Global Facts Study:

Capacity Development as an Accelerator for Sustainable Transport

tumi Transport for Cairo مواصلات للقاهرة

CapDev and Transport Decarbonisation

- **Context**: Developed countries to support and improve capacities of developing countries to implement climate mitigation and adaptation (Paris Agreement, Article 11).
- **Research gap**: The impact of the capacity gap in the transport sector on the probability of r**eaching climate and sustainable development targets.**
- **Hypothesis:** Investing in capacities within transport institutions will have a positive impact on, i.e. increase the probability of, achieving transport decarbonisation goals.

Transport decarbonisation pathways (*TUMI Outlook 1.5° C)*

1. Phasing out of internal combustion engines by 2030.
2. Elevating walking and cycling.
3. Doubling the capacity of public transport by 2030.
4. Electrification of at least 70% of rail networks.
5. Prioritizing electricity as the primary fuel for transport.

Interrelated and mutually reinforcing levels of capacity building

Individual Level

Number of staff
Education of staff
Existing educ. prog.
Sustainability in educ. prog.

Institutional level

Governance
Planning
Technical

Societal level

Cooperation & partnership
Enabling environment
(legal, political, socioecon.)

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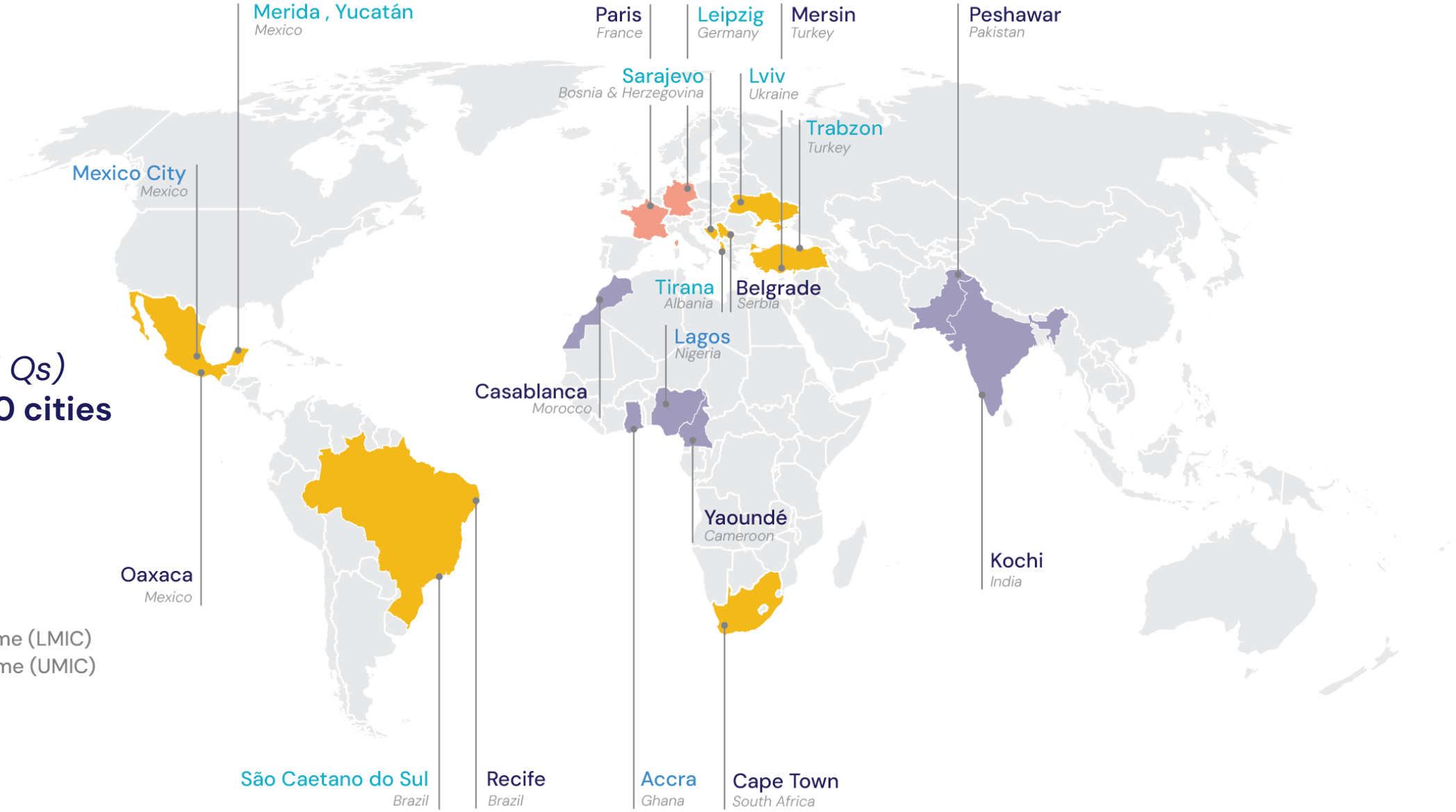
Global partners for a global study

Questionnaire
(open & closed Qs)
16 countries, 20 cities
(21 responses)



- Lower-Middle-Income (LMIC)
- Upper-Middle-Income (UMIC)
- High-Income (HIC)

< 1 mn. pop.
1-5 mn. pop.
>5 mn. population

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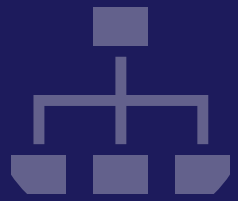
The capacity levels

The individual level

Individual level



Institutional level

Societal level

Developing human resources

- Number of staff
- Staff education
- Existing educational programmes
- Sustainability in educational programmes

Promoting institutional learning and change management

- Governance
- Planning
- Technical

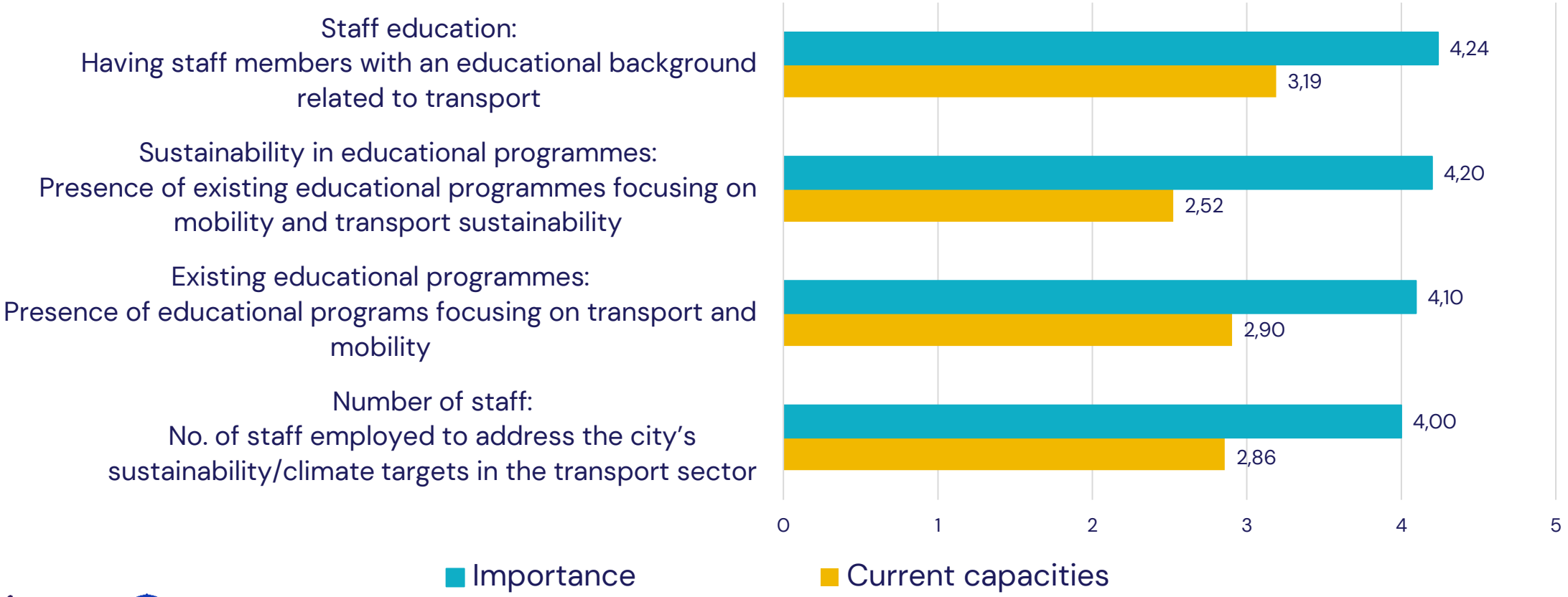
Developing cooperation networks and conducive legal, political and socioeconomic frameworks

- Cooperation & partnerships
- Enabling frameworks that shape the performance of sustainable transport

Individual level capacities

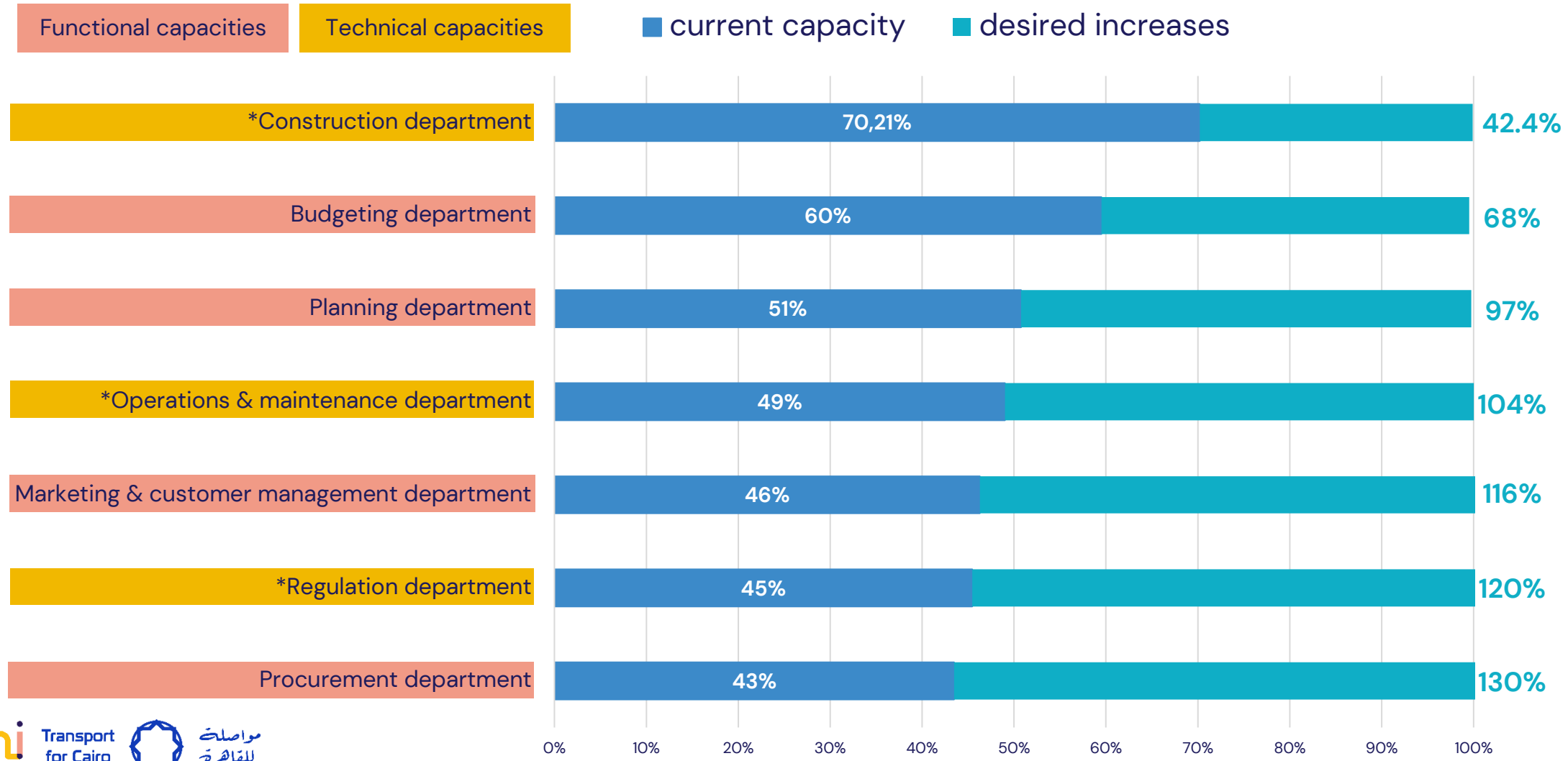
To decarbonise transport, **the educational background and skills of staff** to perform functions are perceived to be **more important than** the **number of staff** performing these functions.

Average ratings of perceived importance and current existing individual level capacities in order to decarbonise transport



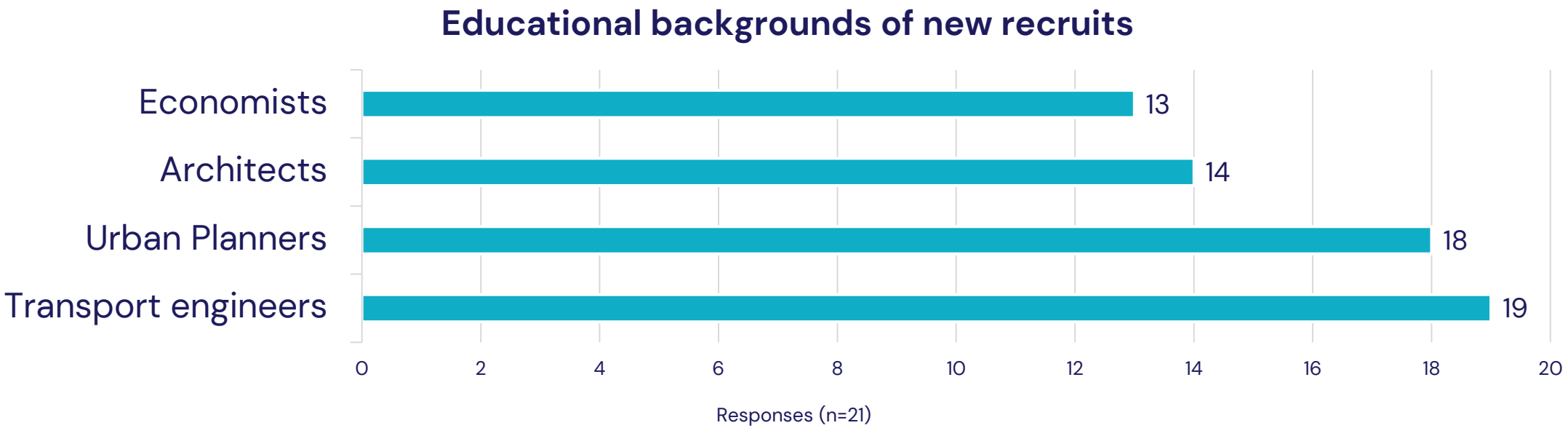
Staff gaps across all cities and departments

A significant workforce shortage is visible, with transport institutions reporting the need for more than double their current number of staff across different departments.



Hiring in transport institutions

Transport engineering and urban planning are the two educational backgrounds **most recruited by transport institutions.**

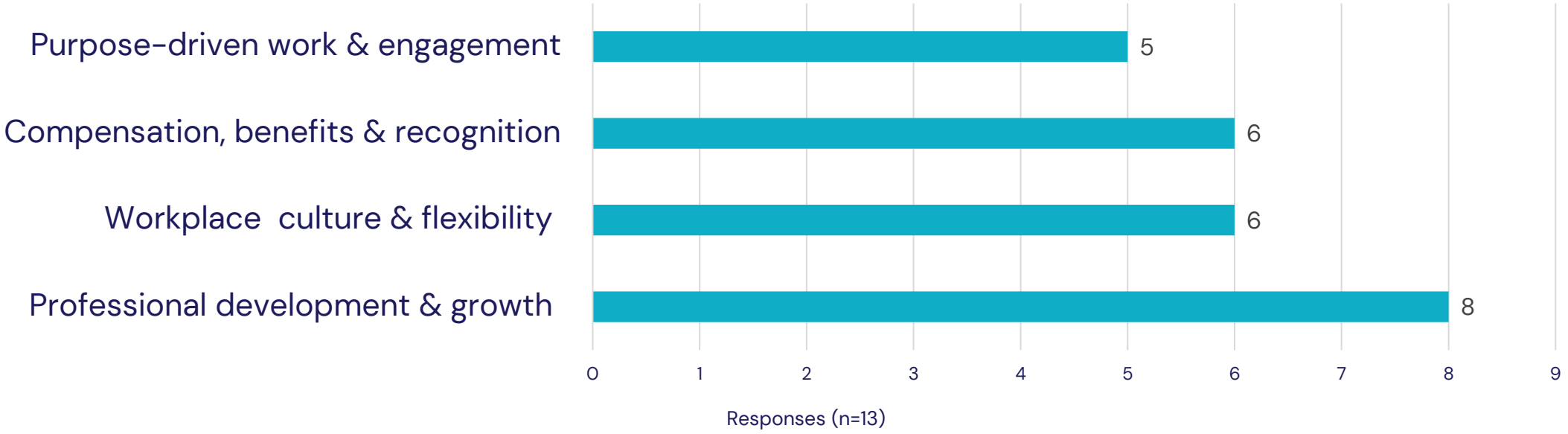


This finding is particularly significant, as the greatest staffing shortages in transport institutions are in procurement, regulation, and marketing and customer management departments. **Therefore, the results highlight the need to prioritize hiring business, legal, and marketing professionals rather than focusing solely on transport engineers and urban planners.**

Strategies to attract new staff

Facilitating **capacity building opportunities**, enabling **growth in employees' career paths**, different **compensation and benefits packages,** and the **institutions transformative projects** act as both **attraction and retention strategies** for skilled staff.

Types of strategies to attract skilled staff in the transport institutions

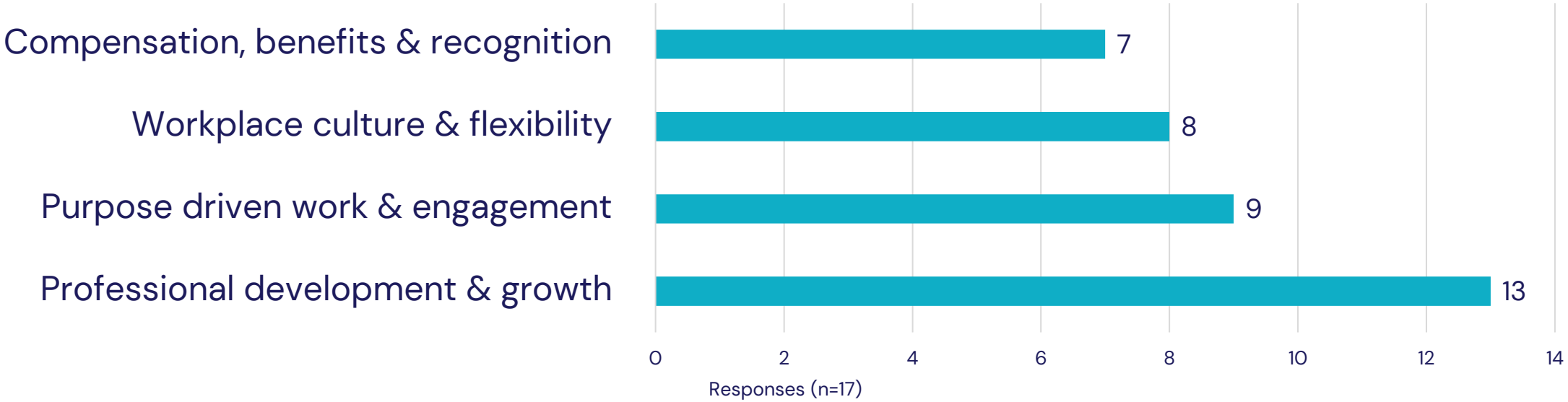


Strategies to retain new staff

The **absence of retention strategies** can result in a high turnover of **skilled staff**, which can impact the performance of transport departments.

Being part of an institution that **encourages learning and growth and works on purpose-driven projects** has a **strong impact on retaining skilled staff**.

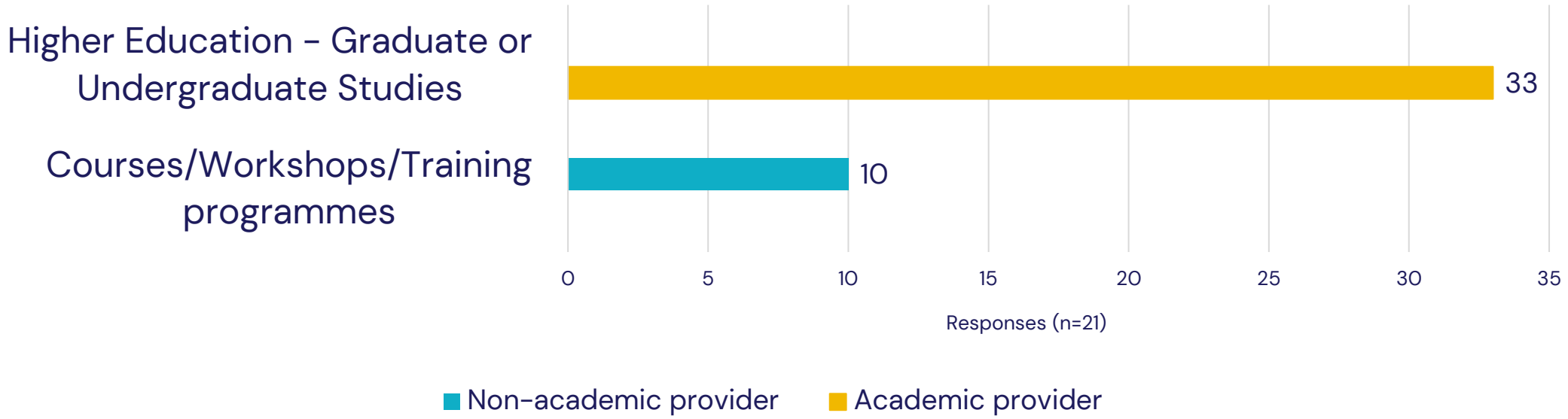
Types of strategies to retain skilled staff in the transport institutions



Educational background of staff

Despite the solid foundation educational programmes offer in transport engineering, architecture and urban planning, **there is a strong gap in offering specialised programmes related to sustainable mobility** in higher education programmes.

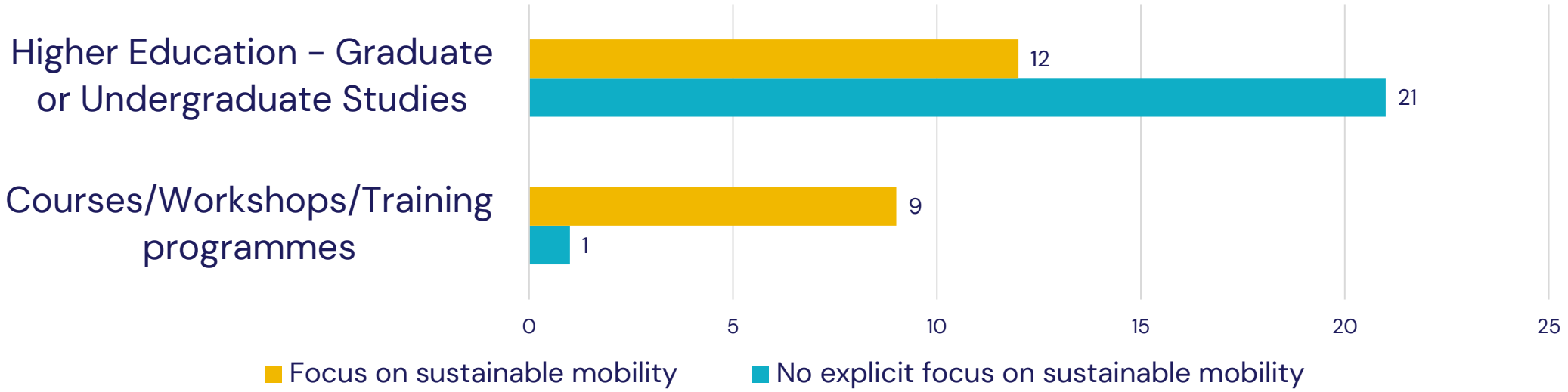
Share of different types of programmes provided in cities



Types of educational programmes

While university degrees offer a foundational understanding of transport, it is mainly training **and research centres** who provide **more specialised educational programmes** related to transport decarbonisation.

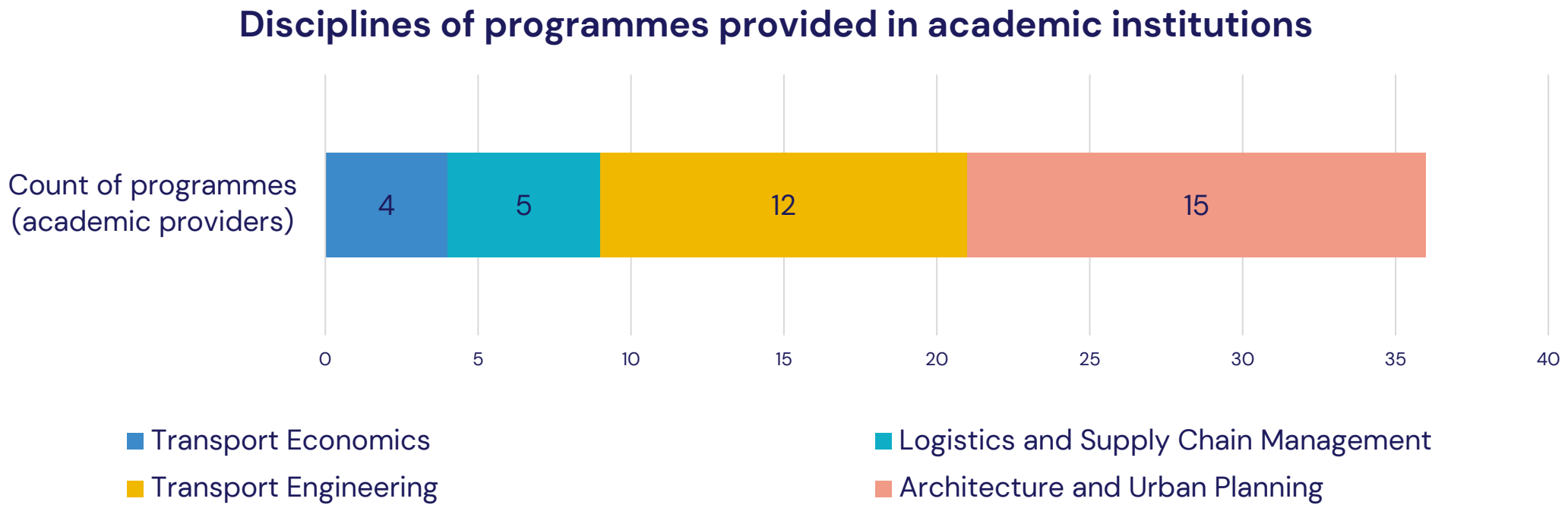
The focus on sustainable mobility in academic and non-academic programmes



Most higher education programmes provided in the responses don't offer explicit focuses on sustainable mobility practices. While short courses, trainings or workshops provided by non-academic institutions offer specialised materials which focus on sustainable mobility practices.

Thematic discipline of programmes

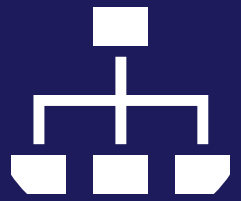
The academic programmes mentioned by transport institutions confirm that **transport engineering and urban planning** are the two **main disciplines providing transport and mobility related material** in the participating cities.



The capacity levels

The institutional level

Individual level



Institutional level

Societal level

Developing human resources

- Number of staff
- Staff education
- Existing educational programmes
- Sustainability in educational programmes

Promoting institutional learning and change management

- Governance
- Planning
- Technical

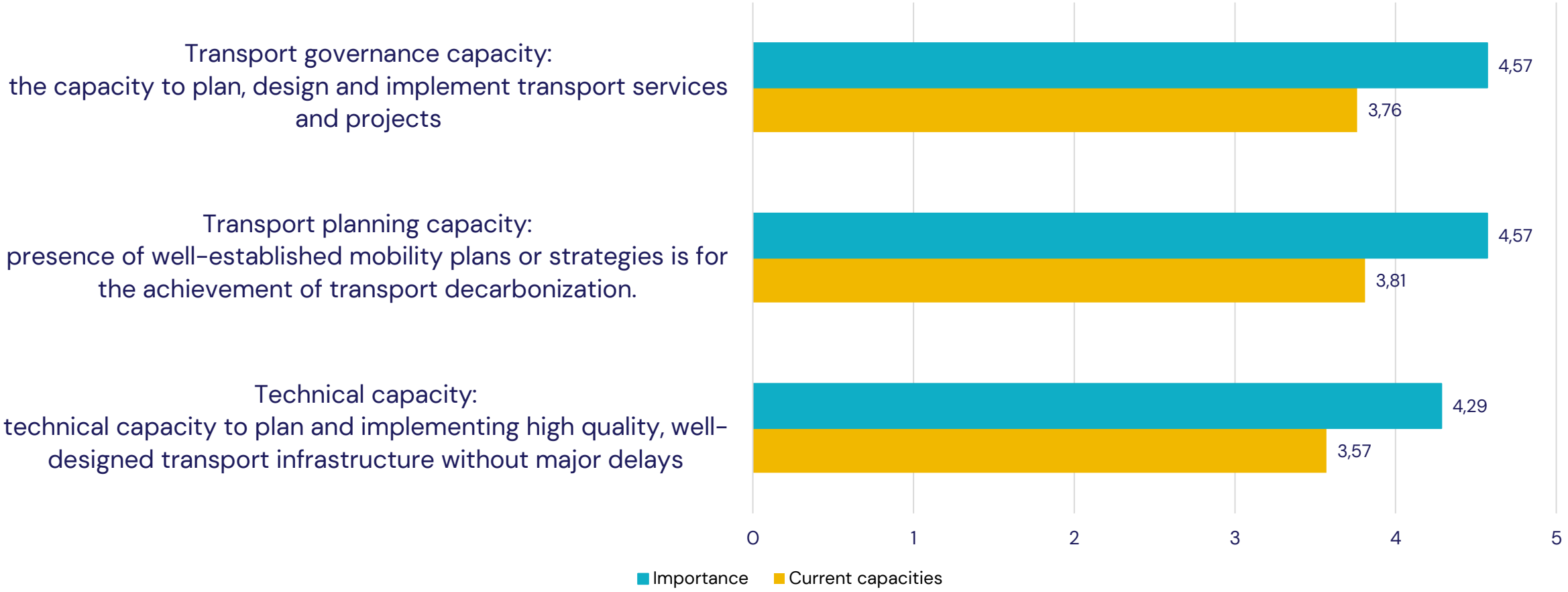
Developing cooperation networks and conducive legal, political and socioeconomic frameworks

- Cooperation & partnerships
- Enabling frameworks that shape the performance of sustainable transport

Institutional level capacities

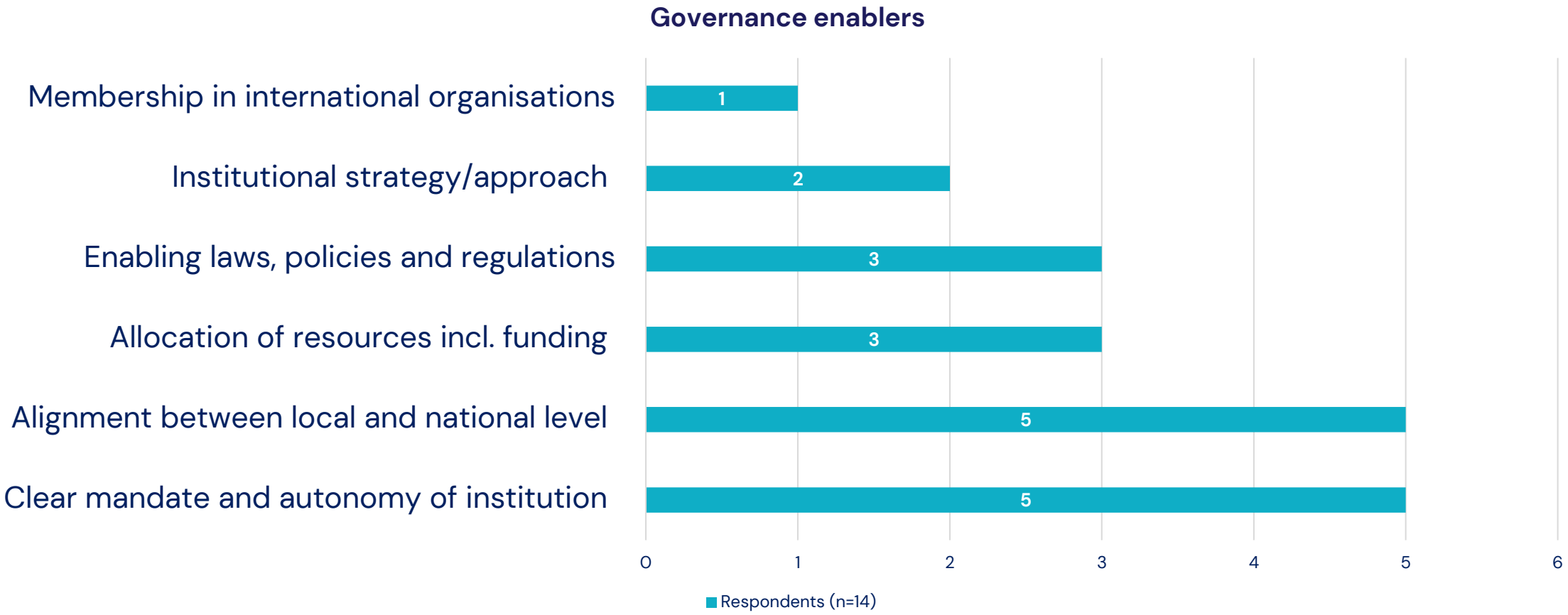
Capacity gaps are observed for all institutional capacities, where the biggest gap is seen in the **transport governance capacity** of transport institutions.

Average ratings of importance and current existing institutional level capacities to decarbonise transport



Enablers of governance capacity (Institutional level)

A clear mandate, autonomy, alignment and coordination between national/ local agencies are cities' main enablers.



Barriers of governance capacity (Institutional level)

Funding challenges and fragmented roles and responsibilities across agencies and departments represent transport institutions' main governance barriers.

Enablers and barriers of governance capacity

A clear mandate, autonomy, alignment and coordination between national/ local agencies are cities' main enablers. Funding challenges and fragmented roles and responsibilities across agencies and departments represent transport institutions' main governance barriers.

Transport governance enablers	Referencing transport institutions	No./14
Clear mandate and autonomy of authority	Accra, Lagos, Lviv, Merida, Yucatán, Paris	6
Alignment between local and national level	Casablanca, Lagos. Mexico, Sarajevo, Trabzon	5
Allocation of resources incl. funding	Accra, São Caetano do Sul, Sarajevo	3
Enabling laws, policies and regulations	Cape Town, Lagos	2
Authority strategy/approach	Mersin, Tirana	2
Membership in international organisations	Accra	1
Transport governance barriers	**Referencing transport institutions**	**No./12**
Funding challenges	Accra, Lagos, Leipzig, Mersin, Sarajevo, Trabzon, Yucatán	7
Fragmented responsibilities across agencies	Lagos, Merida, Peshawar, Sarajevo, Trabzon	5
Lack of clear mandate and autonomy of authorities	Cape Town, Trabzon, Yucatán, Merida	4
Lack of institutional integration and coordination	Kochi, Merida, Sarajevo	3
Lack of supportive laws, regulations and policies	Cape Town, Lagos, Mersin	3
Lack of streamlined approval processes	Lviv, Sarajevo, Trabzon	3
Regulatory enforcement gap	Lagos, Trabzon	2
Lack of awareness of sustainability	Kochi, Sarajevo	2
Lack of alignment between local and national level	Accra	1

Planning capacity (Institutional level)

SUMPs are the main plans followed by cities to achieve transport decarbonisation goals

Word Cloud developed using: https://wordcloud.ahaslides.com/

- **SUMPS**: 9x
- **Mode-specific plans**: 4x
- **Climate Action Plans**: 3x
- **Resilience Strategies**: 2x

Focus areas of transport institutions

Focus areas	Transport institutions	No./13
Walking & Cycling	Belgrade, Cape Town, Lagos, Merida, Mersin, Mexico City, Paris, Recife, São Caetano do Sul, Sarajevo, Trabzon, Yucatán	11
E-mobility	Belgrade, Kochi, Mexico City, Merida, Paris, Tirana, Trabzon, Yucatán	7
Bus fleet and infrastructure	Accra, Cape Town, Merida, Recife, Tirana, Trabzon, Yucatán	6
BRT fleet and infrastructure	Accra, Cape Town, Casablanca, Lagos, Mexico City	5
Road infrastructure	Cape Town, Leipzig, Lviv, Merida, Yaoundé, Yucatán	5
(Smart) Traffic Management Systems	Accra, Belgrade, Merida, Yucatán, Trabzon	4
(Light) Rail fleet and network	Casablanca, Lagos, Mexico City	3
Automatic fare collection	Accra, Kochi, Lviv	3
Professionalisation of Informal Transport	Trabzon, Yaoundé	2
Capacity Development for staff	Accra, Yaoundé	2
Transport Master Plans	Lagos, Mersin	2
Establishment of transport organisation	Peshawar	1
Waterborne transport	Kochi	1
Public Transport Conference	Kochi	1
Parking management	Lviv	1
Free public transport	São Caetano do Sul	1
Children's transport safety	Mersin	1
Taxi sector regulation and reform	Tirana	1
Trolleybus fleet and network	Mexico City	1
AI-based transport planning	São Caetano do Sul	1
Cable Car fleet and network	Mexico City	1

Technical capacity (institutional level)

All examples of success stories included projects, which have been successfully delivered, within budget and without significant delays.

Success indicators	Transport institutions	No./13
Successful delivery of projects	All	13
Achieving project objectives	Lagos, Peshawar, Sarajevo, Trabzon	4
Undisrupted passenger services	Trabzon	1
National and international recognition (awards)	Peshawar	1

Some cities mentioned that projects were considered successful because they achieved their objectives, which included:

- the reduction of travel times;
- provision of reliable and affordable transport;
- passenger growth;
- reduced traffic congestion and emissions, etc.

Technical capacity (Institutional level)

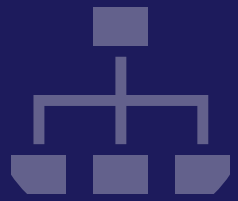
Stakeholder engagement, support from international cooperation actors and effective project management are the key functional capacities for successful project delivery.

Success factors	Transport institutions	No./
Adherence to project schedule	Lagos, Merida, Sarajevo, Trabzon, Yucatán	4
Stakeholder integration, coordination and cooperation	Lagos, Oaxaca, Sarajevo, Trabzon	4
Support from international cooperation actors	Oaxaca, Peshawar, Sarajevo	3
Strong, dedicated project management team	Peshawar, Trabzon	2
Funding via PPP to help accelerate project implementation	Lagos	1
Focusing on transport integration, sustainable modes, accessibility and safety	Lagos	1
Plan is realistic, actionable, and aligned with broader urban development goals.	Lagos	1

The capacity levels

The societal level

Individual level



Institutional level

Societal level

Developing human resources

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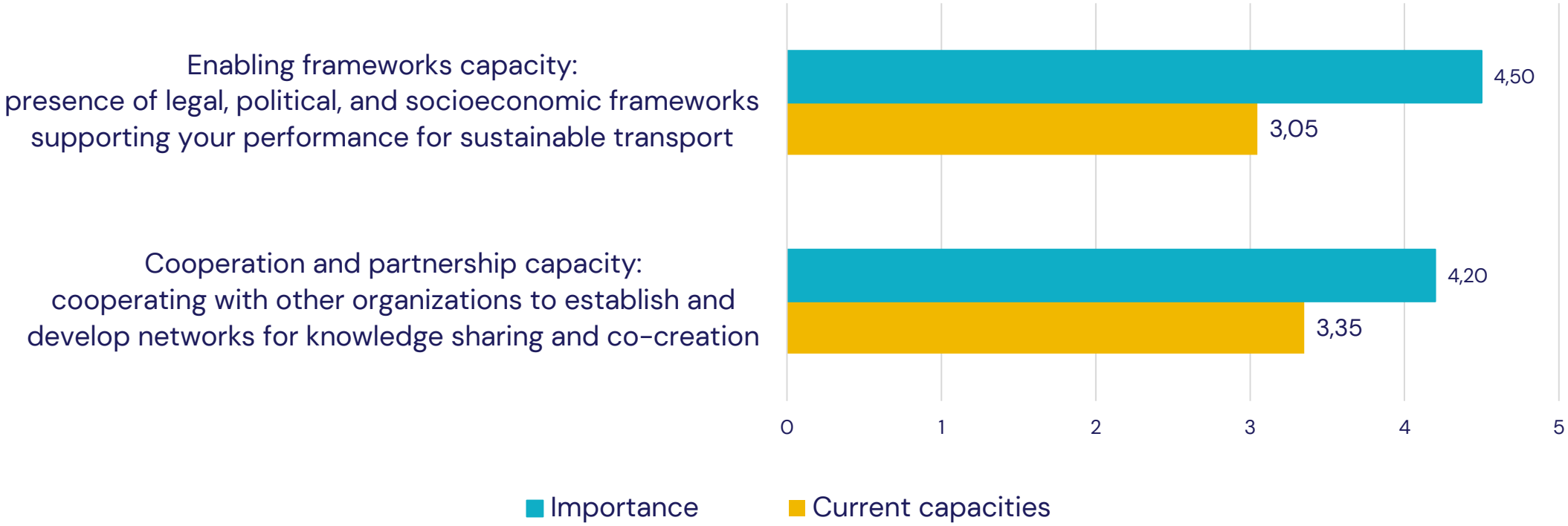
Societal level capacities

Significant capacity gaps can be seen on the societal level **where both the enabling frameworks and the cooperation and partnerships capacity of transport institutions** are only **moderately high** compared to their high importance with regards to transport decarbonisation.

Average ratings of importance and current existing societal level capacities to decarbonise transport



Societal level capacities

Legal factors supporting or hindering the performance for sustainable transport.

Enabling legal frameworks	Transport institutions	No./21
Enabling laws, regulations and policies (incl. incentives, ESIA, PPP)	Accra, Cape Town, Kochi, Lagos, Mersin, Mexico City, Sarajevo, Trabzon, Yucatán	9
Access to funding	Sarajevo, Yucatán	2
Hindering legal frameworks	**Transport institutions**	**No./21**
Fragmented governance structure and working in silos	Kochi, Sarajevo, Trabzon, Yucatán	4
Access to funding	Accra, Cape Town, Trabzon, Yucatán	4
Complex approval processes	Belgrade, Sarajevo, Trabzon, Yucatán	4
Inconsistent enforcement of laws	Trabzon, Yucatán	2
Limited mandate and local autonomy	Cape Town, Trabzon	2

On the legal side, the majority of transport institutions mentioned how laws, regulations and policies can act as enablers. For example, some institutions mentioned that **having tax incentives in place promotes the deployment of e-vehicles**. Others mentioned how the local regulations require Environmental Impact Assessments (EIA) prior to implementing projects, which further supports transport decarbonisation.

Societal level capacities

Political factors supporting or hindering the performance for sustainable transport.

Enabling political frameworks	Transport institutions	No./21
Government/political commitment/ support/leadership	Lagos, São Caetano do Sul, Sarajevo, Trabzon, Yucatán	5
Hindering political frameworks	**Transport institutions**	**No./21**
Funding constraints and disruptions (transport competing with other priority sectors)	Lagos, Mersin, Mexico City, Sarajevo	4
Government changes (staff and shifts in priorities)	Sarajevo, Trabzon, Yucatán	3

On the political level, respondents indicated **that having government support, commitment and leadership facilitated their ability to perform their transport decarbonisation projects.** While the lack of political support to transport decarbonisation, especially due to staff changes and shifts in government priorities, may act as a barrier.

Societal level capacities

Socio-economic factors supporting or hindering the performance for sustainable transport.

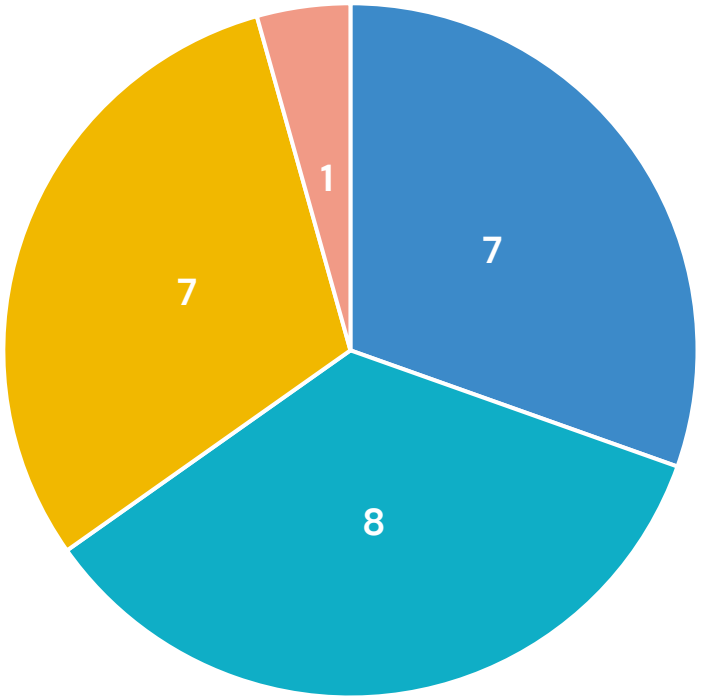
Enabling socio-economic frameworks	Transport institutions	No./21
Public awareness and community demand/ support	São Caetano do Sul, Yucatán, Lagos, Trabzon	4
Hindering socio-economic frameworks	**Referencing transport institutions**	**No./21**
Affordability and socio-economic context of population and local government	Lagos, Trabzon, Yucatán	3
Public awareness and cultural preferences	Lagos, Sarajevo, Trabzon	3

Having **government support, commitment and leadership** facilitated the transport institutions ability to perform their transport decarbonisation projects. **While the lack of political support to transport decarbonisation**, especially due to staff changes and shifts in government priorities, **may in turn act as a barrier**. Funding constraints due to political reasons were also identified as barriers by respondents.

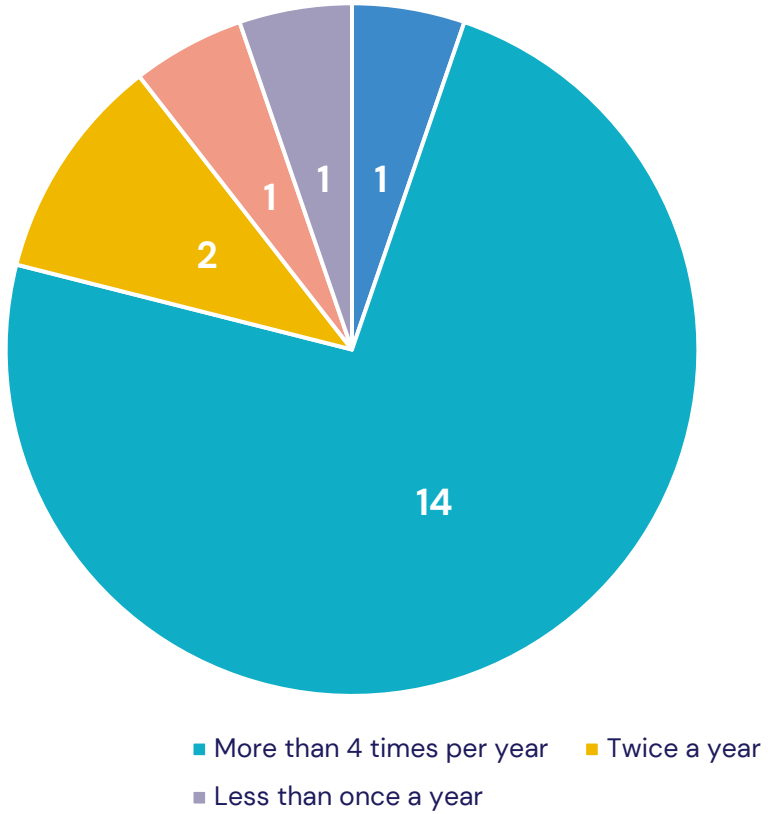
Cooperation and partnerships capacity (Societal level)

Transport institutions **easily cooperate and coordinate** with other relevant stakeholders.

How easy?



How often?



Transport planning and governance are rated as the two **most important capacities** for transport institutions to achieve transport decarbonisation.

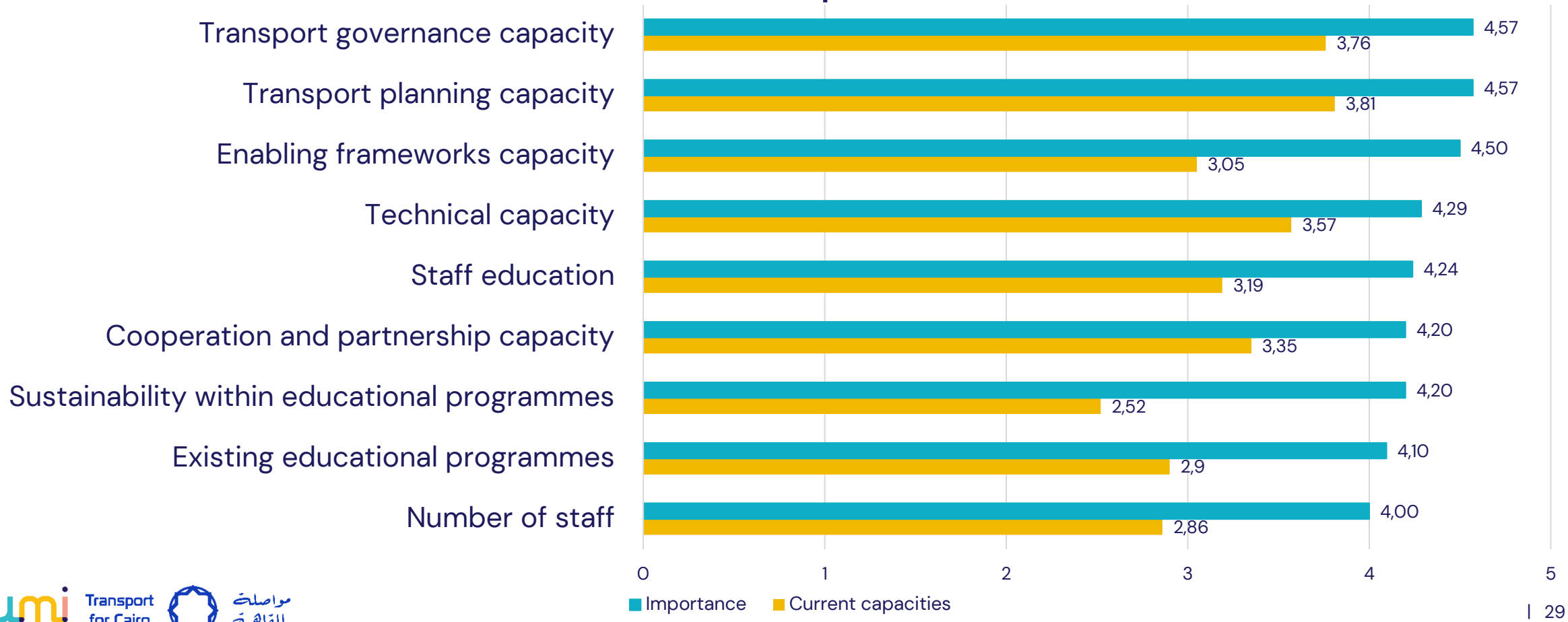
Enabling frameworks represented in the legal, political and socio-economic frameworks come in third place in **terms of evaluated importance.**

Sustainability within educational programmes, **existing educational programmes** and the **number of staff** are assessed as transport institutions' **weakest capacities** across all respondents.

Current capacities < needed capacities

All transport institutions confirm the significance of capacity development for the achievement of sustainable mobility targets. However, **all transport institutions indicate that their current capacities on the individual, institutional and societal levels are insufficient.**

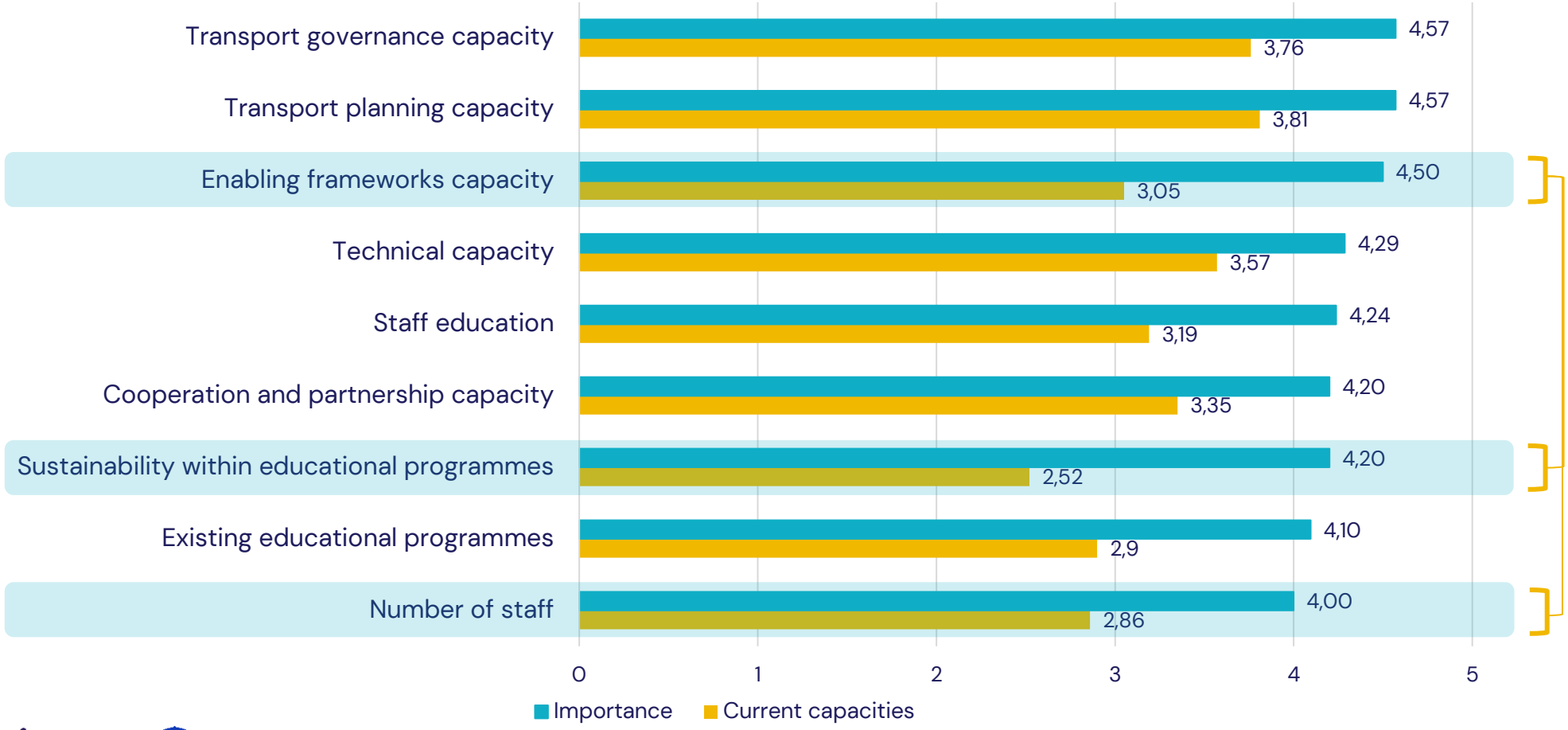
Average ratings of importance and current existing capacities to decarbonise transport



Where did the transport institutions have the biggest capacity gaps?

The results reveal that the most significant capacity gaps are observed in **sustainability within educational programmes, the enabling frameworks, and the number of staff capacity**.

Average ratings of importance and current existing capacities to decarbonise transport



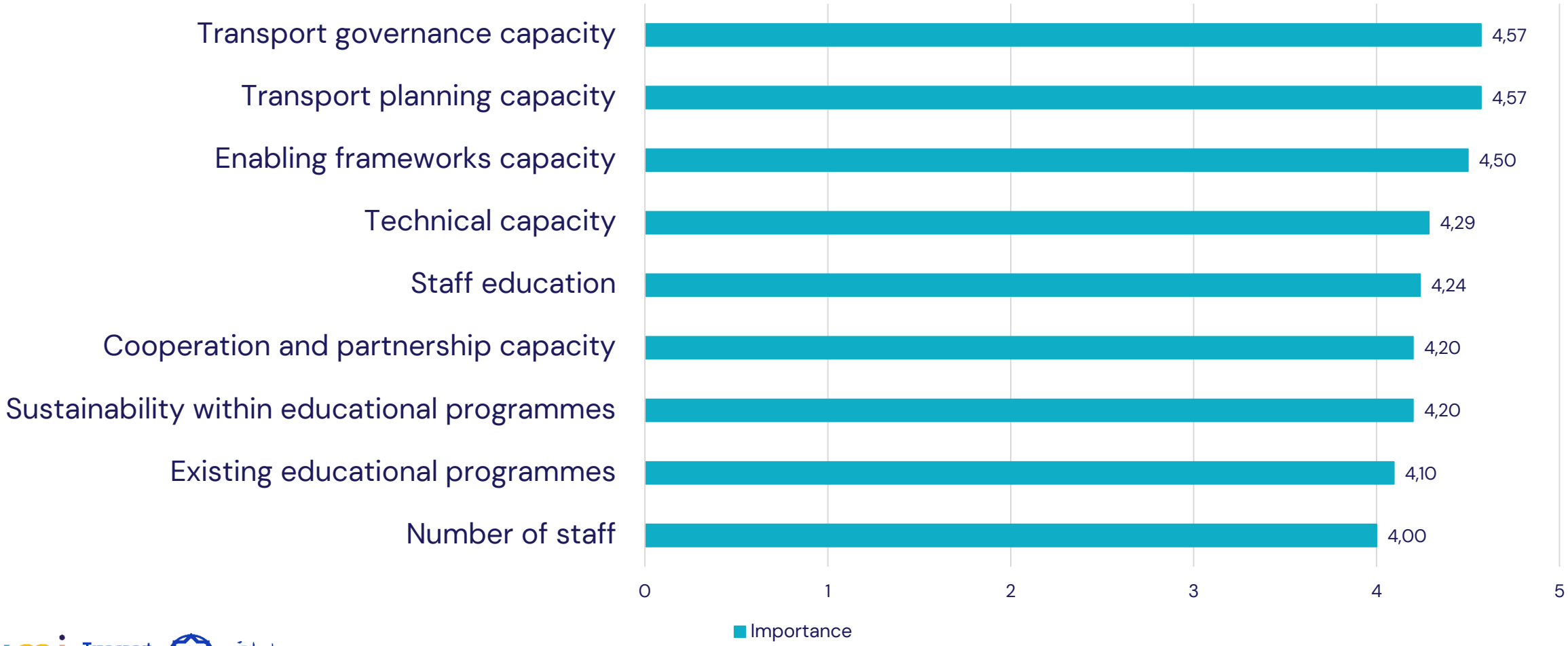
Widest gap

- Sustainability within educational programmes
- Enabling frameworks
- Number of staff

What do transport institutions perceive as the most important capacity?

Transport planning and governance are rated as the two **most important capacities for transport institutions** to achieve transport decarbonisation.

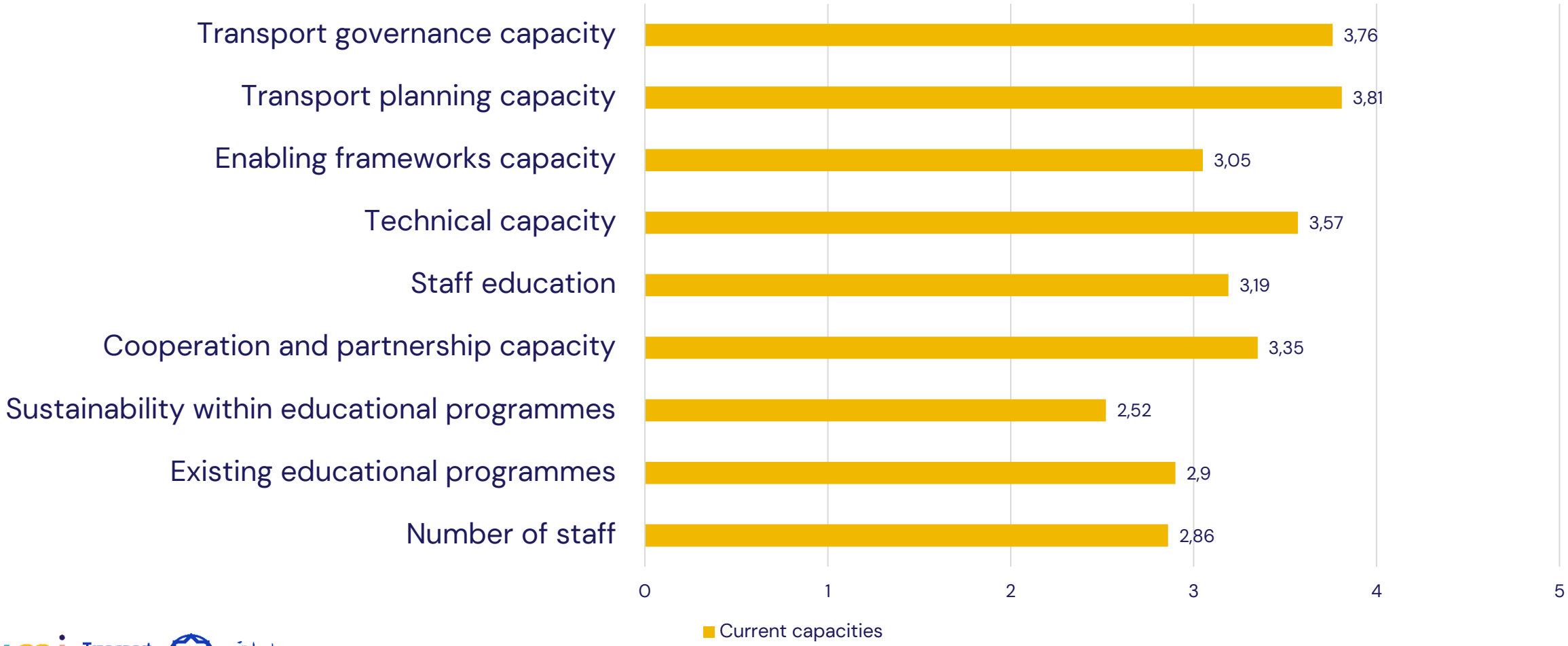
Average ratings of importance of capacities to decarbonise transport



What are the weakest capacities transport institutions currently possess?

Sustainability within educational programmes, existing educational programmes and the number of staff are assessed as transport institutions' weakest capacities across all respondents.

Average ratings of current capacities to decarbonise transport



Activities to address capacity gaps

The majority of **transport institutions invest in training programmes** to overcome capacity gaps.

Method	Transport institutions	No./21
Trainings *incl. targeted, external or in-house trainings*	Belgrade, Cape Town, Casablanca, Kochi, Lagos, Leipzig, Merida, Peshawar, Recife, Sarajevo, São Caetano do Sul, Tirana, Trabzon	13
Mentorship and peer learning *incl. staff rotation, on-the-job learning*	Belgrade, Lagos, Lviv, Oaxaca, Sarjevo, Trabzon, Yucatán, Kochi	8
Workshops	Kochi, Lagos, Sarajevo, Trabzon	4
Courses	Merida, São Caetano do Sul, Sarajevo, Recife	4
Formal education	Lviv, Merida, Trabzon, Yucatán	4
Seminars and conferences	Sarajevo, Trabzon, Yaoundé	3
Study tours	Kochi, Trabzon, Sarajevo	3
Scholarships	Trabzon, Yucatán	2
Access to data portals and libraries *(online and offline)*	Lviv, Trabzon	2
Partnerships with universities	Trabzon	1

Tools to assess capacity gaps

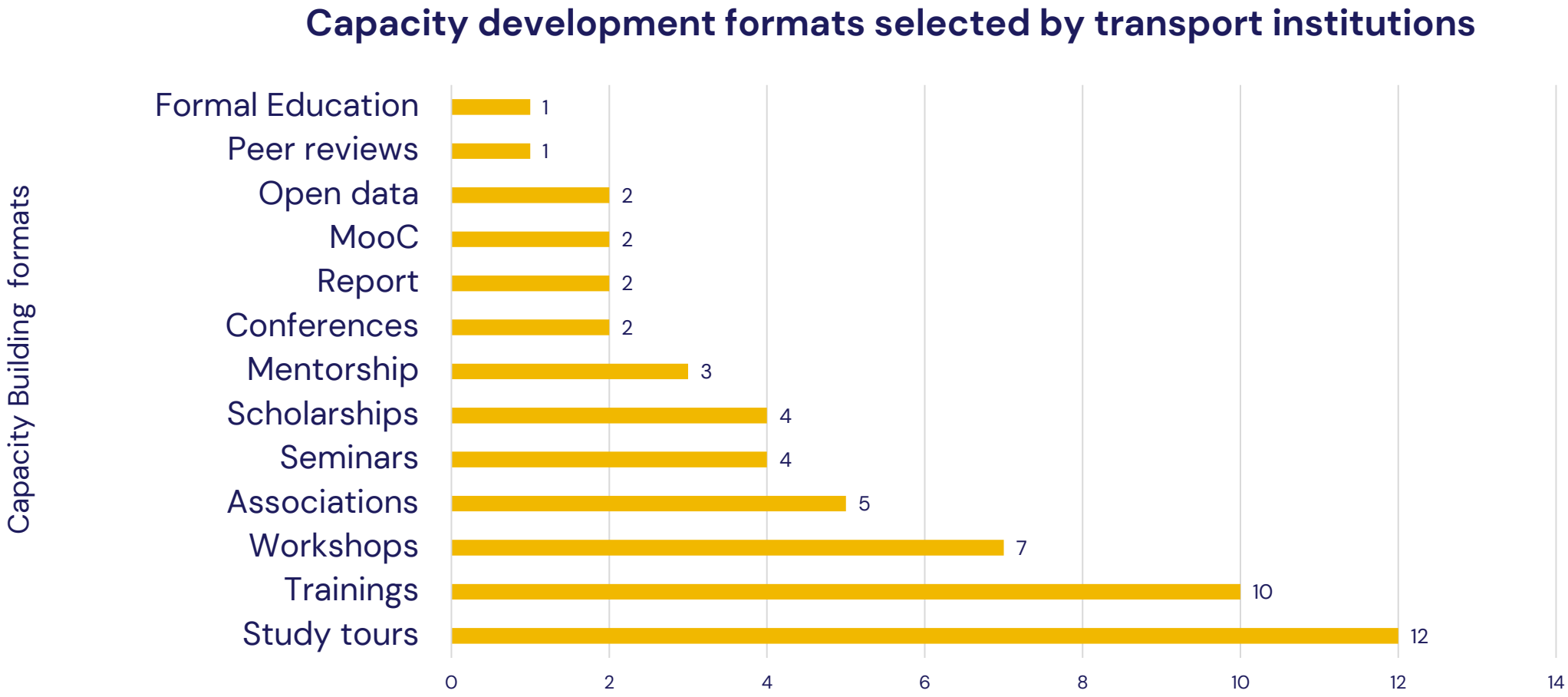
It is reasonable to assume that **transport institutions tend to be reactive to capacity gaps, and not proactive.** Most transport institutions **do not have institutionally embedded tools in place to thoroughly assess capacity gaps and to plan how to address them.**

Method	Description	Transport institutions	No./21
Performance monitoring (appraisal reports)	Monitors and reviews staff performance on a regular basis, typically annually, to identify areas of improvement.	Accra, Trabzon, Lagos	3
Training needs assessment (TNA)	Conducted across departments by the department head(s) or via staff member self-assessment to identify knowledge and skill gaps.	Cape Town, Lagos	2
Personal and professional development plans	Personalised employee development plans based on training needs assessments.	Lagos, Sarajevo	2
Succession planning*	A succession plan focuses on efforts the institution can endorse to encourage employees to advance within the institution.	Cape Town	1

*The ILO defines a succession plan as one of the separation practices within organisations that identifies competent staff who could be promoted to specific positions within an organisation. (ILO, 2021)

Capacity development formats

When asked about their preferences in scenarios where additional budget is available, **institutions tend to favor study tours**, while still leaning towards **trainings and peer learning**, to develop their staff's capacity.



Choice of capacity development format

When choosing capacity development programmes, **transport institutions prioritise the relevance and applicability of the acquired learnings**, over factors like **certification, cost and duration**.

Factors	Theme	Transport institutions	No./21
Relevance of topic	Content	Accra, Kochi, Lagos, Lviv, Merida, Mersin, Mexico City, Peshawar, Recife, Sarajevo, Tirana, Trabzon, Yucatán	13
Depth of learning and teaching methodology	Content	Accra, Cape Town, Kochi, Lagos, Oaxaca, Peshawar, Trabzon, Yucatán	8
Learning outcomes and expected performance improvements	Content	Belgrade, Cape Town, Merida, Mexico City, Paris, Trabzon, Yaoundé	7
Reputation of providers and profile of experts	Content	Kochi, Lagos, Lviv, Sarajevo, Trabzon, Yucatán	6
Applicability of learnings	Content	Lagos, São Caetano do Sul, Sarajevo, Trabzon, Yucatán	5
Cost	Logistics	Lagos, Sarajevo, Trabzon, Yucatán	4
Format, location and accessibility	Logistics	Lagos, Merida, Sarajevo, Trabzon	4
Staff considerations	Target audience	Leipzig, Mexico City, Trabzon	3
Reputation of programme	Content	Lviv, Trabzon, Yucatán	3
Duration	Logistics	Kochi, Leipzig, Oaxaca	3
Flexibility (schedule, format)	Logistics	Sarajevo, Yucatán	2
Contextualisation of material	Content	Lagos, Trabzon	2
Certification and accreditation	Target audience	Lagos, Trabzon	2
Long-term support and access to experts & materials	Content	Lagos	1
Transferability and scalability	Content	Trabzon	1
Networking opportunities	Content	Sarajevo	1

Impact assessment indicators of capacity development

Transport institutions currently tend to assess the impact of capacity development activities based on **qualitative observations that show improvement in the overall quality of work instead of using direct and quantifiable indicators**.

Individual level	Transport institutions	No./15
Improved overall quality of work of team and individuals	Merida, Mexico City, Belgrade, Lagos, Lviv, Peshawar, Sarajevo, Yucatán	**8**
Increased motivation at work	Merida, Oaxaca, Peshawar	**3**
Enhanced creativity	Lviv, Lagos	**2**
Enhanced problem-solving capabilities	Lagos, Oaxaca	**2**
Application of learnings to ongoing or new projects	Mersin, Sarajevo	**2**
Improvements in analytical and planning capabilities	Tirana	**1**
Improvements in efficiency	Yucatán	**1**
Improvements in decision-making	Yucatán	**1**
Institutional level	**Transport institutions**	**No./15**
Meeting project objectives	Kochi, Lagos, Mexico City	3
Improved project completion times*	Kochi, Lagos, Sarajevo	3
Number of projects participations*	Kochi	1
Number of successfully tendered/awarded projects*	Kochi	1
Number of successfully implemented projects*	Sarajevo	1
Improved project execution	Lagos	1
Societal level	**Transport institutions**	**No./15**
Number of meetings*	Merida	1
Number collaboration networks*	Merida	1

** Starred indicators are quantitative ones*

Contact

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