

Many survey respondents and interviewees emphasized the importance of the integration of different sectors and different implementation levels – from policy to measure implementation. The adoption of a SUMP is a key step towards sustainable urban mobility, but their implementation and the corresponding needed experts are as vital.

A key objective of this research was to establish a sound basis from which to develop the CIVITAS capacity building activities foreseen during CIVITAS MUSE (2023 – 2027). These include CIVITAS Learning Trajectories, which focus on the development of knowledge, and CIVITAS Summer Courses, which focus on the development of skills. The findings about knowledge and skills needs presented in this report will support the creation of an appropriate programme, as well as take-up and transfer activities related to these topics.

There are urgent needs in the European urban mobility labour market. As 2023 is the European Year of Skills, it is an ideal moment for CIVITAS capacity building activities to help address these needs. Details about these activities will be prepared over the coming months and published on [www.civitas.eu](http://www.civitas.eu).

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# ANNEX

## Overview of interviewees and participants of consultation sessions and session with CIVITAS Educational Network

Name of interviewee/ session participant	Job title	Organisation	Country (location of organisation)	Interview date	Interviewed by
<b>CIVINETs and their stakeholders</b>					
<b>Alena Klímová</b>	Researcher and Representative of the Secretariat of the CIVINET Czech and Slovak Republics	CIVINET Czech & Slovak Republics	Czechia	21 August 2023	Uli Lerche
<b>Antal Gertheis</b>	Managing director and representative of Magyar CIVINET	Magyar CIVINET	Hungary	22 August 2023	Uli Lerche
<b>Antonín Suk</b>	Chief Architect's Department Officer	Municipality of Pardubice	Czechia	21 August 2023	Uli Lerche
<b>Barbara Emődý</b>	Senior Engineer	Magyar Kerékpárosklub (Hungarian Cyclists' Club (HCC))	Hungary	22 August 2023	

<b>Brechtje Walburgh Schmidt</b>	Consultant Capacity Building and representative of CIVINET Nederland	CIVINET Nederland	The Netherlands	10 July 2023	Uli Lerche
<b>Danijel Šaško</b>	Deputy Mayor of Križevci	Municipality of Križevci	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Dinko Butković</b>	Bus Garage Manager	Zagreb Electric Tramway - ZET	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Erzsébet Schimmer-Tóth</b>	Head of Department Transportation System Planning Department	Trenecon	Hungary	25 September 2023	Uli Lerche
<b>Goran Lampelj</b>	Project coordinator and representative of CIVINET SL-HR-SEE Secretariat	CIVINET SL-HR-SEE	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Gretel Schaj</b>	Regional Manager BABLE Iberia and representative of CIVINET Iberia	CIVINET Iberia	Spain	12 July 2023	Uli Lerche
<b>Grigoris Konstantellos</b>	Mayor of Vari Voula Vouliagmeni and vice-president of CIVITAS PAC	Municipality of Vari Voula Vouliagmeni	Greece	05 September 2023	Brechtje Walburgh Schmidt
<b>Ionuț Maftai</b>	Owner of Bike in Time, Guide and Travel Consultant	Bike in Time	Romania	23 August 2023	Uli Lerche

<b>Katarzyna Pydzińska Azevedo</b>	Representative of Secretariat CIVINET Poland	CIVINET Poland	Poland	13 September 2023	Brechtje Walburgh Schmidt
<b>Katerina Nikolopoulou</b>	Network & EU Projects Manager and representative of CIVINET Greece-Cyprus	CIVINET Greece-Cyprus	Greece	05 September 2023	Brechtje Walburgh Schmidt
<b>Katerina Yiayia</b>	Municipal Officer	Municipality of Nea Smyrni	Greece	05 September 2023	Brechtje Walburgh Schmidt
<b>Kosmas Anagnostopoulos</b>	Founder and Coordinator of CIVINET Greece-Cyprus	CIVINET Greece-Cyprus	Greece	05 September 2023	Brechtje Walburgh Schmidt
<b>Magdalena Makar</b>	Project Assistant and Representative of CIVINET SL-HR-SEE Secretariat	CIVINET SL-HR-SEE	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Maria Androutsou</b>	Mayor of Agios Dimitrios and President of CIVINET Greece-Cyprus PAC	Municipality of Agios Dimitrios	Greece	05 September 2023	Brechtje Walburgh Schmidt

<b>Marko Slavulj</b>	Assistant professor at the Faculty of Transport and Traffic Science of University of Zagreb, member of the of CIVINET SL-HR-SEE Academic Board and member of the CIVITAS Educational Network	Faculty of Transport and Traffic Science University of Zagreb	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Marton Papp</b>	Public Transport Administrator	Municipality of Székesfehérvár	Hungary	30 August 2023	Uli Lerche
<b>Matija Vuger</b>	Office for strategic planning and development of the city	City of Zagreb	Croatia	04 September 2023	Brechtje Walburgh Schmidt
<b>Merten de Kinderen</b>	Communications Officer and Representative of CIVINET .BE	CIVINET .BE / Mobiel 21	Belgium	04 August 2023	Uli Lerche
<b>Michal Bajgart</b>	Researcher and Representative of the Secretariat of the CIVINET Czech and Slovak Republics	CIVINET Czech & Slovak Republics	Czechia	21 August 2023	Uli Lerche
<b>Miruna Trasca</b>	Architect and Representative of CIVINET Romania	CIVINET Romania	Romania	23 August 2023	Uli Lerche

<b>Nikolett Csörgő</b>	Transportation Engineer and representative of Magyar CIVINET	Magyar CIVINET	Hungary	22 August 2023	Uli Lerche
<b>Peter Trnka</b>	Transport Urban Planning and Sustainable Mobility Officer	Municipality of Trnava	Slovakia	24 August 2023	Uli Lerche
<b>Sebastian Andriesei</b>	Expert	Agenția de Dezvoltare Regională Nord-Vest	Romania	23 August 2023	Uli Lerche
<b>Stefano Proietti</b>	Representative of Secretariat CIVINET Italy	CIVINET Italy	Italy	07 September	Brechtje Walburgh Schmidt
<b>Violeta Mihalache</b>	Director of Urban Survey Timișoara and of CIVINET Romania	CIVINET Romania	Romania	23 August 2023	Uli Lerche
<b>Willem Buijs</b>	Managing Director and representative of CIVINET Nederland	CIVINET Nederland	The Netherlands	10 July 2023	Uli Lerche

<b>Session with CIVITAS Educational Network</b>					
<b>Carolina Cipres</b>	Director of Research and member of the CIVITAS Educational Network	Zaragoza Logistics Center	Spain	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Ekaterina Uzunova</b>	Researcher and Representative of the CIVITAS Educational Network	Breda University of Applied Sciences	The Netherlands	13 September 2023	Uli Lerche
<b>Erika Sandow</b>	Associate Professor and member of the CIVITAS Educational Network	Umeå University	Sweden	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Jiří Pašek</b>	Coordinator for International Study and member of the CIVITAS Educational Network	University of Pardubice	Czechia	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Libor Bauer</b>	Researcher and member of the CIVITAS Educational Network	University of Pardubice	Czechia	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Maria Frangou</b>	Research Associate and member of the CIVITAS Educational Network	Technical University of Crete	Greece	13 September 2023	Ekaterina Uzunova and Uli Lerche

<b>Martijn Kiers</b>	Senior Lecturer and Senior researcher, member of the CIVITAS Educational Network	FH JOANNEUM GmbH University of Applied Sciences, Institute of Energy, Transport and Environmental Management	Austria	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Nikola Biškup</b>	Assistant Professor, member of the Academic Board of CIVINET Slovenia - Croatia - South-East Europe and member of the CIVITAS Educational Network	University North	Croatia	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Philip Vaughter</b>	Researcher and member of the CIVITAS Educational Network	HAMK Häme University of Applied Sciences	Finland	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Tariq van Rooijen</b>	Researcher and member of the CIVITAS Educational Network	Breda University of Applied Sciences	The Netherlands	13 September 2023	Ekaterina Uzunova and Uli Lerche
<b>Theocharis Tsoutsos</b>	Professor Sustainable Energy & Mobility and member of the CIVITAS Educational Network	Technical University of Crete	Greece	13 September 2023	Ekaterina Uzunova and Uli Lerche

<b>Ville Turunen</b>	Lecturer and member of the CIVITAS Educational Network	HAMK Häme University of Applied Sciences	Finland	13 September 2023	Ekaterina Uzunova and Uli Lerche
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### Consultation sessions with urban mobility stakeholders

<b>Anna Selge</b>	Location Manager	PLANUM Fallst & Partner GmbH	Austria	14 September 2023	Uli Lerche
<b>Clàudia Buxadé</b>	Project Manager	CARNET – Future Mobility Research Hub	Spain	18 July 2023	Albert Solé Frexas
<b>Cristina Juarez Batlle</b>	Chief Innovation Officer	CARNET – Future Mobility Research Hub	Spain	18 July 2023	Albert Solé Frexas
<b>Ingrid Frijlink</b>	International Programme Manager	INGULAR	The Netherlands	14 September 2023	Uli Lerche
<b>Luigi Acquaviva</b>	Environmental Services Professional and SECAP Coordinator	Municipality of Castellammare di Stabia	Italy	14 September 2023	Uli Lerche
<b>María Berenice Martínez Munive</b>	Urban Planner	IDOM	Mexico	12 September 2023	Uli Lerche

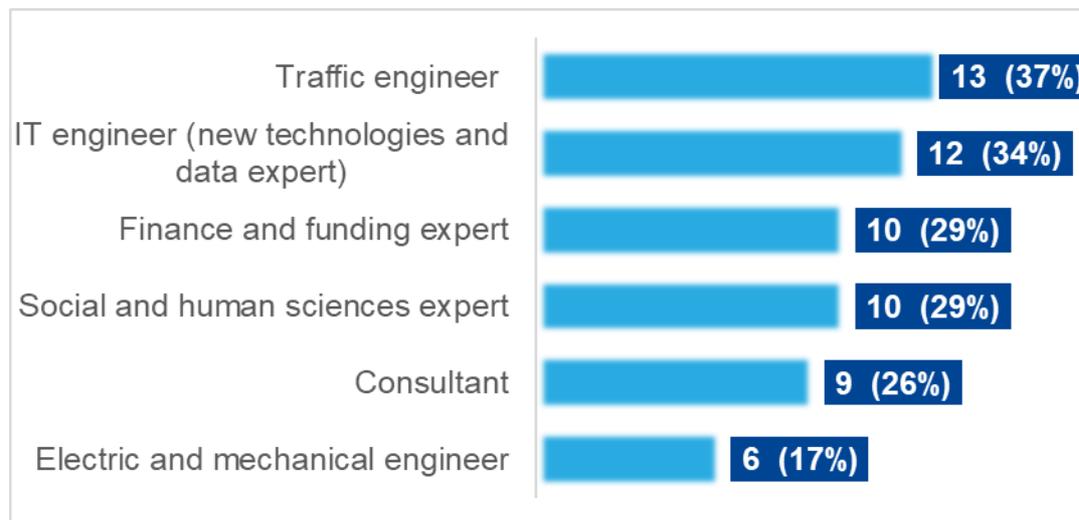
<b>Rada Betovska</b>	Project Coordinator	Cleantech Bulgaria	Bulgaria	14 September 2023	Uli Lerche
<b>Welmoed Neijmeijer</b>	Mobility Policy Expert	Freelancer	Belgium	12 September 2023	Uli Lerche
<b>Wolfgang Backhaus</b>	Managing Director	Rupprecht Consult GmbH	Germany	14 September 2023	Uli Lerche

Furthermore, CIVINET Deutscher Sprachraum (DSR) was consulted in September 2023. It was concluded that due to the current situation of their network (dormant, without a National Network Manager), CIVINET DSR was unable to provide insights regarding the priorities and needs of their members. CIVINET Finland was also approached but declined an interview, as it was no longer an active CIVINET at the time of this research.

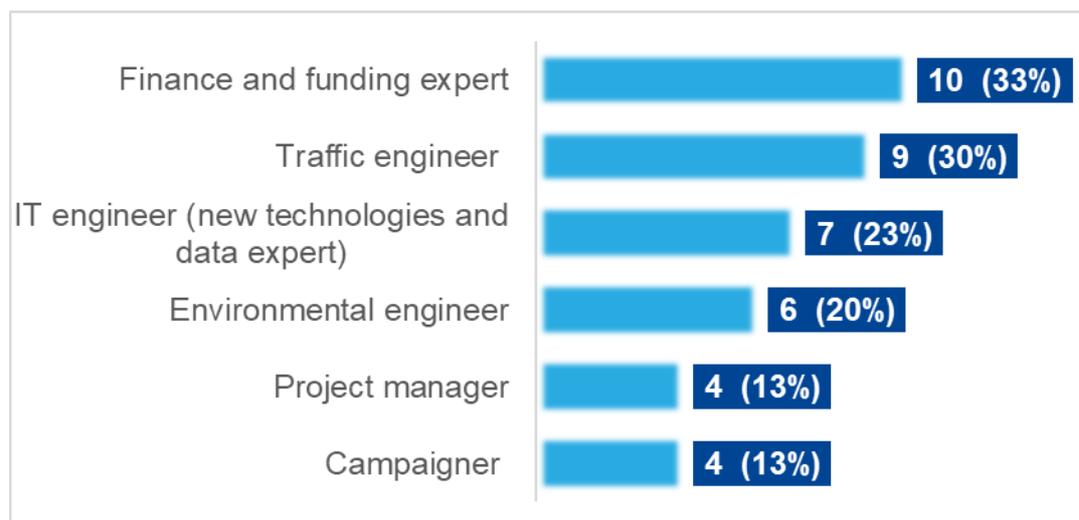
## Selected background data of the European Urban Mobility Labour Market Survey

**Do you miss any urban mobility expert in your department/organisation when implementing the tasks that fall under your department's/organisation's responsibility?**

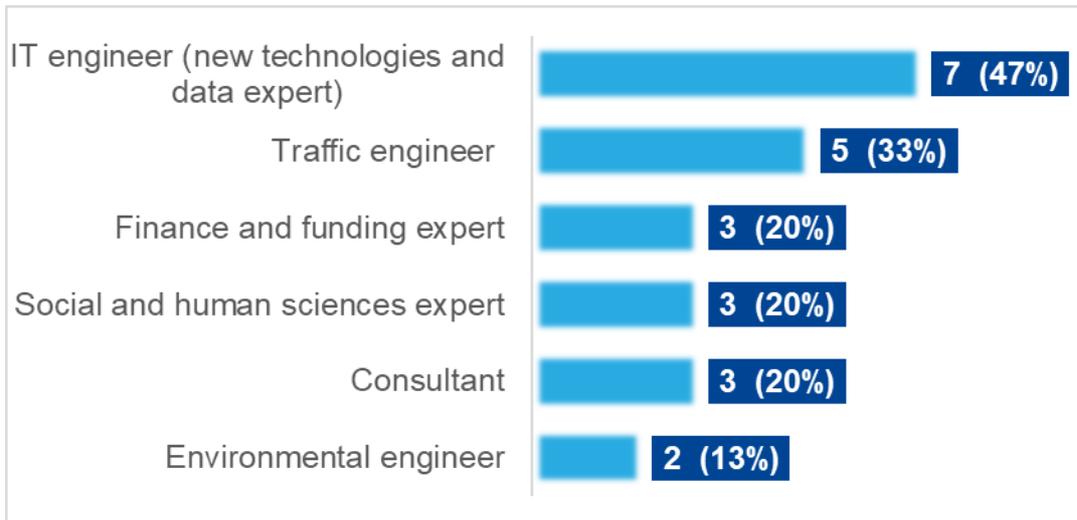
### Public Authorities



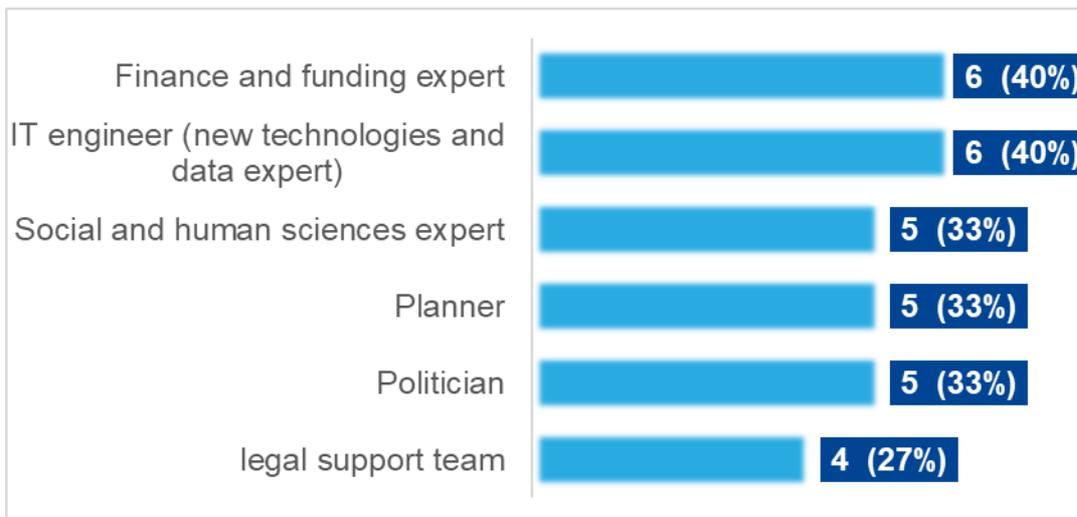
### Industry



Academia



Civil Society

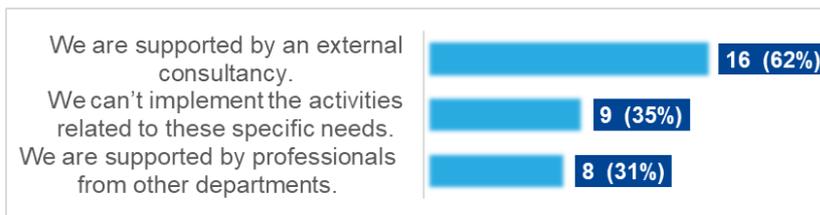


## In case you are missing a specific professional profile, how are you currently solving these needs?

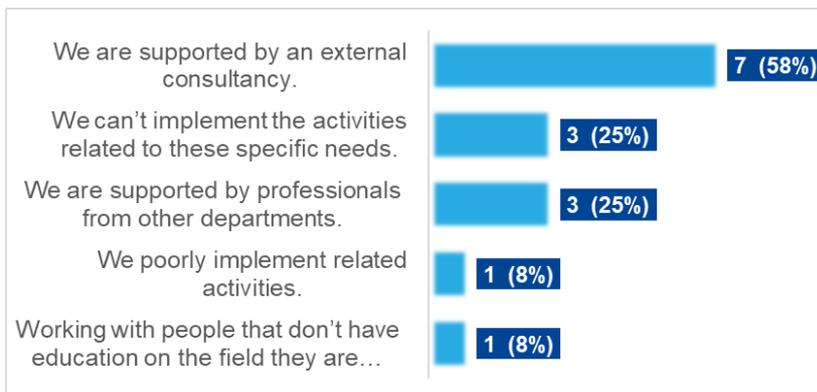
### Public authorities:



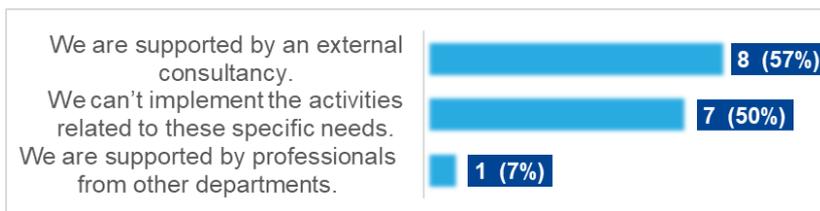
### Industry:



### Academia:

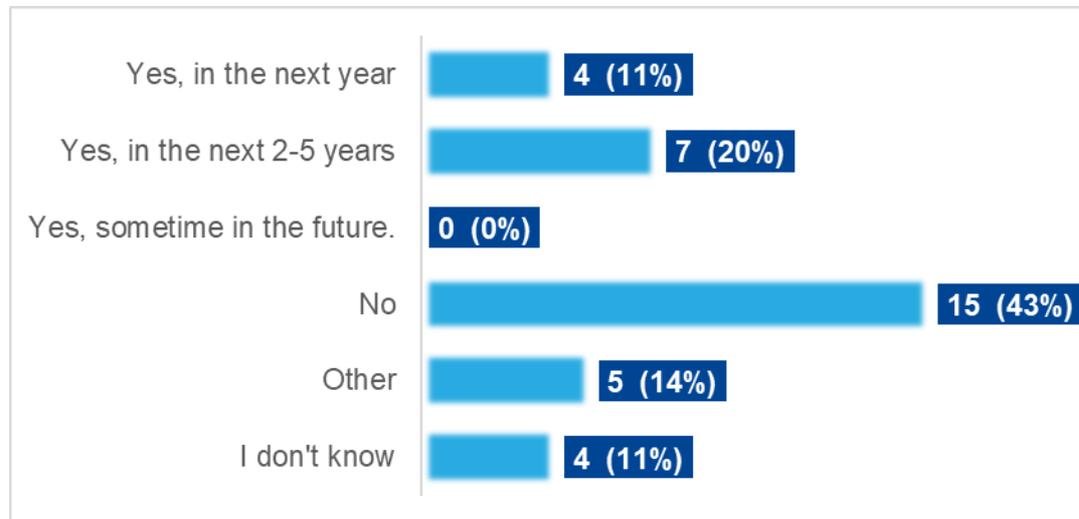


### Civil society:

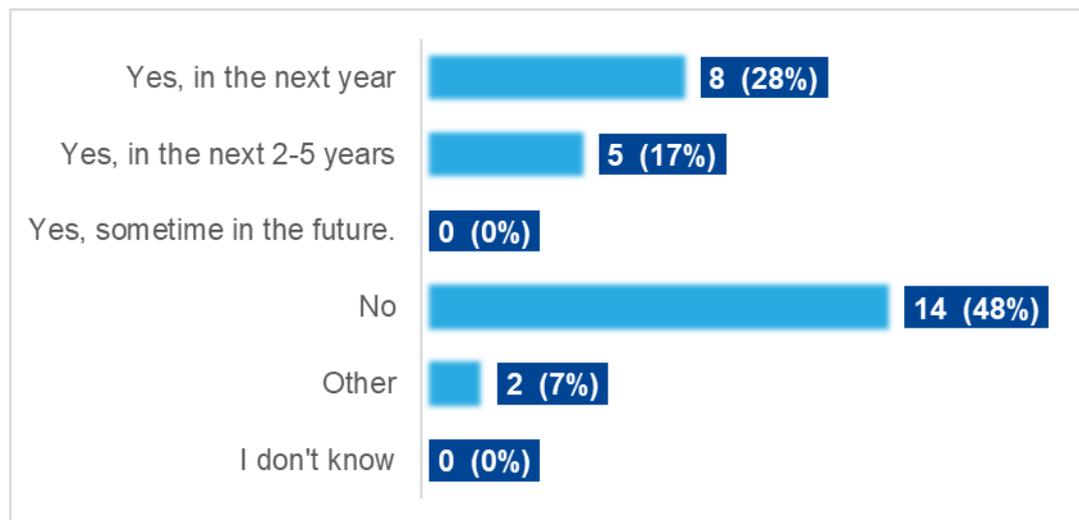


## Do you plan to hire or train an urban mobility expert that can cover these needs?

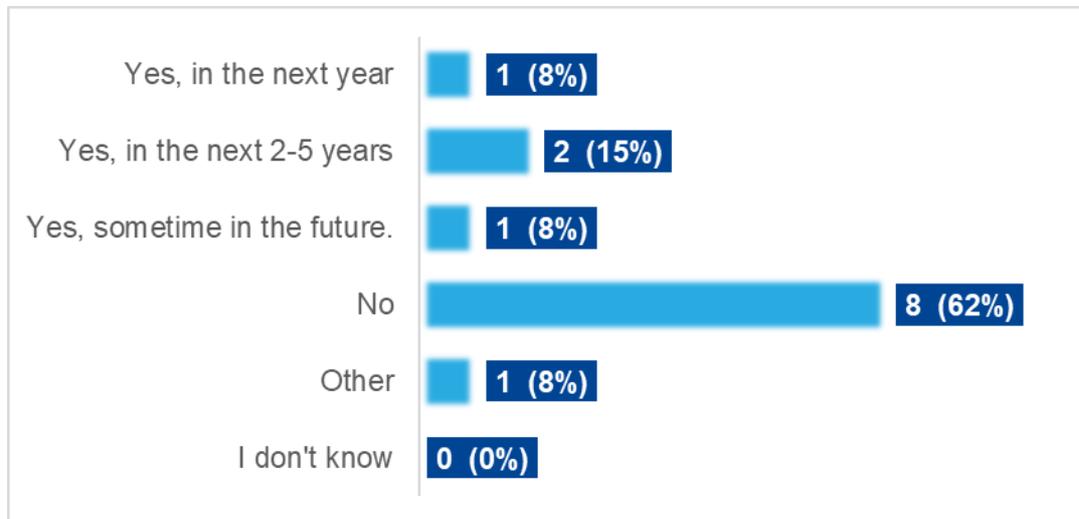
### Public authorities



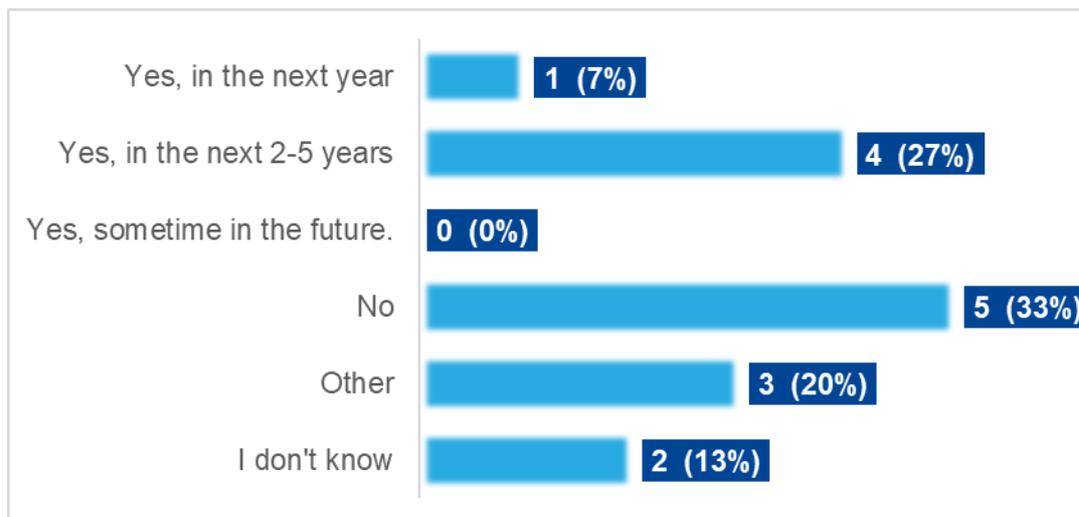
### Industry



## Academia

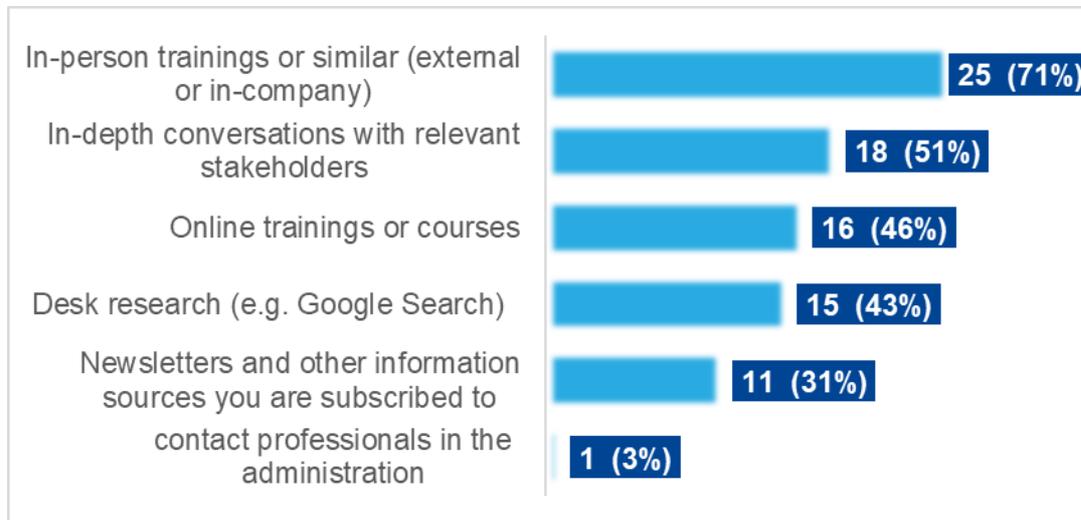


## Civil society

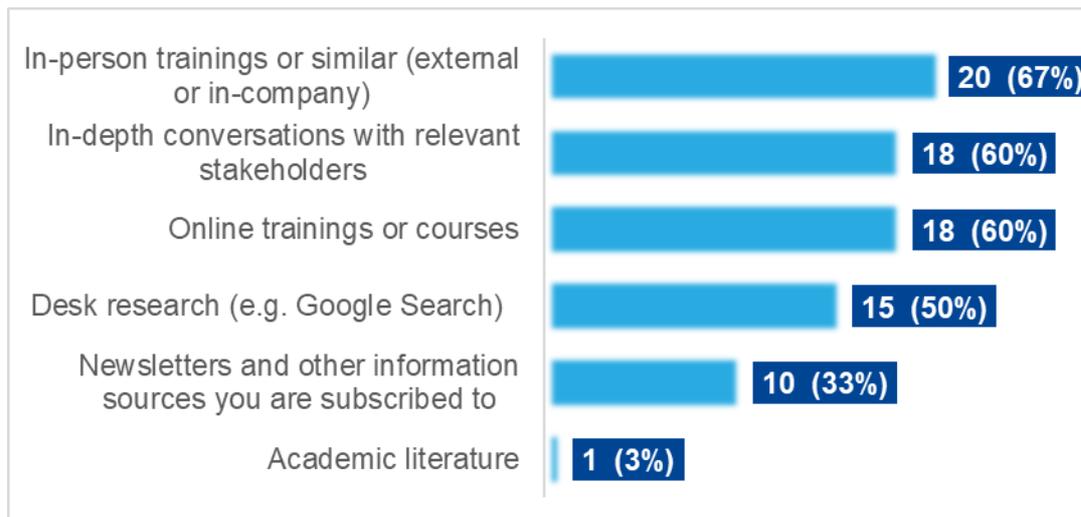


## What is your preferred way of getting more/other knowledge and skills?

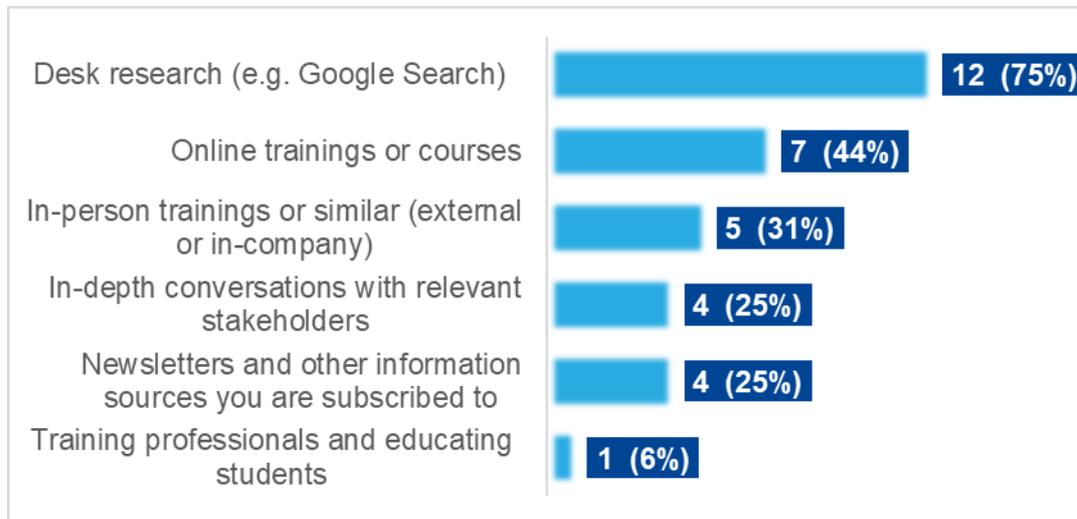
### Public authorities



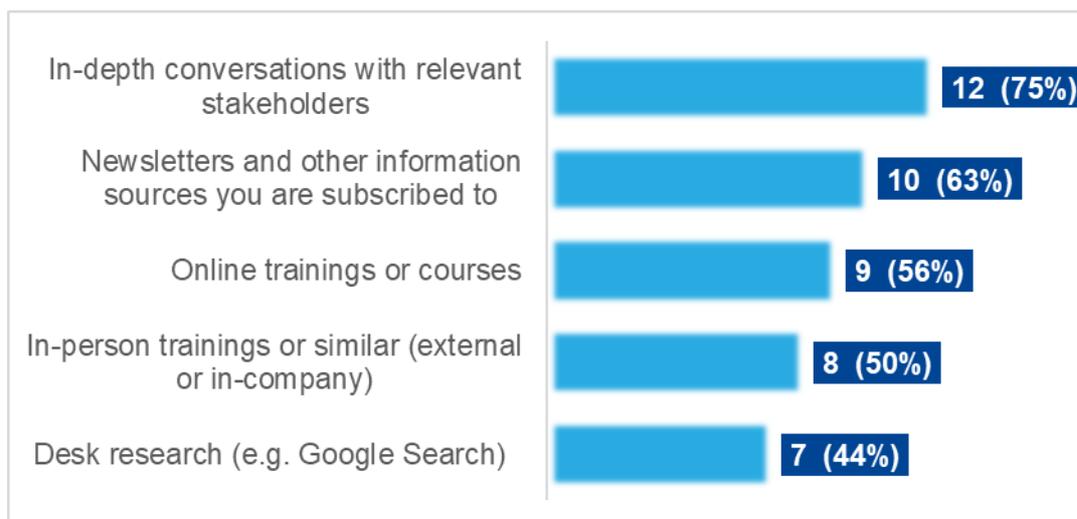
### Industry



## Academia



## Civil society



## Which topics are you most interested in to acquire new skills?

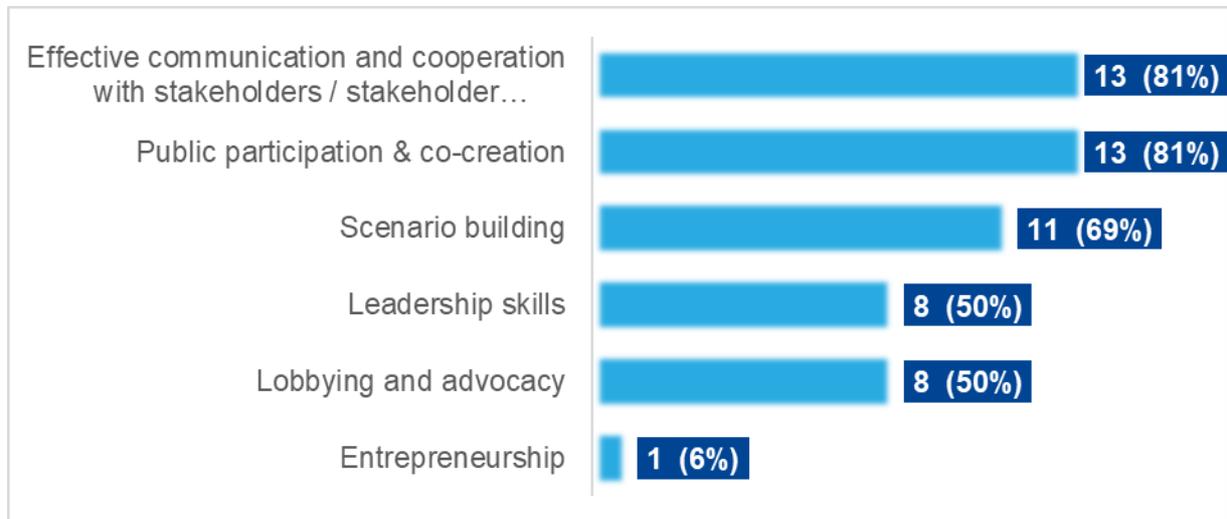
### Public authorities



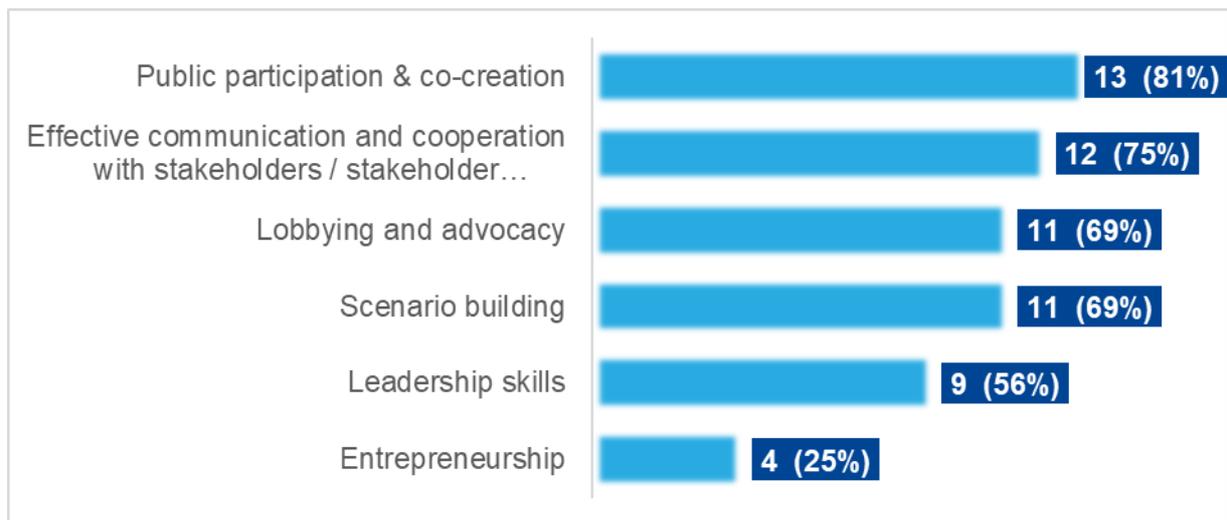
### Industry



## Academia

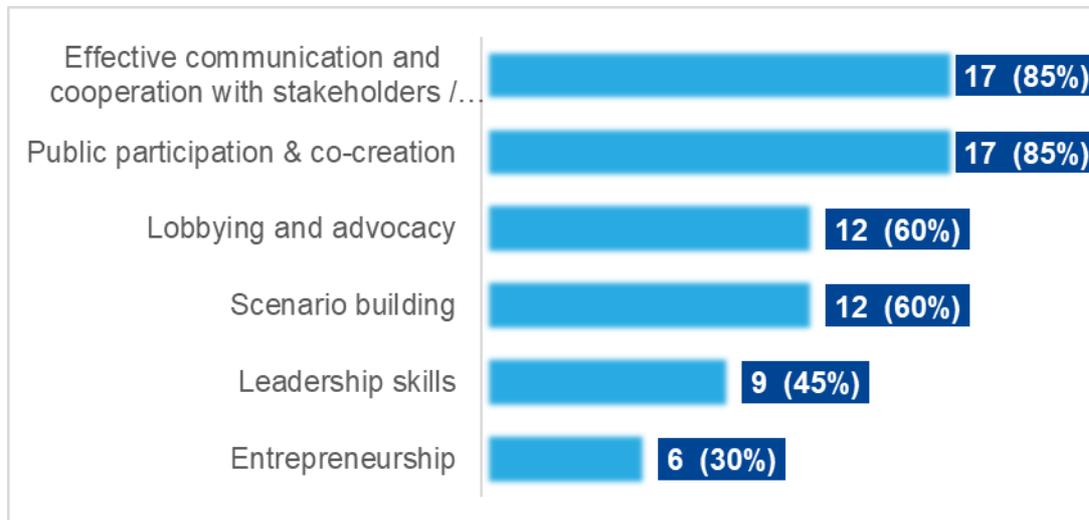


## Civil society

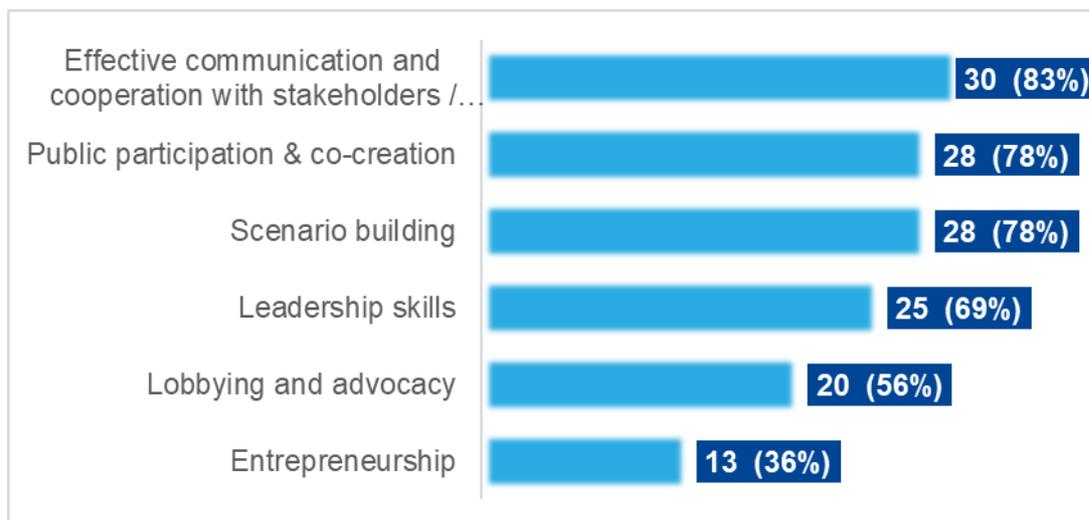


## Which topics are you most interested in to acquire new skills?

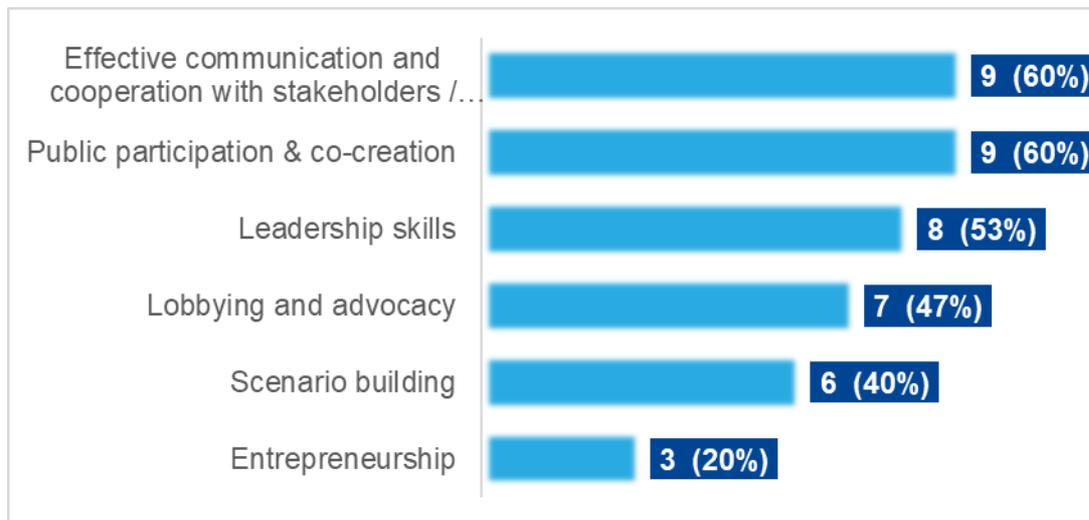
< 100,000 inhabitants



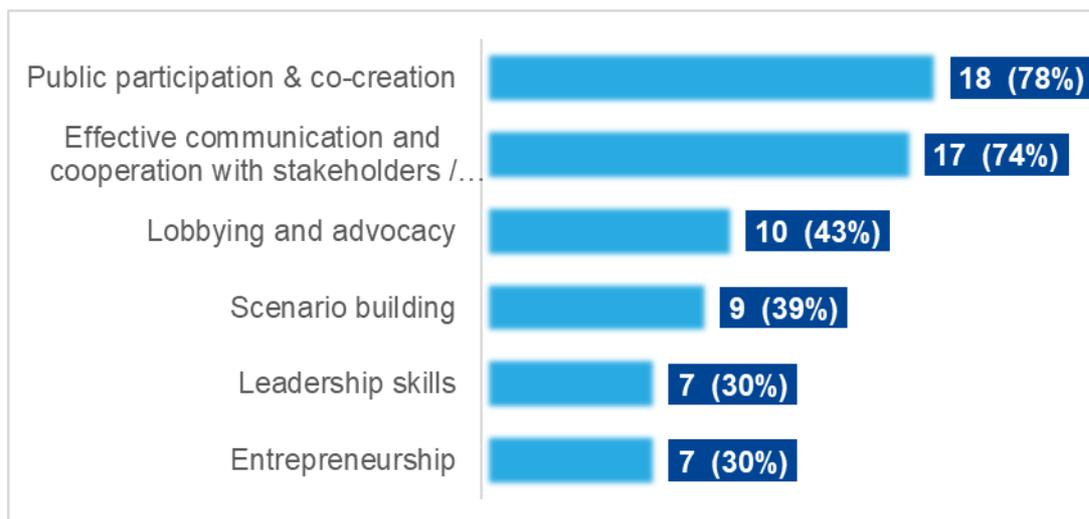
≥ 100,000 - 500,000 inhabitants



## ≥ 500,000 – 1,000,000 inhabitants

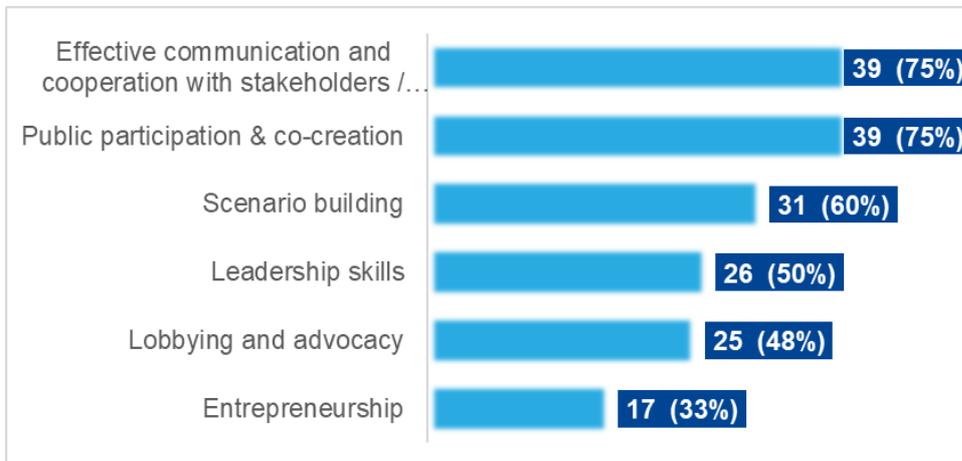


## ≥ 1,000,000 inhabitants

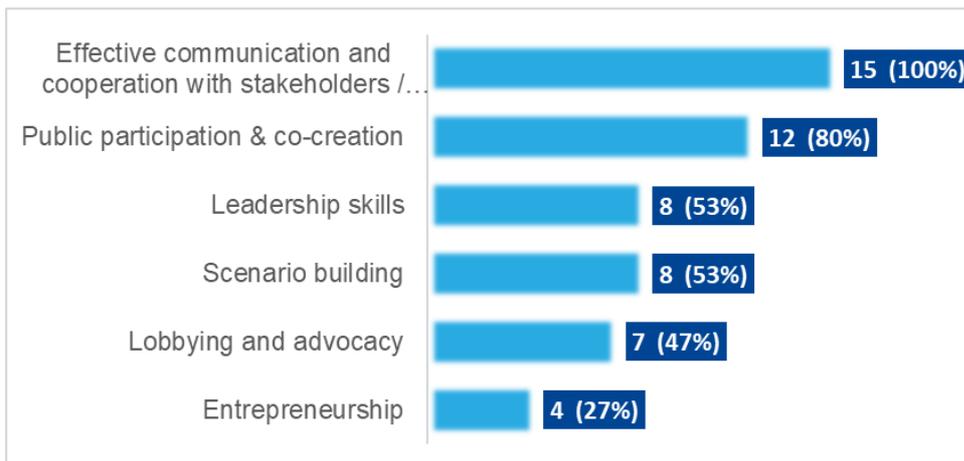


## Which topics are you most interested in to acquire new skills?

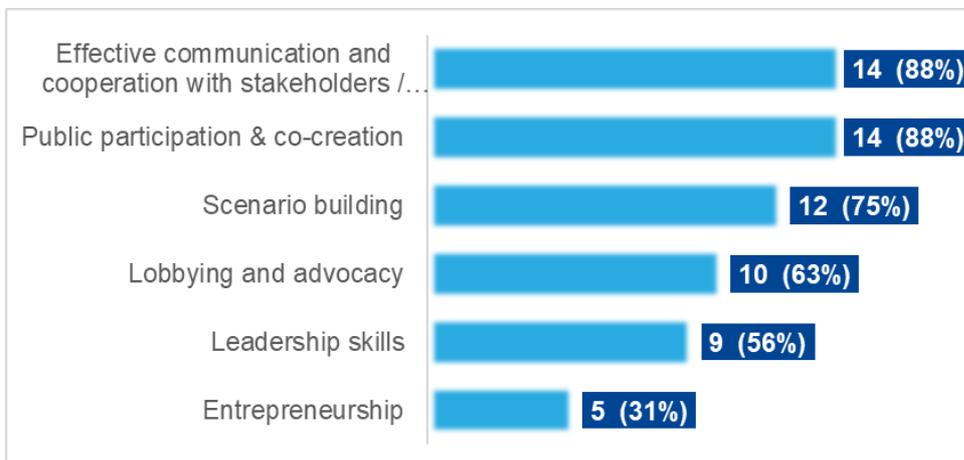
### Cities with SUMP in place



### Cities with SUMP in development

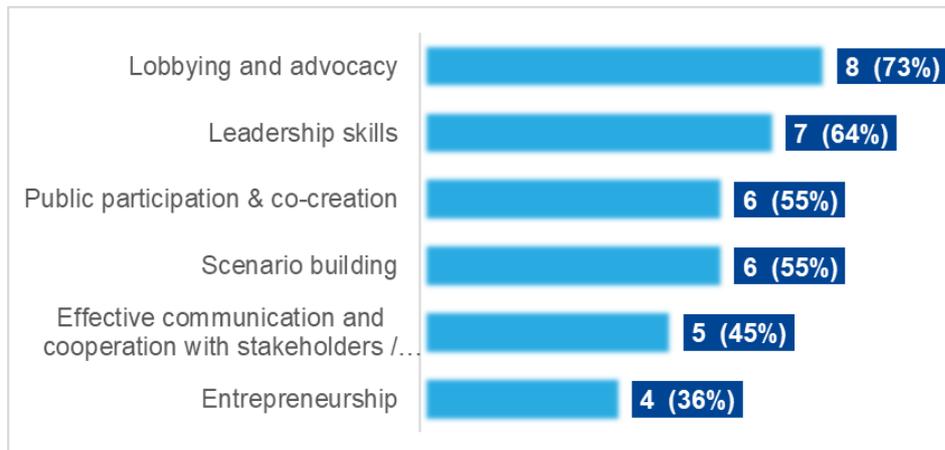


### Cities without SUMP in place

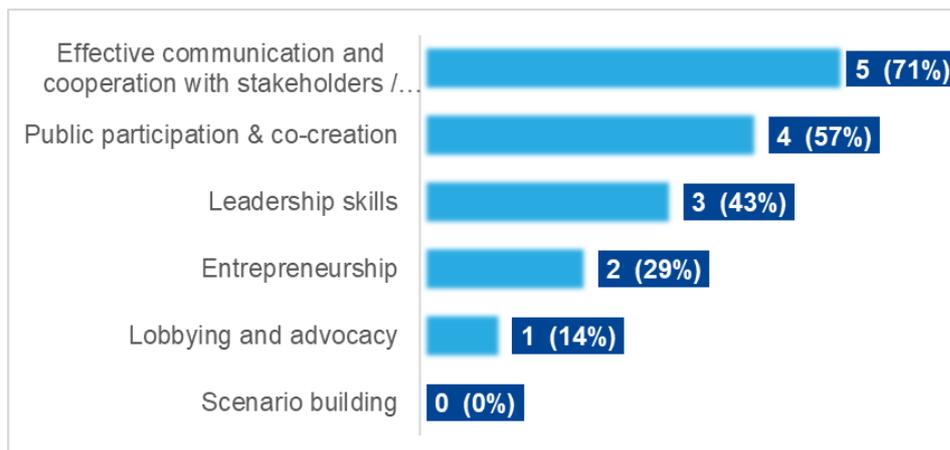


## Which topics are you most interested in to acquire new skills?

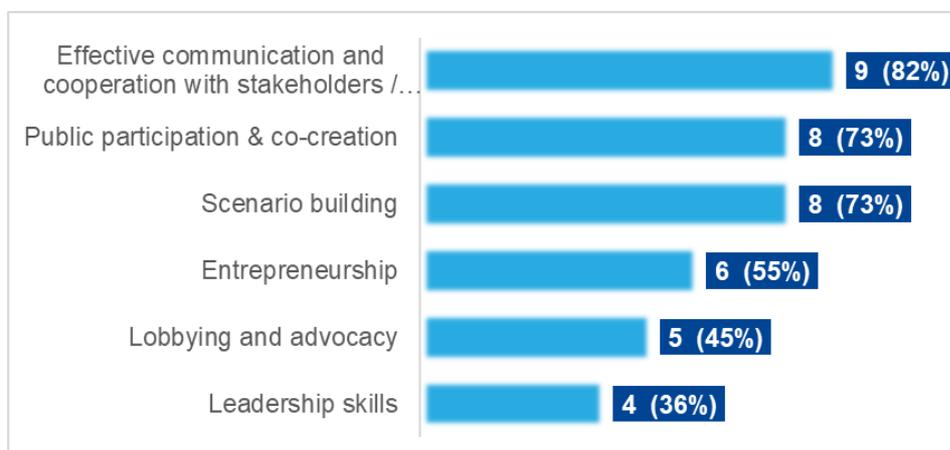
### The Netherlands



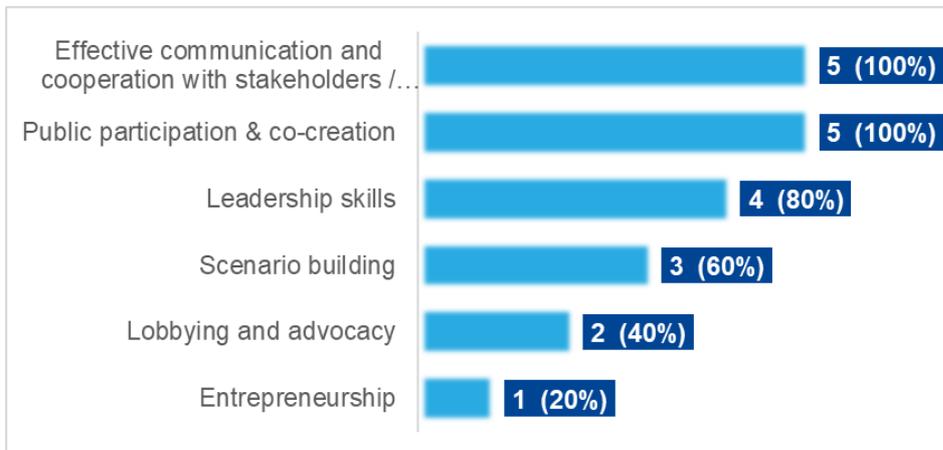
### Spain



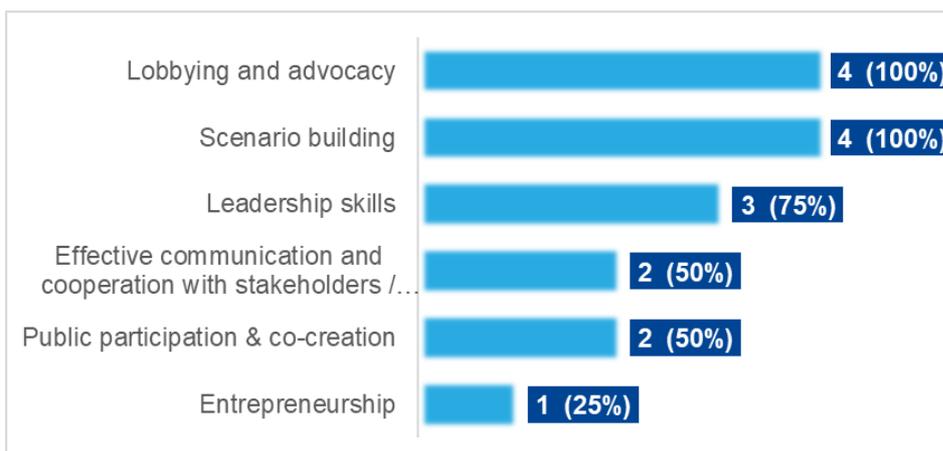
### Romania



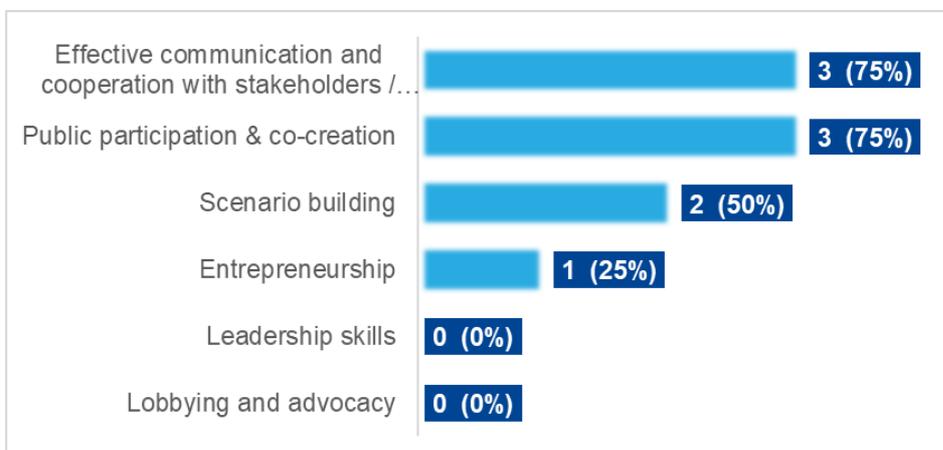
## Portugal



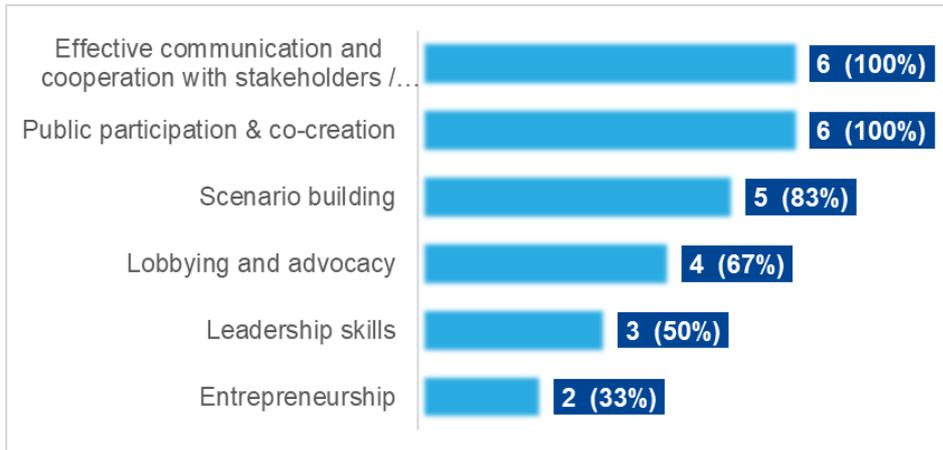
## Poland



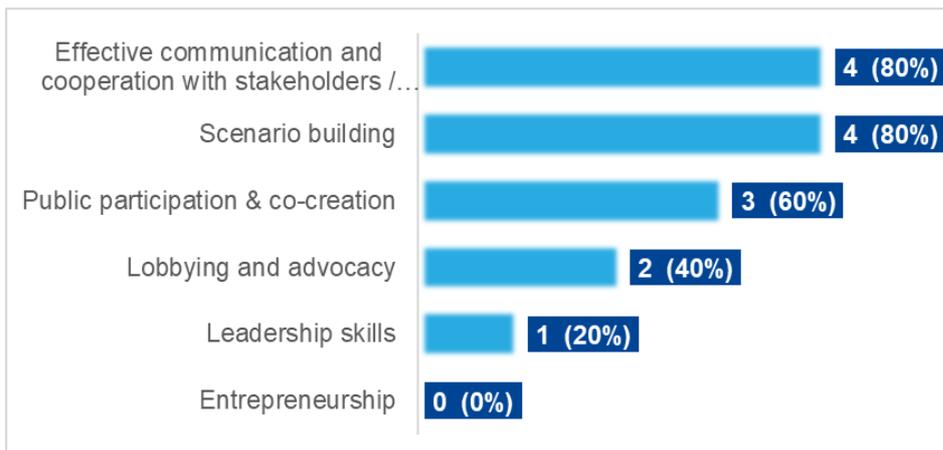
## Norway



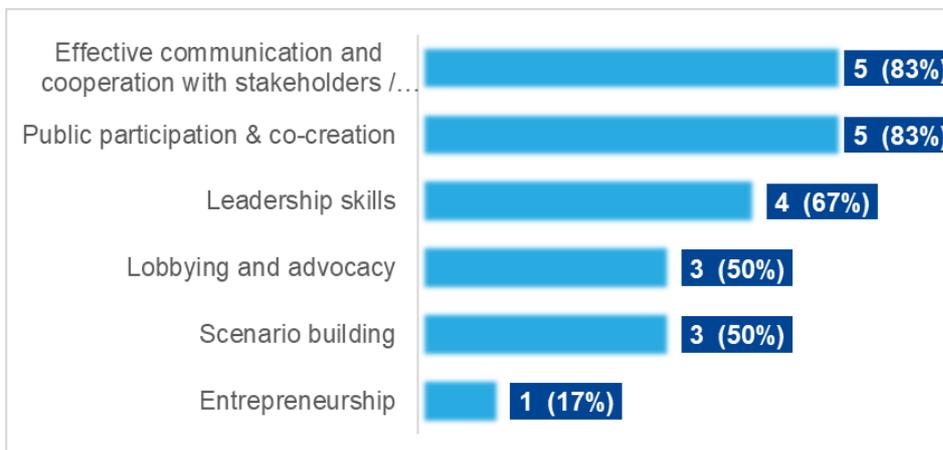
Italy



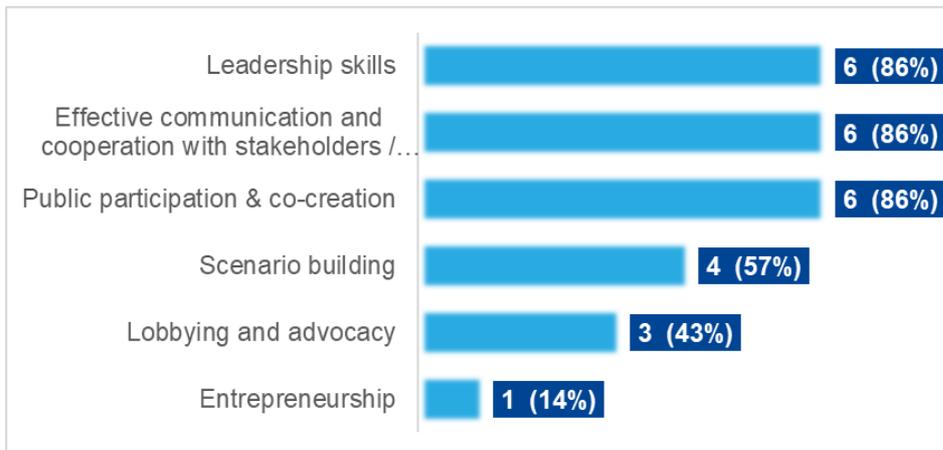
Greece



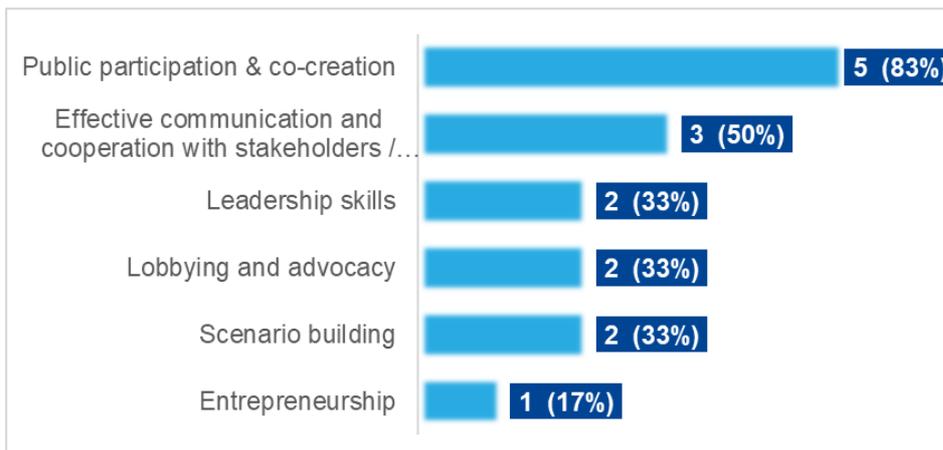
Germany



## Czech Republic



## Belgium



## Analysed countries

Country	Belgium	Czech Republic	Germany	Greece	Italy	Norway	Poland	Portugal	Romania	Spain	The Netherlands
Topic											
Behavioural change	50%	71%	67%	80%	67%	50%		80%	64%		73%
Active mobility modes	83%	71%				75%	75%	80%	64%		45%
Digitalisation, data, ICT, Mobility as a Service, digital twins	67%		50%			75%	75%		45%	57%	55%
Demand & urban space management	50%	57%	50%	60%	67%		75%	60%			55%
Road safety & security				80%							
Sustainable Urban Mobility Plans (SUMP)				80%				60%	64%		55%
Mobility policy	50%		50%				50%			29%	36%
Multimodality and mobility hubs	67%				67%			40%			
Artificial Intelligence in mobility				60%		50%			45%	100%	
Innovation							50%		36%	43%	
Transport & traffic modelling					83%					43%	
Urban logistics			67%		83%	75%	75%			29%	
Integrated & inclusive planning				80%				80%			
Clean & energy-efficient vehicles and electrification of mobility					67%						
Financing and funding			50%								
Micromobility		71%									
Shared mobility		71%									
Parking management		71%									