

OPERATIONS EVALUATION

Evaluation of EIB support for urban public transport in the European Union (2007-2019)

Thematic report

February 2021



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Operations Evaluation

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Authors

This evaluation was carried out by the EIB's Operations Evaluation Division (EV) under the supervision of Sabine Bernabè, Head of Evaluation. The team, led by Laura Delponte (external consultant, CSIL), included Mónica Lledó Moreno, Tania Rajadel and Sonia Vega Vega (senior evaluators), Iouri Marounov and Ombeline de Bock (evaluators) and Marcela Bordon, Macarena Esteban Guadalix and Eleftheria Zarkadoula (assistants). Emmanuel Pondard (evaluation expert) provided valuable support in finalising the report. The team was assisted by consultants from CSIL (Centre for Industrial Studies, Milan, Italy).

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Executive summary	1
Recommendations and management response	5
1. Context and overall purpose of this evaluation	9
1.1 Urban public transport is essential to improve city liveability in Europe	9
1.2 The EIB's Transport Lending Policy defines urban public transport as a key contributor to climate action and environmental sustainability	11
1.3 Urban public transport accounts for a significant share of the EIB's transport lending	13
1.4 Objectives and methodology	16
2. Alignment with EU policies and cities' needs	21
2.1 The portfolio of UPT investments is aligned with EU policies and with EIB priorities	21
2.2 EIB lending for UPT responded well to cities' mobility priorities	22
2.3 EIB products responded to borrowers' needs	23
2.4 The EIB's UPT lending is gradually adapting to a more fragmented and diversified demand for financing	24
3. Results for beneficiaries	27
3.1 Most UPT projects were delivered as expected	28
3.2 Ridership was lower than anticipated for more than half the projects reviewed, and modal shift was sparsely documented	31
3.3 Fragmented qualitative evidence suggests that projects contributed to achieving broader socioeconomic impacts	34
3.4 Project sustainability is usually ensured, albeit with risks associated with capacity to sustain new investments and increasing running costs	35
4. Efficiency of EIB urban public transport projects	37
4.1 Almost two-thirds of the projects within scope were implemented on time or with a small delay	37
4.2 Three-quarters of the projects within scope were implemented within budget	38
4.3 Almost all projects within scope were estimated to be economically sound after completion, but the few exceptions call for a more robust sensitivity analysis at appraisal	39
5. EIB financial and technical contribution to the projects	41
5.1 The EIB financial contribution was substantial, especially in the context of the financial crisis	42
5.2 Except for PPP projects, EIB financial facilitation was limited	43
5.3 The EIB technical contribution to UPT projects was moderate	44
6. Conclusions and recommendations	47
6.1 The EIB's products and procedures were adequate to address the urban public transport needs of municipalities in Europe, in particular during the economic and financial crises	47
6.2 While projects delivered on their production targets, they did not always achieve the expected level of ridership and the achievement of other important outcomes was largely undocumented	48

6.3	The Bank is gradually adapting its methods and products with the aim of speeding up the transition towards cleaner and new UPT technologies.....	50
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Annexes	53
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Annex 1 –Theory of change of EIB support for urban public transport in the European Union during the period 2007-2019.....	54
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Annex 2 – Evaluation methodology: Evaluation questions and approach	56
--	-----------

Annex 3 – Project sample: Project evaluation and case studies	62
--	-----------

Annex 4 – Project sample: Ex-post cost-benefit analysis in a nutshell.....	64
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Annex 5 – List of references and stakeholders consulted during the evaluation.....	66
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LIST OF BOXES

Box 1	The COVID-19 pandemic outbreak – An unprecedented challenge for the urban public transport sector.....	10
Box 2	Sustainable urban mobility plans (SUMP): a key building block of EU urban mobility policy.....	23
Box 3	Long-term strategic partnership for urban public transport development, the case of a UK city	23
Box 4	Changes in urban mobility priorities: towards a more fragmented and diversified investment landscape.....	25
Box 5	Different systems for financing public transportation in Europe	35
Box 6	EIB's approach for assessing the economic viability of urban public transport projects.....	39

LIST OF FIGURES

Figure 1	Evolution of urban public transport policies: a pathway to liveable cities.....	10
Figure 2	Timeline of EU and EIB transport and urban public transport policies.....	12
Figure 3	Overview of the EIB urban public transport portfolio signed in 2007-2019, in volumes and number of operations.....	13
Figure 4	Share of urban public transport signed amounts in total EIB transport lending in the EU-28 (2007-2019).....	14
Figure 5	Number of operations (external circle) and share of signed amounts (internal circle) for urban public transport, by sub-sector (2007-2019)	14
Figure 6	Share of signed amounts for urban public transport, by type of instrument (2007-2019)...	15
Figure 7	Volumes of EIB-supported urban public transport projects in the EU-28 relative to GDP (2007-2019)	16
Figure 8	Share of signed urban public transport lending amounts by city (2007-2019).....	16
Figure 9	Levels of analysis and associated methods	17
Figure 10	Aggregated amounts invested (€m) and average congestion levels (% extra time) at city level at project approval	24
Figure 11	Delivery of production targets (# projects; % of total 52 projects with available data).....	29

Figure 12	Contribution of UPT projects to deliver greener, smarter, safer and more inclusive public transport.	29
Figure 13	Achievement of anticipated ridership objectives	31
Figure 14	Achievement of project financial sustainability (# of projects, % of projects with available information)	35
Figure 15	Delays in urban public transport project completion	37
Figure 16	Deviations from expected project costs.....	38
Figure 17	EIB financial contribution by rating (# of projects).....	42
Figure 18	EIB Financial facilitation estimated at the appraisal stage (# of projects by rating category).....	43
Figure 19	EIB technical contribution by country groups estimated at appraisal stage (# of projects).....	44

LIST OF TABLES

Table 1	Recommendations and management response.....	6
Table 2	List of 12 projects selected for in-depth evaluation	18
Table 3	Main methodological challenges, implications for the evaluation and mitigation measures adopted	19
Table 4	Availability of data at completion, for the population of 65 completed projects covered by the project completion report review	28
Table 5	Evaluation questions (EQ) and judgment criteria	56
Table 6	Overview of data collection and analysis methods by evaluation question	59
Table 7	Main features of the projects selected for project evaluation	62
Table 8	Key features of the six projects selected for case studies.	63
Table 9	Ex-post cost-benefit analysis model in a nutshell.....	64

ABBREVIATIONS AND ACRONYMS

3PA	3-Pillar Assessment
AIM	Additionality and Impact Measurement Framework
CEF	Connecting Europe Facility
CO₂	Carbon dioxide
EC	European Commission
EIAH	European Investment Advisory Hub
ELENA	European Local Energy Assistance
ERDF	European Regional Development Fund
EFSD	European Fund Structural Investments
IG/EV	Evaluation Division of the Inspectorate General of the European Investment Bank
JASPERS	Joint Assistance to Support Projects in European Regions
MFF	Multiannual Financial Framework
NO₂	Nitrogen dioxide
PPP	Public-private partnerships
TEN-T	Trans-European Transport Network
UITP	Union Internationale Des Transports Publics
UPT	Urban public transport

KEY TERMS

3-Pillar Assessment (3PA)

The three pillar framework for assessing the projects to be financed by the EIB comprise: (i) contribution to EU policy, (ii) quality and soundness of the project, and (iii) EIB technical and financial contribution. Each pillar is composed of indicators and sub-indicators. The 3PA was introduced in 2014 replacing the former framework (i.e. **Value Added Framework**).

Accessibility

Ease with which the person can reach the desired goods, services and activities. The term refers to the movement itself of using different modes of transport.

AIM Framework

The Additionality and Impact Measurement (AIM) Framework for assessing projects to be financed by the European Investment Bank (EIB), as well as for ex-post monitoring and reporting on results. The AIM Framework builds on and brings together in a single framework the components of the 3PA (for operations within the European Union) and the Results Measurement Framework (ReM, for operations outside the European Union), but with stronger emphasis on how projects address market failures and provide social value. At the time of finalising this evaluation, the AIM is being piloted for the assessment of new EIB operations.

Benefit-cost ratio

The net present value of project benefits divided by the net present value of project costs. If the benefit-cost ratio is greater than one, the project benefits exceed costs.

Clean/zero-emissions vehicles

As defined by the revised “Clean Vehicles Directive”, a “clean vehicle” is:

- A clean light-duty vehicle: any car or van meeting the following emission thresholds: (i) until 31 December 2025: no more than 50g/km CO₂ and up to 80% of applicable real driving emission (RDE) limits for nitrogen oxides (NO_x) and for ultrafine particles (particle number; PN); and (ii) from 1 January 2026: only zero-emission vehicles.
- Clean heavy-duty vehicle: any truck or bus using one of the following alternative fuels: hydrogen, battery electric (including plug-in hybrids), natural gas (both compressed natural gas and liquefied natural gas, including biomethane), liquid biofuels, synthetic and paraffinic fuels, liquefied petroleum gas.

Climate action

Climate action within the EIB refers to activities that contribute to either mitigating climate change (i.e. reducing and/or sequestering greenhouse gas emissions) or to activities that contribute to adapting to the impacts of climate change.

Cost-benefit analysis

Expresses a project's or measure's direct and indirect costs and benefits, allowing the benefits and economic viability to be assessed and expressed in monetary terms. It is undertaken by weighing the predicted monetised costs and benefits of the strategy, policy or measure for a set time scale. Cost-benefit analysis can include the consideration of both internal and external costs and benefits.

Discount rate

The rate at which future values are discounted to the present. The financial discount rate and social discount rate may differ.

Economic rate of return

The average annual return to society on the capital invested over the entire life of the project. It is, in other words, the interest rate at which the project's discounted benefits equal discounted costs, both valued from all of society's

	point of view. A project is accepted if the economic rate of return is equal to or exceeds a certain threshold (the social discount rate).
Economic net present value	The difference between all discounted benefits and costs at a given discount rate . The project is economically profitable if its economic net present value is positive.
Fare box revenue	The value of cash, tickets and pass receipts paid by passengers for public transport use.
Financial net present value:	The net balance of all discounted projects' revenues and costs. The project is financially profitable if its financial net present value is >0.
Financial rate of return	An indicator to measure the financial return on investment of an income generation project, which is used to make the investment decision. Whilst the economic rate of return is calculated using economic values, the financial rate of return is calculated using financial values.
Framework loan	An EIB instrument for financing multi-component investments where, due to incomplete information being available at the appraisal stage, decisions concerning the financing of specific schemes have to be taken after approval of the overall operation by the board of directors.
Greenhouse gases	Gaseous constituents of the atmosphere (i.e. CO ₂ , NO _x , CH ₄), both natural and anthropogenic, that absorb and re-emit infrared radiation.
Micro-mobility	The light, electric, floating vehicles made available in urban areas through sharing schemes that let users locate, reserve, (un)lock and pay for them usually through their smartphones or credit cards. Micro-mobility typically includes bikes (including electric bikes), scooters and mopeds.
Urban mobility	The potential for movement and the ability to get from one place to another within an urban area, using one or more modes of transport to meet daily needs. As such, it differs from accessibility , which refers to the ability to access or reach a desired service or activity.
Modal share	The share of people using a particular mode of transport (including cycling and walking) within the overall transport usage of an urban area. Modal share can be calculated for passenger transport based on different units, such as number of trips or passenger-km.
Modal shift	The switch from a given transport mode to another, as a result of a modified choice—in the case of urban transport—by users. The modal choice is a very complex decision, determined by a wide range of factors. When a transport mode becomes more advantageous than another (e.g. in terms of cost, convenience, quality, comfort, frequency, speed or reliability), over the same route or in the same market, a modal shift is likely to take place.
Multimodality	The selection of alternative transport modes for different trips over a certain period of time. Multimodality (and also inter-modality) requires integration of infrastructure and transport services across modes in both passenger and freight transport.
Net present value	The sum that results when the discounted value of the expected costs of an investment are deducted from the discounted value of the expected revenues or benefits.

Patronage	In public transportation, patronage (or ridership) refers to the number of people using a transit service.
Sensitivity analysis	Systematic method for examining how the outcome of cost-benefit analysis changes with variations in inputs, assumptions, or the manner in which the analysis is set up. The analysis is carried out by modifying one variable at a time and determining the effect of that change on the economic net present value . Sensitivity analysis is known as a “ what-if analysis ”.
Smart city	The European Commission’s initiative promoting cities using technological solutions within different policy fields to improve the management and efficiency of the urban environment, as well as to reduce their environmental impact and offer citizens better lives.
Social discount rate	<p>The parameter used in the economic analysis of investment projects to discount economic costs and benefits, and reflect the opportunity cost of capital from an inter-temporal perspective for society as a whole. In other words, it reflects the social view of how future benefits and costs are to be valued against present costs. In this sense, every discount rate entails a judgment concerning the future and it affects the weight attributed to future benefits or costs. The purpose of the social discount is to make costs and benefits that arise at different points in time comparable.</p> <p>According to the EIB Guide on Economic Appraisal of Projects, If the economic rate of return falls below the social discount rate, the project as defined is economically not justified and should therefore not be undertaken, as it would constitute a misallocation of economic resources. An economic rate of return at or above the social discount rate is a prerequisite for the project to be financed by the Bank. The net present value of a project can be calculated using the social discount rate.</p>
Sustainable urban mobility plans	A strategic plan designed by the local authorities to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life.
Transport Lending Policy	The EIB strategic documents setting out the guiding principles and selection criteria for the Bank to finance projects in this sector.

EXECUTIVE SUMMARY

This report presents the findings from the evaluation of the EIB's support for urban public transport (UPT) in the European Union, undertaken by the Operations Evaluation Division (IG/EV) of the European Investment Bank (EIB). The evaluation assesses the relevance and performance of EIB-supported UPT operations in the European Union from 2007 to 2019. It focuses on public collective urban transport modes within urban areas (metro, tramways, railways, buses) and considers all types of EIB support, including loans, blended finance, equity, quasi-equity, and technical assistance or advisory services provided as a complement to public transport projects.

This evaluation drew on a substantial evidence base, which included:

- (1) A portfolio review of the 216 UPT projects signed by the EIB between 2007 and 2019;
- (2) A review of all completed projects within this portfolio (65 operations for which a project completion report was available);
- (3) An in-depth evaluation of a sample of 12 completed UPT projects;
- (4) The ex-post cost-benefit analysis of eight completed projects;
- (5) A case study analysis of six ongoing projects selected because they had severe implementation issues, or because of their innovative features;
- (6) About 180 interviews with EIB staff, clients and other stakeholders involved in the projects evaluated in-depth or having strategic issues of relevance to the UPT sector.

The EIB adequately addressed the urban public transport needs of municipalities in Europe, in particular during the economic and financial crisis

This evaluation found that EIB-supported UPT projects were relevant to the needs of municipalities, notably due to their integration in cities' development plans. The EIB due diligence ensures UPT projects comply with EU directives and meet the Bank's priorities.

The EIB product offer has met the demand from both larger and smaller municipalities. While capital cities accounted for the majority of volumes (54%), a large number of relatively small operations was also financed, in Central and Eastern European countries in particular.

In the urban public transport sector, the EIB had a countercyclical role during the economic and financial crisis, through its substantial financial contribution in a context of reduced availability of financing for urban transport investments. The EIB played an important role as "lender of last resort" when financial markets tightened throughout Europe, including for municipalities.

While the EIB's financial contribution to UPT projects was substantial, the Bank did not have much scope for crowding in other financiers (financial facilitation). Indeed, by the time the Bank was contacted by the promoters, other sources of financing had already been secured. EIB financial facilitation was more likely to occur in the long run, in the context of well-established long-term partnerships. The two PPPs evaluated in-depth stand as an exception: for these projects, the EIB's involvement gave a strong signal to potential concessionaires and was a driver of trust for other financing partners.

In the majority of the completed projects analysed, the EIB's technical inputs were not requested as urban public transport operators already had strong in-house expertise and/or the EIB was involved late in the project design. Except in the context of project preparation schemes such as JASPERS, the EIB's ability to provide technical input was also reduced, largely due to its late involvement in project design. The Bank's technical contribution was typically limited to a bankability check and to the mitigation of technical and financial risks.

While projects delivered on their production targets, they did not always achieve the expected level of ridership

The implementation of the UPT projects generally went as planned. The large majority of the 65 completed projects in the Bank's portfolio delivered on their production targets. When significant deviations occurred (five cases), they were due to factors beyond the control of the EIB. The EIB usually anticipated well the risks associated with construction problems, but was not equipped with the resources or procedures that would enable it to address implementation issues.

However, this evaluation found that 31 of the 58 projects for which data on usage was available at completion did not meet the expected level of ridership. Based on project completion documents and existing literature, the evaluation

identified four main reasons for this deviation from initial forecasts. First, demand was significantly affected by the economic crisis, particularly in Southern Europe. Second, the promoters' estimates of passenger flows were sometimes over-optimistic and were only partly corrected by the EIB's more conservative demand forecasts. Third, for projects characterised by a long ramp-up period, the Bank's project completion reports (PCRs), which are prepared 15 months after project completion, were conducted too early to fully capture steady-state patronage. Fourth, as pointed out by the European Court of Auditors, the fragility of most municipal mobility policies affects incentives for ridership and for shifting towards public transport. Currently, the EIB verifies the integration of a UPT project within an urban mobility plan, but does not verify the appropriateness or consistency of the plan itself.

The assessment of other important outcomes was hampered by a lack of systematic data collection

The lack of data at completion hampered the assessment of other key outcomes, especially in terms of quality of services, accessibility and modal shift. In the absence of systematic ex-post data, this evaluation had to build mainly on qualitative evidence from project documentation and site visits (12 project evaluations and six case studies). This evidence suggests that there were improvements in terms of time efficiency, safety, and accessibility, not only for people with reduced mobility, but more broadly for all users.

Modal shift was an important objective, given its contribution to broader environmental objectives, but the ex-post data on this objective was only available in nine of the 65 completed projects analysed. While the EIB's perspective is that adding further data collection and reporting requirements might undermine the relationship with clients and reduce the competitiveness of its products, most of the borrowers and promoters interviewed found that EIB reporting was not particularly burdensome and was largely compensated by the financial advantage offered.

Fragmented evidence suggests that UPT projects contributed to achieve broader socioeconomic impacts

In addition to enhancing quality of living, city attractiveness and competitiveness, several UPT projects evaluated in-depth contributed to territorial cohesion with less privileged neighbourhoods.

Almost all projects within scope (51 out of 57) were estimated by EIB services to be economically sound after completion. However in six cases, EIB services found that investments had become economically unsound. These projects suffered the consequence of a combination of factors (delays and/or increasing costs and/or lower steady-state patronage than expected). The ex-post cost-benefit analysis undertaken by this evaluation found that for those projects estimated at appraisal stage to have a marginal economic rate of return, the EIB's standard sensitivity analysis was not sufficient to identify the combined effect of risk factors on the economic efficiency of the project. A more robust analysis of risks to economic viability, combined with monitoring focusing precisely on the main risks identified, are particularly important for projects characterised by a marginal economic rate of return because they face a higher risk of suffering the consequences of minor deviations from forecasts.

The future of EIB support for UPT

Within the context of the EIB Group's Climate Bank Roadmap, the Bank is currently adapting its methods and products with the aim of supporting the acceleration of the transition towards cleaner and new UPT technologies.

Indeed, the Bank has expanded its product offer to address a more fragmented investment landscape. Changes in urban mobility priorities and in UPT markets are bringing about the need for more diversified clean mobility solutions that involve smaller, riskier and more innovative investments. This evaluation considers that the EIB is on the right track for responding to this new investment landscape. Sector-specific intermediated lending and programme loans already enable the Bank to aggregate its financing of granular investments into operations reaching a critical mass. In addition, the Bank has developed a suite of products (non-recourse financing structures, quasi-equity structures), has mobilised existing mandates (EFSI) and will count on future mandates (InvestEU) to provide further risk absorption capacity in climate action and environment funding.

In addition, the Bank is well placed to embed its UPT offer into integrated support for municipalities. Cities are faced with the particular challenge of financing this necessary transition towards becoming "circular cities", all while being constrained in terms of budget headroom and debt capacity. This immense task calls for

diversity of operations and multi-sectoral investments across a wide range of sectors, beyond the sphere of UPT. This evaluation considers that the Bank is already well placed to embed its UPT operations into integrated support for municipalities (multi-sector financing, blended with technical advisory). First, the Bank has the ability via programme loans or framework loans to support integrated, planning-led investment across a city's budget on a multi-sectoral basis. Second, the EIB is already mobilising joint mandates with the European Commission (the Cleaner Transport Facility, URBIS [Urban Investment Support] or ELENA) to offer integrated support to cities, combining financing and advisory services at different stages of programme design. Third, the new Additionality and Impact Measurement Framework, which will be rolled out in 2021, is expected to signal to municipalities the EIB's priority for financing the most climate and environmentally impactful UPT projects.

Recommendations

Based on the above findings, the evaluation makes three recommendations, which are further developed in the report.

- R1. The Bank should expand and enhance its monitoring of the outcomes of UPT projects, including in terms of service quality, accessibility and modal shift from private cars to more sustainable transport modes. In particular, as the Bank accelerates the transformation of its business model towards becoming the EU climate bank, enhancing the measurement of modal shift constitutes a valid and affordable proxy for estimating the project contribution to higher objectives in terms of greenhouse gas emissions reduction and carbon footprint.
- R2. The Bank should strengthen its ex-ante review and its ex-post estimate of ridership for UPT projects.
- R3. In order to accompany the transition towards "circular cities", the Bank should assess the feasibility of adopting an integrated client-based approach, through which it can identify and offer to municipalities a granular package of solutions combining financing and advisory.

RECOMMENDATIONS AND MANAGEMENT RESPONSE

The Management Committee appreciates the positive conclusions on the performance of the EIB's operations supporting urban public transport (UPT) projects, with particular reference to specific findings on their relevance for the European Union's policies and cities' urban mobility priorities, effectiveness, efficiency and overall technical and financial contribution.

They further exemplify the value added of the EIB, its robust appraisal process and solid management of financing operations as well as the good cooperation between the Bank and its counterparts.

The EIB's support for UPT projects has been strong in the period under evaluation, reaching 5% of its total lending. For the future, it is likely to be even reinforced under the EU's Green Deal and the EIB's new Climate Bank Roadmap (CBR), due to the key role played by cities and urban mobility towards sustainable cities and climate action.

In this respect, the Management Committee agrees with the recommendation to enhance the monitoring of UPT projects' outcomes. The implementation of the EIB's Climate Bank Roadmap is likely to require a better alignment of the projects' monitoring indicators with the Bank's ambitions on climate change and environmental sustainability.

The burden of monitoring certain outcomes of UPT projects can be high for the EIB's counterparts, in particular if promoters are required to perform additional activities such as extensive mobility surveys and sophisticated transport modelling. Some promoters are already using new technologies that can lower the cost of data collection. Additional monitoring indicators should therefore be feasible and readily applicable by promoters, without undermining the EIB's intervention and its financial and technical contribution to projects.

For projects characterised by a marginal case in terms of economic efficiency, the Management Committee agrees with the recommendation to strengthen risk analysis, while ex-post monitoring will be reinforced for projects that are underperforming at completion, in particular when needed due to longer than anticipated ramp-up periods in ridership.

The Management Committee would like to underline that the Bank already performs a thorough review of the quality of promoters' transport models during appraisal. In addition, for projects with marginal economic efficiency, the EIB can and actually does require new estimates based on more conservative assumptions or introduces contractual undertakings in its finance contracts.

Given the increasing complexity of urban investments, the Management Committee agrees that considering the possibility of combining financing and advisory to accompany the transition towards circular cities would be appropriate, taking into account the Bank's business model whereby engagement with promoters generally takes place once the project preparation has been finalised. This will be done on a case-by-case basis, subject to the availability of technical assistance and demand from the customer, however, with the understanding that if the client is not willing to engage with the Bank on advisory, the Bank would still undertake the project concerned, subject to the Bank's regular appraisal. The main lessons from Advisory's involvement in UPT and circular cities will be drawn in support of the proposed case-by-case approach.

Table 1 Recommendations and management response**R1 - The Bank should expand and enhance its monitoring of the outcomes of UPT projects**

In addition to monitoring the effects of UPT projects on transport mobility (time savings) and usage (number of users), it is recommended that the Bank collect more systematically from promoters data on service quality (which includes data on frequency, reliability and punctuality), accessibility (which includes opportunities for different categories of users – including women – to increase their transportation and destination options), and modal shift from private cars to more sustainable transport modes.

Considering that the environmental impacts of UPT projects cannot be attributed in a systematic manner and with affordable methods, it is critical that the Bank reports on modal shift, which is measurable and directly attributable to UPT projects. As the Bank accelerates the transformation of its business model towards becoming the EU climate bank, enhancing the measurement of modal shift constitutes a valid and affordable proxy for estimating the project contribution to higher objectives in terms of greenhouse gas emissions reduction and carbon footprint.

Management response Agreed

The Management Committee agrees with the recommendation to enhance the monitoring of UPT projects' outcomes. The recent approval of the EIB's Climate Bank Roadmap and the update of the EIB's Transport Lending Policy provide a good framework to review the monitoring indicators related to UPT projects' outcomes.

Some aspects related in particular to accessibility, including time savings, and to modal shift are normally not available at project completion. Their ex-post measurement is likely to require extensive and costly additional analysis for the EIB's counterparts and may in such cases eventually make the EIB's support less attractive and the overall approach not feasible for all promoters.

R2 - The Bank should strengthen its ex-ante review and its ex-post estimate of ridership for UPT projects

To do so, the Bank could for example put in place the following procedures:

- i. At the appraisal stage, for the UPT projects characterised by a marginal estimated economic rate of return (close to 3.5%), the Bank could enhance the analysis of risks to economic viability, in order to enhance the associated mitigation measures. The economic viability of these projects is more likely to suffer from minor implementation issues and/or minor deviations from forecasts, including in terms of ridership. A more robust analysis of risks will enable even more rigorous monitoring of, and dialogue with, promoters and municipalities on the main risks identified.
- ii. At completion, in the case of projects with a long ramp-up period, the Bank could systematically conduct an additional review of performance at a later stage. Measuring usage within the traditional timeframe for issuing a project completion report (within 15 months after the end of works) was found to be too early to fully capture the materialisation of steady-state ridership in 20% to 25% of the completed UPT projects analysed. In such cases, an additional project completion report focusing on verifying steady-state patronage and fine-tuning the estimate of the economic rate of return could be undertaken. This approach will increase the accuracy of estimation of the ex-post economic rate of return and will help the Bank improve its own demand modelling.

Management response Agreed

The Management Committee agrees with the recommendation to strengthen the ex-ante review of ridership for projects with marginal economic efficiency and the ex-post estimate of ridership for projects that are underperforming at completion, in particular when needed due to longer than anticipated ramp-up periods.

Best practices for the estimation of demand in UPT projects require the use of sophisticated transport models by promoters, which are already thoroughly reviewed by the services during appraisal.

For projects with marginal economic efficiency, the EIB can and actually does require new estimates based on more conservative assumptions or introduces contractual undertakings in its finance contracts. In addition, when a cost-benefit analysis is carried out, a sensitivity analysis of the economic rate of return to a project's demand is always performed, though its results are not systematically reported in the risk matrix presented to the Management Committee and the board of directors.

An enhancement of risk analysis and the reinforcement of risk mitigation through appropriate contractual undertakings may therefore be suitable.

For those projects having a lower than expected level of ridership at completion, PCR+3 is allowed by the EIB's procedures, but is currently not systematically implemented. This approach may be normalised for projects underperforming at completion.

R3 - In order to accompany the transition towards “circular cities”, the Bank should assess the feasibility of adopting an integrated client-based approach, through which it can identify and offer to municipalities a granular package of solutions combining financing and advisory

The transition of urban areas towards becoming ‘circular cities’ calls for a variety of interventions and multi-sectoral investments across a wide range of sectors, beyond the sphere of UPT. In order to accompany this transition, the Bank is encouraged to coordinate its various solutions beyond the boundaries of sector-based, product-based operations, and to assess the feasibility of developing client-based integrated support.

Management response Agreed

Given the increasing complexity of urban investments, the Management Committee agrees that considering the possibility of combining financing and advisory to accompany the transition towards ‘circular cities’ could be appropriate taking into account the Bank's business model whereby engagement with promoters generally takes place once the project preparation has been finalised. This will be done on a case-by-case basis, subject to the availability of technical assistance and demand from the customer, however, with the understanding that if the client is not willing to engage with the Bank on advisory, the Bank would still undertake the project concerned, subject to the Bank's regular appraisal. The main lessons from Advisory's involvement in UPT and circular cities will be drawn in support of the proposed case-by-case approach.

1. CONTEXT AND OVERALL PURPOSE OF THIS EVALUATION

1.1 Urban public transport is essential to improve city liveability in Europe

1. **A sustainable urban public transport system can improve the quality of life and economic opportunities for all.** It enhances urban mobility by reducing congestion associated with the use of private cars. A larger offer of public transport solutions speeds up the movement of goods, services and citizens. It reduces pollution and improves air quality by reducing the number of cars and traffic jams. A well-developed urban public transport network increases access to jobs, markets, leisure activities, and health and education services. It matters even more for some socially disadvantaged groups, usually more dependent on public transport. For these reasons, there is a legal requirement for national and/or local authorities across Europe to provide urban public transport as an essential public service.
2. **With around 71% of the EU population living in urban areas¹, urban transport in Europe faces multiple challenges.** Demographic changes and greater concern for environmental issues are increasing pressure on municipalities to meet a rising demand for public transport. Public transport journeys in Europe increased steadily from 2000 to 2008, when the economic crisis abruptly interrupted the growth in demand for public transport, but it bounced back to pre-crisis levels in 2014². Urban public transport supply is driven by the need to limit congestion and road accidents, to reduce the impact of urban transport on greenhouse gas emissions and to reduce the environmental impact of urban transport on air pollution (nitrogen dioxide and particulate matter).
3. **Several European cities suffer from high traffic congestion levels and air pollution generated by urban traffic.** According to the 2019 TomTom traffic index³, 50 European cities displayed congestion levels⁴ above 30% in 2019. According to the European Environment Agency⁵, in 2017 road transport contributed to approximately 11% of the particulate matter concentration and was the most significant contributor to total nitrogen oxide (NOx) emissions in the EU-28, generating 39% of NOx levels. Between 2015 and 2017, around 7% of the EU urban population was exposed to nitrogen dioxide (NO₂) levels in excess of the EU limit value, and more than 75% were exposed to particulate matter 2.5 levels above the World Health Organization (WHO) safe limits⁶. In 2017, road transport was responsible for almost 72% of total greenhouse gas emissions from transport. This makes public transport a key instrument for reducing carbon dioxide (CO₂) emissions to reach the EU target of 80% CO₂ emissions reduction by 2050.
4. **The urban mobility paradigm is shifting towards smart, green and inclusive transport⁷.** European cities' main challenge is to achieve an efficient combination of various modes of transport (collective and private), which meets users' mobility needs and addresses environmental, climate and public health concerns. Policies for urban public transport in Europe are undergoing a paradigm shift, putting more emphasis on liveable cities (Figure 1). This shift has been driven by changes on the demand side (demographic shift, behavioural changes and attitudes towards car usage) and by changes in the provision of urban transport choices (shared and micro-mobility schemes⁸). Some European cities (e.g. Paris, London, Vienna) have leaped already to the next stage by combining mass transit infrastructure investments with the development of mobility services to promote multimodality⁹. Other cities still need

¹ Eurostat, 2018 data. [here](#)

² UITP (International Association of Public Transport) statistics: [here](#)

³ The 2019 TomTom Traffic index ranks 416 cities' congestion levels in 57 countries.

⁴ Measured as the average extra time spent in traffic.

⁵ EEA – European Environment Agency (2019). Air quality in Europe report. [here](#)

⁶ The World Health Organization set values that are more stringent than the EU limit values.

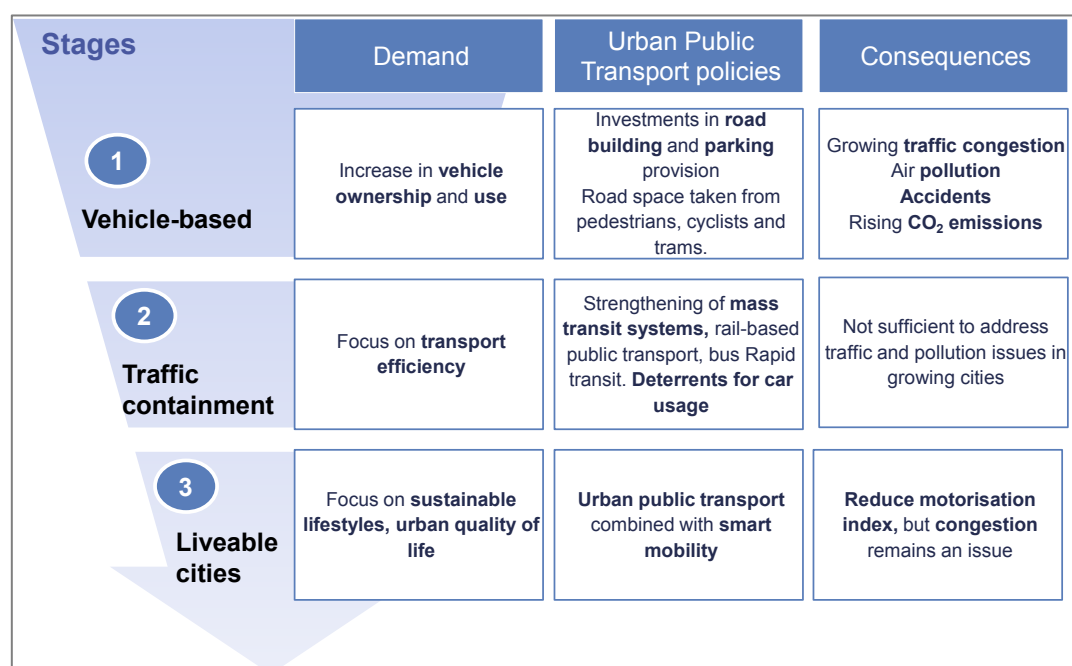
⁷ European Commission (2017). European Mobility Policy Context.

⁸ Shared mobility refers to the shared use of a transport mode, such as a car, bicycle, or other vehicle on an as-needed basis. Micro-mobility refers to the use of light, electric, floating vehicles made available in urban areas through sharing schemes that let users locate, reserve, (un) lock and pay for them through their smartphones. Micro-mobility typically includes bikes (including electric bikes), scooters and mopeds.

⁹ Multimodality refers to the use of various transport modes (e.g. metro, tramway, bicycle) made possible by good interconnection and availability of these different transport modes.

to build parts of their backbone public transport infrastructure (e.g. Rome, Warsaw, Bucharest) to cope with severe congestion problems.

Figure 1 Evolution of urban public transport policies: a pathway to liveable cities



Source: IG/EV elaboration, based on Peter Jones (2014), *The evolution of urban mobility: The interplay of academic and policy perspectives*.

Box 1 The COVID-19 pandemic outbreak – An unprecedented challenge for the urban public transport sector

At the time of writing this evaluation report, the COVID-19 pandemic raged through Europe putting lives and livelihoods at risk. Comprehensive data on the impact of the current crisis on urban mobility in Europe were not yet available at the time of writing this report. Nevertheless, based on a preliminary analysis by the UITP¹⁰ public transport has been severely affected due to a disruptive shock on both the demand and supply sides.

- On the demand side, usage levels in cities dropped to around 89% and revenues for transport operators plummeted during the first weeks of lockdown across Europe.
- On the supply side, service continuity has been ensured to the extent possible, but to protect the health and safety of employees and passengers, preventive measures had to be implemented (e.g. disinfection of vehicles, social distancing) resulting in cost increases for transport operators.

Preliminary analysis suggests that COVID-19 could have a lasting impact on urban mobility in Europe. Whilst some changes are meant to be temporary on the supply side (unfavourable investment outlook, de-prioritisation of climate in investment decisions), the pandemic could bring about medium- and long-term impacts on the demand side if some changes become permanent (e.g. more regular teleworking, increased car-free zones in city centres, users preferring micro-mobility options to mass transit public transport). At the time of writing this report, however, there was still much uncertainty about how long the effects of the pandemic will affect demand and supply of urban public transport.

¹⁰ UITP's estimates at 8 April 2020.

1.2 The EIB's Transport Lending Policy defines urban public transport as a key contributor to climate action and environmental sustainability

5. **Although the subsidiarity principle¹¹ applies to the transport sector, European Union legislation plays an important role in shaping transport policies.** UPT is typically at the interface of several core EU policy areas – transportation, environment, urban and regional policy. Other relevant policy areas that have gained prominence more recently in connection with urban transport are energy, innovation and social policy. According to Articles 70 and 71 of the Treaty establishing the European Community, Member States remain responsible for the regulation of matters relating to transport policy. However, as a fully integrated transport system is essential for the four freedoms of movement (goods, services, capital and labour) defining the Single Market, a long-term and coordinated approach is required at the EU level. Although the subsidiarity principle applies to the transport sector, and Member States and their cities are responsible for investing in sustainable urban transport, numerous EU legislative acts have shaped a strong common regulatory framework and set out common EU transport policy objectives. The European Union has thereby become a major legislator in many areas of transport policy.
6. **The EU policy in relation to urban mobility has been articulated through a series of policy documents and Directives since the early 2000s** (Figure 2), including the Green Paper on Urban Mobility (2007), the Action Plan on Urban Mobility (2009), the Transport White Paper (2011), and the Urban Mobility Package (2013). Two subsequent EU Directives (Clean Vehicles Directives of 2009 and 2019¹²) on the promotion of clean and energy-efficient road transport set requirements on renewing transport fleets, with explicit reference to the principles of the circular economy and clean or zero-emission vehicles. The 2019 Directive also mentions that EU-promoted technical and financial advisory services should be provided to local authorities and operators exploiting instruments such as the European Investment Advisory Hub (EIAH)¹³ and the Joint Assistance to Support Projects in European Regions (JASPERS)¹⁴ facility, and mobility and urban planning should be better coordinated through the use of sustainable urban mobility plans and better coordination across governance levels. These legislative and policy efforts translated into increased financial support for improving urban mobility in European cities.

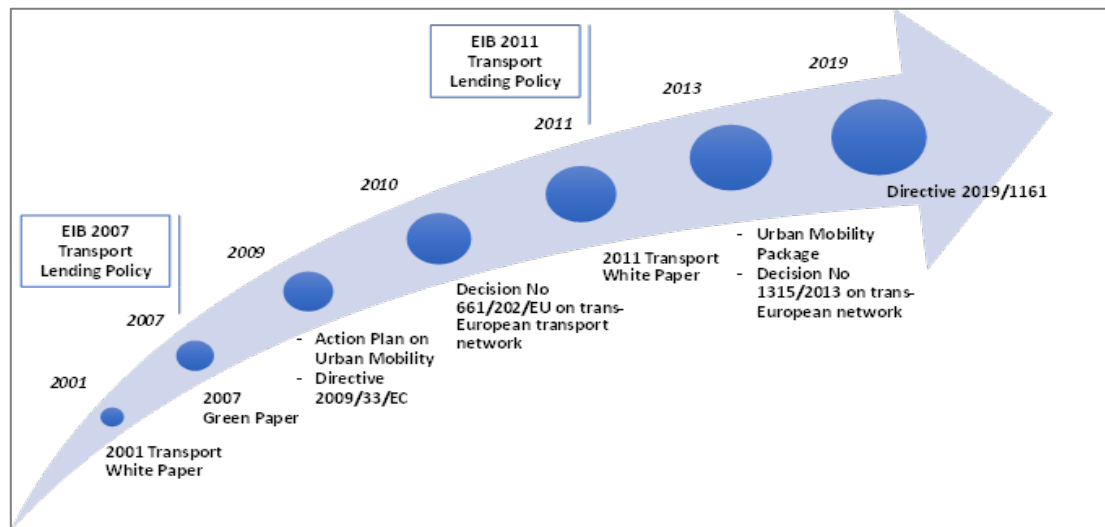
¹¹ According to the “subsidiarity principle”, defined in Article 5 of the Treaty on European Union, the European Union should not take action unless it is more effective than action taken at national, regional or local level.

¹² Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019, which amended Directive 2009/33/EC on the promotion of clean and energy-efficient road transport.

¹³ EIAH is a joint European Commission-EIB initiative launched in the context of the Investment Plan for Europe that provides technical and financial advisory service to project promoters to enhance their institutional capacity, strengthen project preparation and implementation and, where applicable, optimise the use of EU funds.

¹⁴ JASPERS is a European Commission technical assistance facility developed jointly with the EIB supporting Member States and Accession Countries in their preparation of high-quality major projects that will be co-financed by EU Structural [and] Investment Funds (which refers simultaneously to the EU Cohesion Policy financing provided under the European Structural Funds for the 2007-2013 programming period, and the European Structural and Investment Funds for the 2014-2020 programming period).

Figure 2 Timeline of EU and EIB transport and urban public transport policies



Source: IG/EV.

7. **The Bank's current Transport Lending Policy (2011) prioritises UPT operations in land transport lending, along with rail and multi-modal projects, because of their potential to reduce greenhouse gas emissions per transport unit.** On the one hand, the EIB Transport Lending Policy (2007 and 2011) constitutes the strategic framework that guides EIB support for UPT. The Transport Lending Policy, driven by EU policies, emphasises the role urban public transport plays in reducing congestion and environmental externalities, through the promotion of sustainable transport modes over private cars and support for transport efficiency. On the other hand, the annual EIB Operational Plans translate EU policy objectives into EIB corporate objectives (called "public policy goals" since 2014) for all policy sectors, including transport. Each of the public policy goals have supporting activities (e.g. "Mobility for Europe's cities" under the public policy goal on "infrastructure"). For each of the public policy goals, the operational plans also define yearly quantitative targets for the coming two-year period on a rolling basis, whilst there are no quantitative targets for the supporting activities.
8. **Recent and ongoing EU legislative policy developments will reshape the EU transport policy in general and the urban mobility policy agenda in particular.** Both the European transport white paper of 2011 and the 2013 Urban Mobility Package are due for evaluation and revision in 2020-2021. These revisions will occur in the context of post-2020 changes in Energy Union Strategy and long-term greenhouse gas emissions reduction targets. With respect to urban mobility, the European Commission launched in late 2019 a consultation process to assess the effects of the Urban Mobility Package and reformulate the EU urban mobility strategy. This reformulation is likely to take into account developments such as the growing importance of cities in the EU agenda, changes in technologies and social behaviour, as well as the challenges related to rising mobility (congestion), health (air pollution), climate (emissions) and the impact of the coronavirus pandemic on urban mobility. Moreover, the European Commission set an ambitious strategy at the beginning of 2020 under the Green Deal, the European Commission's new growth strategy to make the European Union's economy sustainable. Against this backdrop, the European Union has put forth a unified classification of green economic activities (EU Taxonomy¹⁵) aiming to provide guidance for policymakers, industry and investors on how best to support and invest in economic activities that contribute to achieving a climate-neutral economy. All

¹⁵ [Regulation \(EU\) 2020/852](#) of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and [Final Technical Report](#) (March 2020) on sustainable finance drawn up by the Technical Expert Group, which was established by the European Commission to inform its work on the EU Taxonomy.

these initiatives and challenges were mirrored in the Multiannual Financial Framework (MFF)¹⁶ for the period 2021-2027 approved by the end of 2020.

9. **This evaluation comes at a timely moment whilst the Bank is revising its Transport Lending Policy.** The ongoing revision of the Bank's Transport Lending Policy aims to ensure the EIB's alignment with recent EU policies, as well as strengthening its commitments towards climate action. This revision is done in parallel with the development of the EIB Group's Climate Agenda and of the new EU Sustainable and Smart Mobility Strategy¹⁷ approved in late 2020). Under the EIB Group's Climate Agenda, the EIB Group committed at the end of 2019 to aligning its financing activities with the principles and goals of the Paris Agreement¹⁸ from the beginning of 2021. During 2020, the Bank has been developing a Climate Bank Roadmap 2021-2025 (Climate Bank Roadmap 2025) with a view to guiding the EIB in the transition towards such level of ambition. Climate Bank Roadmap 2025, which will be rolled out by the end of 2020, will set the new strategic and operational framework for the Bank's activities touching upon the climate, environmental and social aspects underpinning sustainable development. Under Climate Bank Roadmap 2025, the expectation is that the Bank's upcoming strategic orientations and eligibility criteria for all EIB-financed operations, including urban public transport, will be shaped by the Paris Agreement.

1.3 Urban public transport accounts for a significant share of the EIB's transport lending

10. **Urban public transport represents around a quarter of the EIB's support for the transport sector over the past decade, and 5% of total EIB lending in the EU-28.** This figure includes all operations under the sectoral classification "urban transport" except urban roads, car parks and car sharing projects. Over the 2007-2019 period, in the EU-28 the EIB signed contracts that included an UPT component in 216 operations (Figure 3). Of these 216 operations, 74 were multi-sector, i.e. they included both UPT and

Figure 3 Overview of the EIB urban public transport portfolio signed in 2007-2019, in volumes and number of operations



Source: EIB UPT portfolio

Note: Some contracts were signed before 2007, amounting to €1.6 billion.

non-UPT components. For these 74 operations, only the UPT-related investments were taken into account for the purpose of this evaluation. Total EIB financing for UPT thus amounts to €37.1 billion (of which €1.6 billion was signed before 2007 and €35.5 billion between 2007 and 2019).

¹⁶ The Multiannual Financial Framework (also referred to as the "EU Budget") establishes the spending priorities and maximum amounts that the European Union may spend in particular areas over a fixed period of several years.

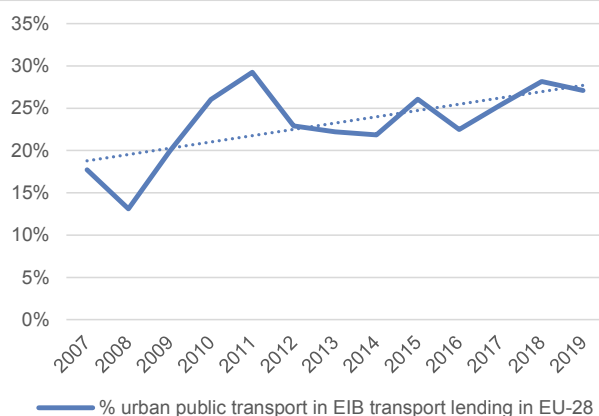
¹⁷ Communication of the European Commission, the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: "Sustainable and Smart Mobility Strategy – putting European transport on track for the future", COM(2020) 789 final. Available [here](#)

¹⁸ Overseas Development Institute, ODI (2018) "Making finance consistent with climate goals: insights for operationalising Article 2.1c of the UNFCCC Paris Agreement". Available [here](#)

11. **EIB support for UPT has gained importance over time and, overall, volumes invested in UPT have increased relatively more than the rise in EIB lending for the transport sector.** The share of UPT in the EIB's transport portfolio followed an upward trend during the period 2007-2019 (Figure 4). This continuous increase may be explained by the fact that the Transport Lending Policy (2007 and 2011) prioritises UPT projects. There was a sharp increase in amounts signed at the time of the financial and economic crisis when the amounts signed in this sector increased from €1.8 billion in 2008 to €4.1 billion in 2011.

This increased lending was driven by higher demand from municipalities, including from cities that in the past were able to finance their UPT projects through a combination of national/regional grants with commercial and/or national promotional bank financing. In recent years, annual amounts signed for UPT projects remained relatively stable, with an average signed amount of €2.6 billion per year.

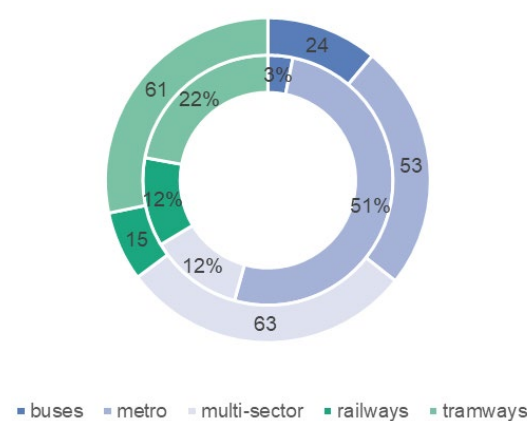
Figure 4 Share of urban public transport signed amounts in total EIB transport lending in the EU-28 (2007-2019)



Source: EIB UPT portfolio

12. **EIB financing in the UPT sector was mainly geared towards large-scale backbone infrastructure investments.** The EIB's UPT project portfolio includes four main sub-sectors, namely urban railway, metro, tramway and bus (see Figure 5 on the right). The largest loans went to railways and metro projects, which reflects the overall size of such investments. Most projects (62%) include both an infrastructure and rolling stock component. A quarter of the projects are exclusively infrastructure investments, whilst exclusively rolling stock operations are a residual category (12%). Sector and geographical distribution reveal countries' preference for certain types of UPT projects. A large share (62%) of tramway projects are located in France and Poland, a quarter of the metro projects are located in Spain, and 40% of the urban railway projects are in the United Kingdom. There is no specific trend emerging in sector allocation, but some peaks were observed in specific years. In particular, seven bus fleet renewal projects were signed in 2019 (29% of all bus projects), mostly under the clean urban transport programme loans¹⁹.

Figure 5 Number of operations (external circle) and share of signed amounts (internal circle) for urban public transport, by sub-sector (2007-2019)



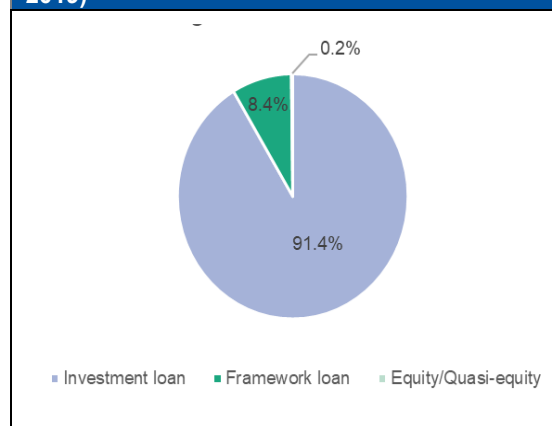
Source: EIB UPT portfolio.

Note: Multi-sector includes projects that cover more than one sector and framework loans.

¹⁹ A programme loan is an EIB instrument channelling EIB financing to the public and private sectors, which includes a series of sub-loans to multiple borrowers that are grouped together under one sector, policy objective or geographical region.

13. **Investment loans²⁰, supporting a single large project or an investment programme, were by far the most frequently used instrument to finance urban public transport operations** (see Figure 6 on the right). Equity and guarantees represent only 0.2% of signed amounts because of the structure of the public transport market in Europe. More than 80% of the UPT financing contracts were signed with public entities, 12% were signed with private borrowers, and the residual category included contracts signed with mixed capital entities. Framework loans, typically multi-sector, account for one third of the total number of UPT operations. Framework loans account for 8% of the UPT total lending volume over the period 2007-2019; these instruments aim to finance in a flexible manner cities' investment programmes (including small or large projects) for which detailed information is not available at appraisal.

Figure 6 Share of signed amounts for urban public transport, by type of instrument (2007-2019)



Source: EIB UPT portfolio.

14. **The UPT portfolio is spread across 24 of the 28 Member States²¹ and covers approximately 100 European cities.** When looking at the geographical distribution of UPT lending relative to gross domestic product (GDP), UPT investments are quite geographically dispersed (Figure 7). Countries in Central and Eastern Europe²² had, on average, a large number of relatively small UPT operations, which was determined by a combination of factors, including debt absorption capacity and promoters' capacity to manage large-scale and complex UPT projects. In cohesion regions, the relatively small UPT lending volumes could also have been reinforced by the delivery mechanisms of the Cohesion Policy²³ that favour the distribution of EU grants throughout regions, rather than concentrating investments in capital cities.

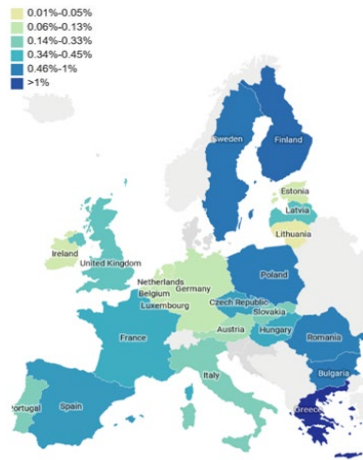
²⁰ Investment loans support a single large investment project or an investment programme, aligned with one or more priorities of the EIB. The EIB financing in an Investment Loan is indicatively above €25 million and should normally not exceed 50% of the total project investment cost.

²¹ No UPT projects were financed in Croatia, Denmark, Malta and Slovenia.

²² Country groups based on the geographical classification proposed by EuroVoc, which is applied in EU official publications: (i) Central and Eastern Europe: Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovenia and Slovakia; (ii) Northern Europe: Denmark, Estonia, Finland, Latvia, Lithuania and Sweden; (iii) Southern Europe: Cyprus, Greece, Italy, Malta, Portugal and Spain; (iv) Western Europe: Austria, Belgium, France, Germany, Ireland, Luxembourg, Netherlands and United Kingdom.

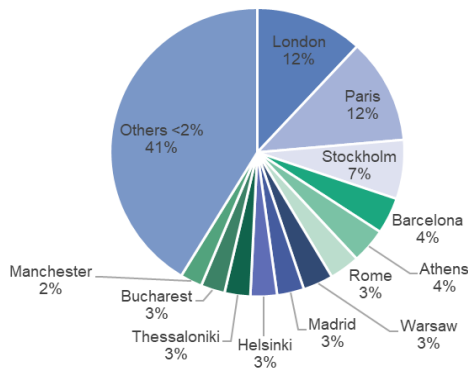
²³ The EU Cohesion Policy refers to the overall objective of the Union, and a policy area of shared competence between the Union and the Member States, with the particular aim of 'reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions' (TFEU, Article 174). Cohesion is a broad concept that encompasses economic, social and territorial cohesion. Economic cohesion can also be thought of as the process of economic convergence – i.e. the reduction of differences in the level of economic development among EU regions.

Figure 7 Volumes of EIB-supported urban public transport projects in the EU-28 relative to GDP (2007-2019)



Source: EIB UPT portfolio

Figure 8 Share of signed urban public transport lending amounts by city (2007-2019)



Source: EIB UPT portfolio (191 operations, multi-city operations excluded)

Note: comprises cities with >2% of the portfolio's signed amounts (in absolute terms).

15. A quarter of UPT lending volumes benefited two large capital cities, while small and medium-sized cities accounted for half of the EIB's UPT lending (Figure 8). Capital cities accounted for approximately half (54%) of signed amounts, with London and Paris each totalling 12% of volumes signed between 2007 and 2019 (Figure 8). This large concentration of EIB lending volume in large capital cities is related to the size of their economies and absorption capacity, and reflects a tendency for UPT investment gaps to be greater in large municipalities, where financial needs are more than proportional to city size. The average project cost of investments supported by the EIB in capital versus non-capital cities (respectively €1.3 billion and €0.4 billion). Large cities embarking on major UPT investments were more likely to receive support from the EIB for multiple projects during 2007-2019. Overall, the cities that benefited from the largest number of UPT projects were Barcelona and London (seven projects each), followed by Madrid and Warsaw (six projects each). That being said, small and medium-sized cities accounted for respectively 13% and 36% of UPT lending volumes signed between 2007 and 2019.

1.4 Objectives and methodology

1.4.1 Evaluation objectives

16. **This evaluation assesses the extent to which EIB lending contributed to promoting UPT in the EU-28 between 2007 and 2019.** In addition to accountability purposes, it intends to share findings and recommendations, which may inform the ongoing revision of the EIB Transport Lending Policy in 2021 and the implementation of the EIB's new Climate Strategy, launched in November 2019. This evaluation provides insights for the EIB and broader audiences on the relevance and performance of EIB-supported UPT projects across the European Union. More specifically, it examines:

- The extent to which EIB-financed UPT projects have contributed to further the EU agenda relative to UPT and responded to cities' needs (Chapter 2).
- The results achieved by projects (Chapter 3).

- The efficiency with which the EIB-financed UPT projects were implemented (Chapter 4).
- The extent of EIB financial and non-financial contribution in UPT lending (Chapter 5).

17. This evaluation includes EIB-financed projects supporting public/collective urban transport modes within an urban area, which mainly covers tramway, metro, bus/trolleybus and urban railway/light rail. All types of EIB support are included, namely: loans, blended finance, guarantees, equity and quasi-equity, and technical assistance or advisory services provided as a complement to these operations.

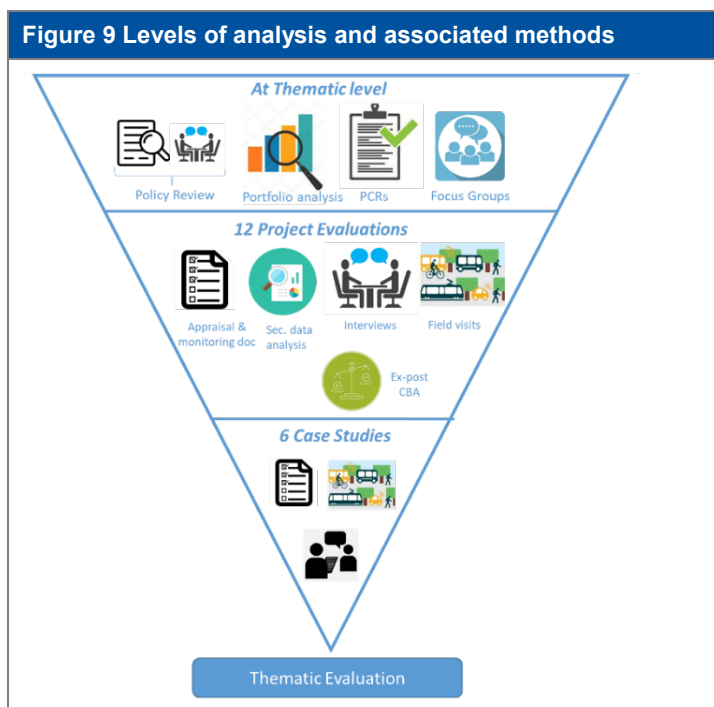
1.4.2 Overall approach

18. This evaluation follows a theory-based approach, which consists in analysing the chain of inputs, activities and outputs leading to outcomes and broader impacts of operations evaluated. A generic **theory of change** for EIB operations in UPT was reconstructed together with the relevant EIB services (Annex I) and builds upon a policy review covering both EU and EIB policy frameworks for urban transport. It identifies three types of project results:

- **Outputs** delivered by UPT projects, including the provision of safe, secure, better serviced infrastructure.
- **Outcomes** which justified UPT projects in the first place, in terms of improved accessibility and use, modal shift, reduced congestion.
- **Impacts** to which UPT projects contribute in association with other municipal policies (spatial planning and land use, urban regeneration, broader urban mobility policies) and that affect cities' attractiveness and competitiveness, quality of citizens' life and social inclusion. These impacts include broader environmental and climate benefits.

19. Factors which can influence the achievement of the expected results also described in Annex 1 (e.g. external context, risks and assumptions). Whilst the outputs fall within the direct control of the project's promoter, the project's outcomes are directly influenced by the promoter. The project's impacts, however, are influenced by many other factors, beyond the remit of the project itself. Likewise, the Bank's influence along the causal chain is strong at the level of inputs, but less so at the level of outcomes and beyond.

20. Based on this theory of change, eight evaluation questions have been formulated (see Annex 2). A response to those questions has been prepared based on findings collected at two levels of analysis (Figure 9 on the right): (i) at the level of a portfolio of 216 UPT operations; (ii) at the level of a purposeful sample of 12 project evaluations, whose specific findings are analysed more in-depth in the synthesis report²⁴; and six case studies of ongoing projects. This combination of different units of analysis aimed



Source: IG/EV

²⁴ The synthesis report has been produced by the evaluation team on the basis of the main findings stemming from the 12 project evaluations of UPT operations.

to exploit both width and depth of analysis and was supported by the use of triangulation to achieve a solid, rigorous and nuanced judgment. Annex 2 provides more detail about the methods used.

21. **The first level of analysis explored issues that were relevant for the entire UPT portfolio.** It includes: 1) a comprehensive portfolio analysis (216 operations); 2) a review of all completed projects within this portfolio (i.e. 65 operations for which a project completion report was available at the time of evaluation²⁵); 3) a policy review of urban public transport and urban mobility policies and of the most pressing challenges for cities; 4) about 180 interviews with EIB staff, institutional and non-institutional stakeholders in the European Union, interviews with project promoters and borrowers; and 5) focus groups with EIB services to discuss preliminary findings.
22. **The project evaluations and case studies provided insights from projects within specific city contexts.** Using a purposeful stratified sampling method, 12 completed projects were selected for site visits and in-depth evaluation. Table 2 below provides a list of the 12 selected projects. These 12 projects were not intended to constitute a representative sample for a statistical analysis but helped to present the findings of the thematic analysis with specific project examples. The team carried out an ex-post cost-benefit analysis for eight urban public transport investments within eight of the selected 12 project examples. In addition and in collaboration with the Bank's services, six more recent projects were selected to be analysed as case studies. The purpose of these six case studies, which were still ongoing at the time of this evaluation, was to provide more insights on (i) project performance problems related to delays and cost overruns, and (ii) novel financing arrangements and implementation issues related to new types of urban transport investments.

Table 2 List of 12 projects selected for in-depth evaluation

#Project#	Country	Sub-sector	Type
P1	UK	Light rail system	Infrastructure
P2	Spain	Tramway	Rolling stock and infrastructure
P3	Spain	Metro	Rolling stock and infrastructure
P4	France	Tramway	Rolling stock and infrastructure
P5	Spain	Metro	Infrastructure
P6	Hungary	Tramway	Infrastructure
P7	France	Tramway	Rolling stock and infrastructure
P8	France	Buses	Rolling stock and infrastructure
P9	Czech Republic	Metro	Infrastructure
P10	Poland	Metro	Infrastructure
P11	Sweden	Light rail system	Rolling stock and infrastructure
P12	Bulgaria	Buses and trams	Rolling stock

Source: IG/EV.

²⁵ Of the 216 UPT projects within the portfolio, 83 had a project completion report (PCR) at the time this analysis was performed. This evaluation excluded from this population 18 multi-sector projects, for which UPT operations only represented a small share of the investments (therefore with scarce information on the UPT component of the projects in PCRs). The resulting population covers all UPT projects for which a PCR was available, and for which the UPT share was not negligible (in the case of framework loans), that is 65 completed projects.

23. **Finally, to the extent possible, this evaluation reflects the context of the COVID-19 pandemic.** At the time of writing this report, there was still much uncertainty about the possible evolution of the pandemic in Europe to predict how demand and supply of public transport will be affected and for how long. No clear scenario has emerged yet to reshape significantly and durably the way the EIB has contributed to support European cities in delivering better public transport services. Nevertheless, to remain relevant to this new unexpected context, this evaluation has tried to anticipate possible changes that will impact on the way the Bank has operated in this sector.

1.4.3 Methodological challenges, implications for the evaluation and mitigation measures

24. **This evaluation had to address several challenges that were mainly related to data availability,** both at appraisal and at project completion. The table below summarises some of these challenges (more details are provided in Annex 2) and the mitigation measures that were adopted by this evaluation.

Table 3 Main methodological challenges, implications for the evaluation and mitigation measures adopted		
Challenges	Implications	Mitigation measures
Project evaluations and ex-post cost-benefit analyses		
UPT projects take place in complex urban environments with multiple ongoing projects. Network effects, externalities and agglomeration economies distort the temporal and geographical boundaries, which need to be taken into account in the assessment of individual operations.	Attributing impacts and even some of the outcomes to a specific UPT project is not possible.	The evaluation team focused on the outcomes that are necessary for a project to obtain higher-level impacts, namely modal shift and demand levels. It is assumed that, if these necessary outcomes are achieved, the projects are likely, everything else being equal, to contribute to higher-level impacts.
EIB operations sometimes constitute only one piece of a larger project (e.g. when the EIB finances infrastructure but not the purchase of rolling stock).	It is difficult to isolate the effects of the components co-financed by the EIB since the use of the UPT is dependent on additional project components.	The scope of the analysis was broadened in some cases, even when these components were not part of the EIB financing (e.g. rolling stock).
Data availability at project completion was often found to be incomplete, as regards: (a) demand data, (b) actual data on the modal shift induced at project level, (c) environmental and climate data (no baseline data and/or no ex-post data), (d) ex-post data concerning the EIB's 3PA rating.	<ul style="list-style-type: none"> Difficulties to assess project contribution to some of the outcomes defined at the appraisal stage. Does not allow a quantitative analysis of the distributional effects of UPT projects. 	<p>The evaluation team relied on ex-ante estimates of key project performance indicators (e.g. time savings and modal shift) that were discussed with project promoters and/or service providers.</p> <p>When no baseline and target were set ex-ante, performance metrics were described but not assessed.</p> <p>Distributional effects were assessed qualitatively.</p>
Portfolio and project completion report review		
Building the portfolio of UPT operations was challenging: (a) the sectoral classification in the EIB's internal management system did not enable all UPT relevant projects to be identified exhaustively, (b) for certain types of multi-region operations, location at the city level could not be systematically identified.	Some types of interventions could not be identified in a systematic manner, namely: (a) urban railway operations, as 'railway' projects are classified in the railway sub-sector due to technical considerations, without relevant labelling (e.g. suburban, inter-urban), (b) R&D projects, specifically in the UPT area, and (c) UPT operations classified as "other land passenger transport" under global loans.	<p>Some operations had to be manually reclassified based on their technical description (for instance, those under the sub-sector 'Urban passenger transport', as they overlapped with other sectors).</p> <p>The evaluation built the portfolio of UPT operations by manually including operations that were not automatically generated in the database (from their technical description). Certain types of operations could not be identified in a comprehensive manner (e.g. railways</p>

Challenges	Implications	Mitigation measures
		and R&D projects in urban areas) and are therefore not included.
The framework for assessing the projects to be financed by the EIB and the structure for project reporting have evolved over time.	For some of the projects analysed, the ex-ante and ex-post ratings were not always comparable.	A correspondence table was established between the EIB's rating systems over time, enabling information to be compared over the period under evaluation.

Source: IG/EV

2. ALIGNMENT WITH EU POLICIES AND CITIES' NEEDS

25. This chapter assesses the extent to which the EIB's UPT operations are aligned with EU policies and the Bank's corporate priorities, how they address EU cities' needs, and to what extent EIB products respond to borrowers' needs.

Key findings:

- The EIB due diligence and appraisal tools ensure UPT projects are aligned with EU policies and EIB public policy goals.
- The EIB-financed UPT operations are consistent with cities' urban mobility strategies.
- The EIB has met demand from cities with an adequate product offer and has started its transition towards addressing emerging demand for new technologies and cleaner UPT projects.
- A large share of the EIB's UPT lending goes to repeat clients. These long-term partnerships fulfilled a critical role of facilitating the alignment of the Bank's support with city needs over time.

2.1 The portfolio of UPT investments is aligned with EU policies and with EIB priorities

26. **This evaluation found that the UPT portfolio is aligned with EU policy objectives, particularly in relation to climate action and environmental sustainability.** The strategic alignment of each operation with respect to EU policies is systematically verified by the Bank's services at the appraisal stage. At the appraisal stage of an operation, the EIB assesses under its 3PA (and specifically under Pillar 1 on "Contribution to EU policy") that an operation is consistent with EU policy and contributes to higher priority objectives. UPT investments are eligible for EIB financing in view of their contribution to the common interest or public goods, in particular for what concerns sustainable communities, sustainable transport and urban public transport (Article 309c TFEU). Since 2014, urban and inter-urban transport operations are approved under the "infrastructure" public policy goal. The valuation of an UPT operation's contribution to EU policy increases if it supports the Trans-European Transport Network (TENs), as in the case of UPT investments improving connection to international railways. Since 2015, the fact that an operation forms part of EFSI (European Fund for Strategic Investments)²⁶ also increases the valuation of a UPT operation's contribution to EU policy²⁷. As a result, nearly 60% of UPT operations approved since 2016 were assessed by EIB services as significant or high contributors to EU policy objectives at appraisal.
27. **While not all UPT projects have a significant climate impact, they currently fully count towards the EIB climate action KPI.** The Transport Lending Policy considers that UPT investments are amongst the most promising ones in terms of reducing carbon emissions per transport unit. As such, all activities listed by the Transport Lending Policy as urban public transport projects currently count for 100% of their signed amount towards the EIB climate action KPI. This approach does not differentiate between UPT projects depending on their absolute greenhouse gas emissions reduction and net carbon footprint²⁸. However, not all UPT projects have a significant climate impact. In the UPT portfolio, 73 operations had available data on greenhouse gas emission reductions, and they showed a large variety of potential climate gains (ranging from 0 tonnes per year to 102 500 tonnes per year). For rating the merits of a UPT project ex-ante, the absolute greenhouse gas emissions reduction and net carbon footprint are taken into account in the EIB's ex-ante cost-benefit analysis, but not in estimating the project's contribution to the climate action KPI. These dimensions are also quantified in the EIB's Pillar 4 (monitoring indicators), but Pillar 4 is not used for rating a project. This approach has partly restricted

²⁶ EFSI is a key initiative launched jointly by the EIB Group (the EIB and the European Investment Fund), together with the European Commission to help overcome the investment gap in the European Union. It is one of the three pillars of the Investment Plan for Europe aiming to revive investment in strategic projects around the continent to ensure that money reaches the real economy. EFSI was approved on 22 July 2015.

²⁷ Among the 15 EFSI operations included in the UPT portfolio, 60% were given a high score by EIB services at appraisal on the criterion "Contribution to EU policies", compared to 9% among the non-EFSI operations (share calculated removing the 43 operations for which the Pillar 1 score is not available).

²⁸ Since 2012, the Bank's project appraisal includes the estimation of the projects' 'absolute greenhouse gas emissions reduction' and 'net carbon footprint'. Such approach was strengthened in 2015 when the Bank's climate action target for operations within the European Union was introduced, aiming at an annual climate action investment amounting to 25% of the EIB's total lending.

the ability of the Bank to assess the merit of and differentiate between UPT projects by virtue of their absolute contribution towards climate action.

28. **The Bank is revising this approach, in the context of the work it is doing to become the EU climate bank and to enhance its additionality.** First, the list of activities eligible as urban public transport projects is being revised in the context of the EIB Climate Roadmap and the EU Taxonomy. Second, the new Impact and Additionality Framework (AIM), which will be rolled out in 2021, is expected to make it possible to better value projects that have higher potential greenhouse gas emission gains, by virtue of their contribution to addressing specific market failures. Potential market failures being addressed by UPT projects may include: the reduction of negative transport externalities due to a shift of traffic to more sustainable transport modes, or network economies associated with the development of the market for the deployment of alternative fuel vehicles and associated infrastructure. This revised approach is likely to enhance granularity in the way the EIB estimates the contribution of its UPT projects towards its climate action objective.
29. **It is difficult to assess the extent to which EIB investments in the UPT sector have contributed to meeting the Bank's lending target on economic and social cohesion and convergence.** The EIB data management system does not make it possible to calculate precisely the volume of EIB lending to urban public transport that benefited regions eligible under the EIB's cohesion objective, namely convergence regions²⁹, phasing in and phasing out regions (2007-2013 MFF) or less developed and transition regions (2014-2020 MFF), and thus the extent to which lending in the UPT sector contributed to meeting the current corporate target of dedicating 30% of EIB investments in the European Union to cohesion-eligible regions³⁰. This is due to the fact that volumes signed in the UPT sector cannot be disentangled by region, when operations are multi-sector and or multi-region³¹.

2.2 EIB lending for UPT responded well to cities' mobility priorities

30. **EIB UPT investments were driven by the cities' demands and aligned with cities' urban mobility strategies.** The 2011 Transport Lending Policy requires UPT investments to be incorporated into integrated urban mobility plans, addressing the challenges stated in the EU Green Paper on Urban Mobility (2007) and in the EU Transport White Paper (2011). This evaluation reviewed all 65 completed operations within the UPT portfolio³². At the time these projects were appraised, the sustainable urban mobility plan concept was at an early stage of development³³, so little reference was made to such plans in project appraisal documents. Nevertheless, the evaluation found that these 65 EIB UPT projects were appropriately anchored to the strategic documents of the municipalities concerned.

²⁹ Convergence regions are the NUTS 2 level regions covered by the convergence objective (i.e. regions with a per capita GDP less than 75% of the EU average) during the programming period 2007-2013.

³⁰ The target for lending in support of cohesion regions has changed over time. In 2007-2008, it was set at 40-45% of total signatures. Between 2009 and 2012 it was in the range of 37% and 40%, and it decreased to "more than 30%" from 2013 onwards.

³¹ In the Bank's data management system, the split of eligibility percentages is entered at the operation level and does not consider sector-specific allocations of multi-sector. Furthermore, for Framework Loans initial allocations can change and this is not updated at project completion.

³² The PCR review undertaken for this evaluation included all completed 65 operations from the EIB's total urban public transport portfolio, which had a project completion report available at the time of this evaluation. Out of the 65 operations covered, 59 were Investment Loans and six were urban public transport projects forming part of a Framework Loan.

³³ The 2011 Transport White Paper advised cities to develop sustainable urban mobility plans and the 2013 Urban Mobility Package re-emphasised their importance. As of 2020, sustainable urban mobility plans are, however, not yet fully mainstreamed.

Box 2 Sustainable urban mobility plans: a key building block of EU urban mobility policy

The approach promoted by sustainable urban mobility plans recognises that urban mobility challenges do not concern only transport and environmental issues, but also overall urban planning (reducing commuting time and cost), and economic and social welfare (city attractiveness to new businesses, employment, inclusion and housing). These plans are meant to address within a coherent policy framework issues related to congestion, air and noise pollution, climate change, road accidents, on-street parking and the integration of new mobility services. However, without EU legislative or financial incentives, the uptake of the sustainable urban mobility plan concept is progressing unevenly across European cities. A 2017 sustainable urban mobility plan needs assessment survey showed that only 37% of responding cities had implemented a sustainable urban mobility plan, with large national variations ranging from France (78%) to Greece (6%). The financing of long-term and cost-intensive UPT projects has already been difficult to secure for many European municipalities. A shift towards more sustainable UPT is adding a further challenge, which requires tapping into new financial resources, including from the private sector, and improving institutional capacities, skills and expertise in cities' administrations for guiding the transformation of urban mobility systems.

Source: Interreg Europe (2018). Sustainable Urban Mobility Plans; and European Platform on Sustainable Urban Mobility Plan (2019). Funding and Financing Options for Sustainable Urban Mobility.

31. **Long-term partnerships with repeat clients fulfilled a critical role of facilitating the alignment of the Bank's support with city needs over time** (see Box 3 below). Over two-thirds of UPT lending volumes have been directed towards repeat clients (69% of UPT signed volumes between 2007-2019), with some of which the Bank has developed long-term partnerships. In such instances, the long-term partnership facilitated the alignment of UPT operations to cities' objectives, the adaptation of the EIB's product offer to needs including with the capacity to meet complex financing needs. Working with repeat clients allowed, for instance, for more efficient appraisal and monitoring processes when promoters are already familiar with EIB requirements and procedures.

Box 3 Long-term strategic partnership for urban public transport development, the case of a UK city

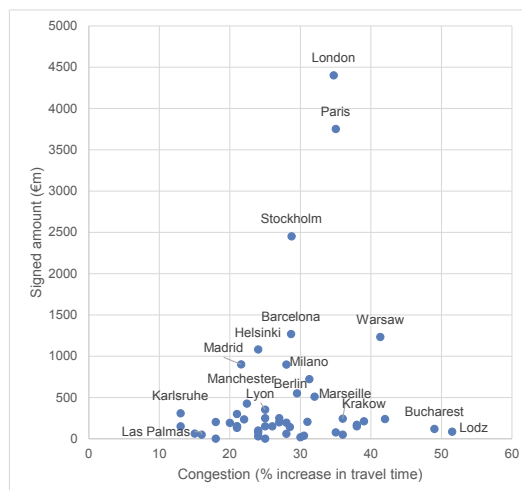
Between 1990 and 2019, the EIB financed 14 UPT operations in a UK city. These operations are an illustration of successful Bank involvement in UPT with a high-income and sophisticated institutional environment, where the Bank focused its activities on the aspects where added value could be delivered, in particular on the dynamic aspects of the financial relationship with the client. The success of this partnership rests on the close alignment between EIB transport lending priorities and the strategic and financial priorities of the promoter.

2.3 EIB products responded to borrowers' needs

32. **Stakeholders' view is that the EIB has played a significant role in supporting UPT investments by providing appropriate financial products.** EIB financing for UPT projects largely consisted of long-term investment loans that match the asset lifecycle and were delivered through tailored financing arrangements to meet borrowers' financing needs. Discussions with EIB loan officers and project borrowers emphasised the EIB's capacity to model the finance contracts on the needs of clients to also match complex project financing architectures.
33. **The EIB's UPT lending increased in the aftermath of the 2008-2009 financial crisis, driven by higher demand from municipalities.** Evidence gathered during the in-depth evaluation of 12 projects suggests that this increased support for UPT operations following the financial crisis was driven by higher demand from municipalities facing tightened financial markets. Several cities, which were previously able to finance UPT investments through a combination of national and regional grants with commercial and/or national promotional bank financing, were unable to financially close some of their operations and turned to the EIB for support. In France for instance, the effects of the financial crisis were compounded by the collapse of a major financial institution active in public finance. This contributed to a further tightening of the financial market in France, particularly for large-scale investments in a sector such as urban public transport.

34. **UPT lending served cities with congestion or pollution challenges.** Being driven by demand, the portfolio did not, however, go proportionally to the most congested or polluted European cities. All UPT projects included in the EIB portfolio are justified by the need to address congestion and/or environmental issues related to urban traffic. This evaluation thus tried to analyse the existence and strength of a correlation between EIB financing for UPT and key indicators that are used to measure traffic and air pollution at city level. When combining data on cities' average congestion level³⁴, it appears that the EIB financed UPT investments in cities with very different congestion levels (Figure 10). The three largest recipient cities (London, Paris and Stockholm) face considerable congestion levels at the time of project approval, since travel times were more than 30% higher than the average, but were not amongst the most congested European cities. Nearly 52% of projects occurred in cities exceeding EU limit values for transport-generated pollution. Approximately half of the projects for which data were available³⁵ are located in cities that exceeded, at the time of project approval, the EU limit values for emissions of pollutants from the transport sector³⁶. EIB lending was driven by clients' demand and creditworthiness requirements, not by where environmental needs were the largest. The reasons for the relatively more limited demand emanating from cities facing the largest congestion or pollution levels could not be analysed in detail by this evaluation, and may require a specific study.

Figure 10 Aggregated amounts invested (€m) and average congestion levels (% extra time) at city level at project approval



Source: IG/EV, based on TomTom Traffic index (2008-2019). Note: congestion data only available for 48 out of the 103 cities included in the portfolio (106 operations).

35. **The EFSI guarantee enabled the Bank to engage with 14 new clients for financing riskier components of their UPT projects.** Since its entry into force in 2016, the EFSI guarantee enabled the Bank to support 15 UPT projects, of which 14 were with new clients. EFSI made it possible in particular to finance the smart and sustainable component of projects, for which no funding was available from alternative market sources. EFSI proved to be effective in bringing EIB financing to municipalities and transport operators that would have struggled to find financing on the market.

2.4 The EIB's UPT lending is gradually adapting to a more fragmented and diversified demand for financing

36. **Changes in urban mobility priorities and in UPT markets are bringing about a more fragmented and diversified investment landscape that brings a number of challenges for municipalities and for the EIB's future support for UPT** (Box 4 below). Although financing of cleaner transport modes ranks high in European cities' priorities, alternative UPT modes require innovative technologies, which involve smaller and riskier investments. Such projects are more labour-intensive relative to the amount

³⁴ Measured as the average extra time spent in traffic and based on the TomTom traffic index database from 2008 to 2019. Analysis limited to 48% of the portfolio. Multi-city operations were deleted along with operations in cities for which the TomTom traffic index was not available for the year of project approval. This calculation is in relative terms and does not refer to the absolute number of people affected by the congestion. This analysis has some limitations due to data coverage and the fact that data refers to the city level/metropolitan areas and cannot be performed at a more disaggregated spatial level.

³⁵ Pollution data at approval was available for 164 projects (76% of the portfolio). This subsample represents 47% of the amounts included in the Bank's UPT portfolio.

³⁶ This analysis was conducted by looking at the limits set by the EU clean air legislation for particulate matter 10 and/or nitrogen dioxide (NO₂) in the year of project approval.

of lending and they would also require more blending, for example through European Commission guarantees.

37. **In particular, recent changes in the EU Clean Vehicles Directive (2019)³⁷ have established tighter criteria for clean mobility solutions in public procurement tenders.** Although this Directive needs to be transposed into national law by 2 August 2021, it has already led to an increase in demand for renewal of buses powered by electricity, hydrogen, biofuels and natural gas, such as biogas, compressed natural gas (CNG) and liquefied natural gas (LNG).

Box 4 Changes in urban mobility priorities: towards a more fragmented and diversified investment landscape

Challenges for municipalities and future EIB support for UPT include:

- Small project sizes, often smaller than the 'normal size' for the EIB (e.g. more than €50 million).
- New types of projects, due to the diversity of usage models and risk structures in projects using cleaner technologies.
- More diverse players, which include the private sector and require the identification of viable business models beyond traditional models entailing high capital investment with a debt burden on the public sector.
- The need to develop and finance the new powering or refuelling infrastructure (e.g. charging stations, fuel cells).

Source: EIB (2017) Cleaner Transport Facility: Supporting the deployment of cleaner transport.

38. **While large-scale backbone UPT projects are expected to remain its core business in the medium run, the Bank is gradually adapting its in-house toolbox to meet this increasing demand for new UPT technologies.** The Bank has tested a streamlined procedure for supporting transition towards cleaner UPT modes in medium and large cities³⁸, through programme loans. As such, more than ten bus fleet renewal projects were signed in 2019 by the Bank, mostly via clean urban transport programme loans in Spain, Germany and the Netherlands.
39. **In addition, joint European Commission-EIB initiatives have enabled the EIB to increase its support for innovative projects promoting clean technologies and cleaner mobility solutions.** Via the European Investment Advisory Hub (EIAH)³⁹ in particular, the EIB has provided technical and financial advisory services to project promoters on a demand basis. As of the end of 2019, 20.4% of the close to 1 600 requests received by the Hub concerned the development of transport infrastructure, equipment and innovative technologies for transport. The main mechanisms with active Hub involvement to support transport and urban projects have included the following joint European Commission-EIB initiatives:
- The Cleaner Transport Facility (CTF)⁴⁰ has offered since 2016 the full range of EIB and European Commission financial products and advisory services to deploy cleaner technology in transport, with the aim of accelerating decarbonisation of urban transport. Recent assignments include support for the transition to clean bus fleets, such as the related infrastructure investments for local public transit authorities in France, Bulgaria, Greece and Belgium. Several of these are now active operations.
 - The URBIS advisory initiative responds to urban authorities' need for integrated, multi-sector, place-based advisory support in order to facilitate the planning, preparation and development of their urban investment programmes and projects. Although not specifically focused on urban

³⁷ EU Directive 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles.

³⁸ Those having fleets of more than 150 buses and with at least 400 000 inhabitants.

³⁹ The EIAH is a joint initiative of the EIB and the European Commission launched in 2015 as part of the Investment Plan for Europe. The EIAH acts as a single access point to various types of technical and financial advisory services.

⁴⁰ The Cleaner Transport Facility (CTF) is a joint European Commission-EIB initiative launched in 2016 to support the deployment of cleaner transport vehicles and their associated infrastructure needs, such as for charging and refuelling.

mobility projects, URBIS supports local authorities across sectors, including via multi-sector investment programmes with relevance for urban mobility.

- The European Local Energy Assistance (ELENA) technical assistance programme⁴¹ enables the Bank to advise municipalities and transport operators to explore other modalities and technological solutions in order to accelerate decarbonisation of transport and improve energy efficiency.

40. **Lastly, new instruments under the upcoming MFF 2021-2027 are expected to help the Bank diversify its support to new mobility solutions and innovative technologies.** The new MFF will encompass a wide range of instruments and programmes supporting the delivery of the European Union's Agenda on clean, inclusive and digital transport that are expected to help the Bank in its transition to supporting cleaner UPT projects and more innovative technologies. In the framework of the Connecting Europe Facility (CEF)⁴², these new instruments include the Connecting Europe Blending Facility⁴³, which was set out in 2019 to support, amongst others, the deployment of alternative fuels, and the CEF Debt Instrument, a risk-sharing facility aimed at fostering the decarbonisation of transport, energy infrastructure, digital and technological innovation through loans, guarantees and high-risk funding. One of the envelopes under the CEF Debt Instrument on future mobility focuses on projects with an increased risk profile that support cleaner, smarter and more automated transport systems.

⁴¹ ELENA is a joint European Commission-EIB technical assistance facility aimed at providing grants for local actors to support them in the preparation of bankable, ambitious and large-scale investment programmes in energy efficiency and distributed renewable energy. Since 2016, ELENA also supports projects in the field of sustainable and innovative urban mobility.

⁴² The Connecting Europe Facility (CEF) is an EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level. It supports the development of high-performing, sustainable and efficiently interconnected TEN-T in three key sectors: transport, energy and digital services.

⁴³ The CEF Blending Facility is a cooperation framework coordinated by the European Commission and managed by INEA, which engages with implementing partners including the EIB to implement the blending approach. Around 80 prospective applicants to the CEF Transport Blending Facility have requested support from the Advisory Hub to assess eligibility and procedures. Half of the successful applicants in the first two selection processes have received support from the Advisory Hub, primarily involving alternative fuels investment projects.

3. RESULTS FOR BENEFICIARIES

41. This section analyses the effectiveness and sustainability of UPT operations. In this evaluation, the assessment of effectiveness distinguishes between:
- The outputs delivered by the project and to which the EIB can have a direct influence as a co-financer (provision of quality infrastructure and service).
 - The outcomes which justified UPT projects in the first place but on which the Bank has a more indirect influence (measured in terms of improved accessibility and use, modal shift, reduced congestion).
 - And lastly, wider environmental, economic and social impacts to which the UPT project may contribute in conjunction with external factors and other interventions.
42. Key findings:
- In most cases, EIB-supported UPT projects were implemented as expected and delivered the planned production targets.
 - Qualitative evidence suggests that transport efficiency and service quality improved.
 - However, passenger flows were lower than expected for more than half of the UPT projects for which data at completion was available, mostly due to the economic crisis, over-optimistic demand forecasts, incoherent municipal mobility plans and/or because project completion reports were sometimes conducted too early to capture longer ramp-up periods.
 - The contribution of projects to a change in the modal share is largely undocumented after completion.
 - Fragmented and qualitative evidence collected by this evaluation suggests that urban public transport projects attained socioeconomic benefits, especially when projects were part of broader urban development and/or revitalisation plans. Yet, the Bank does not systematically collect data on social-related benefits (e.g. accessibility, inclusiveness), even when such benefits were an argument supporting the EIB's financing decision and even though data was often available from promoters.
 - Environmental impacts were likely to result from the cumulative effects of larger urban investment programmes, of which the UPT projects were often one component. The attribution of environmental impacts to UPT projects cannot be quantified in a systematic way and with affordable methods.
 - The financial sustainability of the projects analysed was almost always achieved.
43. **The assessment of effectiveness was hampered by the lack of quantitative data at completion, which did not allow for a systematic comparison between ex-ante objectives and actual outcomes.** The below table indicates the availability of quantitative data at completion, for the population of 65 projects covered by the project completion report review. In particular, a key outcome indicator related to modal shift was only available in 14% of the project completion documents analysed. Where project completion documents included information on these dimensions, it was mostly qualitative, and often not specifically linked to the projects, but rather provided with reference to the entire urban area in question. From an EIB perspective, there is a perception that adding further data collection and reporting requirements might, in some cases, undermine the relationship with the client and reduce the competitiveness of the EIB products. However, most of the borrowers and project promoters interviewed did not consider that EIB reporting was particularly burdensome. Instead, the vast majority indicated that the financial advantage offered by the EIB largely outweighed its reporting requirements and administrative obligations.

Table 4 Availability of data at completion, for the population of 65 completed projects covered by the project completion report review		
	Number of project completion reports with data reported at completion	Data availability rate (share of the 65 completed operations with data reported in a project completion report)
Service frequency	34	52%
Time savings	13	20%
Modal shift	9	14%
Traffic safety	3	5%
Congestion	2	3%
Air quality	2	3%
Greenhouse gas emissions	6	9%
Noise	2	3%

Source: IG/EV's review of 65 project completion reports.

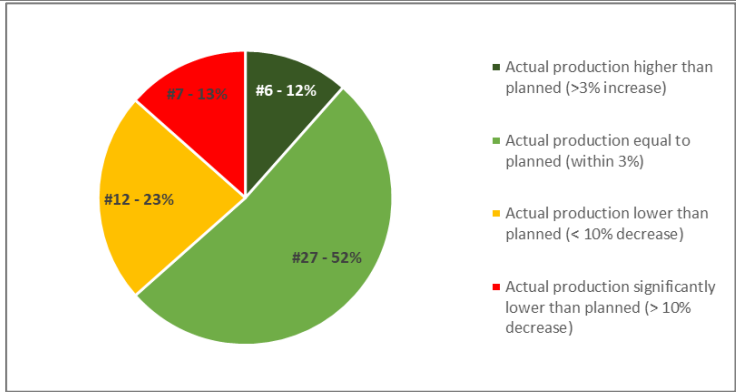
3.1 Most UPT projects were delivered as expected

3.1.1 Actual production levels were attained for most projects

44. **The EIB technical analysis at project appraisal proved to be appropriate.** Nearly 80% of projects included in the project completion report review were constructed and delivered as planned. Only a limited number experienced a minor change in the original project scope (nine cases out of the 65 projects covered in the project completion report review, representing 14%). In some cases, these changes were justified when it was necessary to address unexpected technical issues, but this did not significantly affect the projects. In six projects, there was an increase in scope thanks to savings in the tendering process; these projects typically involved the purchasing of rolling stock, where savings were achieved during the tendering process and enabled the number of units purchased to be increased.
45. **Substantial deviations occurred in a limited number of projects and could not be fully anticipated by the EIB.** Five of the 65 completed projects analysed encountered significant deviations from the original construction plans, which were due to factors that were not anticipated by the EIB services or the promoters:
 - Reduction of the project scope due to the aftermath of the economic crisis. Four of these five projects were located in Southern European municipalities where the economic crisis forced promoters and municipalities to downscale their investment strategies.
 - Changes in the project scope due to technical issues. More advanced technical analysis and revision of preliminary design pointed to new risks that resulted in significant modifications of the original projects (e.g. a substantial reduction of the length of line constructed, fewer tram/bus stops).

46. **EIB ex-ante assessment of production targets was also adequate, given that initial targets were met in most cases.** A relevant indicator concerning the delivery of project outputs, often collected at project appraisal and completion, is the actual level of production measured in vehicle per km⁴⁴. EIB services found that actual production was in line or above expectations for 33 of the 52 projects for which data on production targets was available ex-ante and ex-post (64%; see Figure 11). Production had to be readjusted to align with actual demand or to reduce operating costs. Additional factors explaining the adjustment in production levels included technical problems, issues related to harmonisation of technical standards as well as due to external factors (e.g. economic and financial crisis). The EIB services considered these modifications to be reasonable, unless when interfering negatively with the quality of service (e.g. too low frequency that resulted in increased crowding or in reducing the expected time savings).

Figure 11 Delivery of production targets (# projects; % of total 52 projects with available data)



*Note: Production targets measured in “vehicle per km”.
Source: Project completion report review, based on 52 projects, for which data on production targets was available ex-ante and ex-post.*

3.1.2 Projects contributed to deliver safer and more inclusive public transport

47. **Qualitative evidence suggests that EIB-financed UPT projects contributed to delivering more inclusive, safer and more secure public transport.** The application of the most recent European and national regulations ensured that projects integrate into their technical specification accessibility, safety, security, and energy efficiency concerns. These dimensions are however not systematically and comparably monitored in EIB project documents, either ex-ante or at completion. It was therefore not possible to systematically verify the achievement of these objectives for the 65 completed projects analysed as part of the project completion report review. Instead, this evaluation was able to retrieve qualitative material in project completion documents:

- 15 out of 65 projects analysed under the project completion report review (23%) mentioned some positive impacts concerning social inclusiveness, mostly related to improved accessibility to the urban transport network for persons with reduced mobility and positive effects in terms of urban development and regeneration of the city (also in synergy with areas where renovation was also planned or ongoing), as well as impacts on territorial cohesion (as projects were expected to promote social integration and accessibility to workplaces).

Figure 12 Contribution of UPT projects to deliver greener, smarter, safer and more inclusive public transport.

Energy efficiency	<ul style="list-style-type: none"> Replacement of old diesel buses with more energy efficient/greener bus fleets Conversion of kinetic energy into electrical energy LED lighting
Accessibility	<ul style="list-style-type: none"> Elevators and low floor ramps Audio announcements, electronic information panels, information on station pylons in Braille
Security	<ul style="list-style-type: none"> Stations and fleets equipped with video surveillance system
Safety	<ul style="list-style-type: none"> Deployment of traffic management and control system Driverless systems

Source: Project evaluations and case studies.

⁴⁴ This unit of measurement represents the movement of a vehicle over one kilometre.

- Other positive impacts concerning accessibility were mentioned in 22 of the 65 projects covered by the project completion report review (34%) in relation to improved accessibility to urban transport for peripheral or newly developed areas, as well as to some specific nodes (such as airports or business parks). Passenger safety and security were also substantially improved by the use of new technologies.

48. **The evidence regarding improved energy efficiency is more mixed.** Although technical choices were deployed to reduce energy consumption, new UPT projects sometimes ended up with higher levels of energy consumption. This is the case for new public transport vehicles or metro systems that are equipped with air conditioning to improve passenger comfort.

3.1.3 Service quality improved

49. **Service quality was an important dimension of EIB-financed UPT projects.** The analysis of project completion and appraisal reports show that service quality, which includes comfort improvements, punctuality, frequency and reliability have been considered a central component of the benefits of UPT projects. Achievements related to service quality are frequently part of project objectives, often in relation to the overall purpose of making UPT more attractive to new users.

50. **However, the EIB has not developed metrics for measuring such achievements in a systematic manner** (e.g. data on frequency, reliability and punctuality), whilst there is much anecdotal evidence about service improvements in EIB project documentation.

51. **In spite of measurement challenges, the project evaluations exemplify significant service improvements.** In particular:

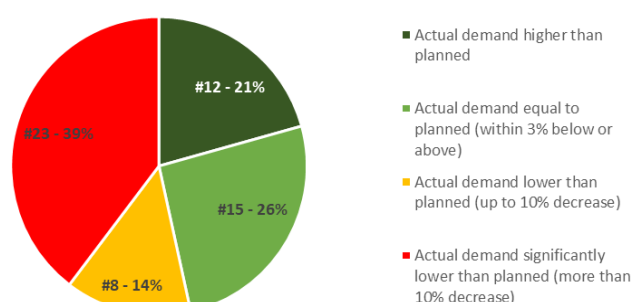
- Metro and tramway projects improved frequency, reliability and punctuality when compared to the buses that they replaced.
- Increased reliability appears to be particularly significant for projects involving separated right-of-way systems like metros or dedicated bus/tram lanes and/or driverless automation.
- The new fleets and stations/stops always provided a higher level of comfort and amenities (e.g. air conditioning, USB recharging, more comfortable seating, increased passenger safety, real-time information systems) compared to the old fleets.
- Safety standards were improved by deploying traffic management systems or upgrading signalling systems.

3.2 Ridership was lower than anticipated for more than half the projects reviewed, and modal shift was sparsely documented

3.2.1 In more than half of the cases analysed, actual demand deviated from initial forecasts

52. **At completion, 53% of the projects analysed (31 out of 58) did not reach the EIB's expected level of ridership, which was significantly lower for 39% of projects** (Figure 13). This finding is robust with the caveat that information on passenger flows was sometimes not fully comparable across the appraisal, completion and ex-post evaluation stages, as it may have been reported at the network level rather than at project level. This evaluation screened project completion documents and literature, and identified four main reasons for this deviation from initial forecasts⁴⁵: impact of the economic crisis, over-optimistic expectations, incoherent municipal mobility plans and/or project completion reports sometimes conducted too early to capture longer ramp-up periods.

Figure 13 Achievement of anticipated ridership objectives



53. **First, demand was significantly affected by the economic crisis whose impacts could not be fully anticipated at project appraisal.** Data on UPT ridership in Europe⁴⁶ confirms the negative effects of the economic crisis on reducing passenger levels in public transport.

Source: Project completion report review, based on 58 projects, for which data on ridership was available after completion.

Demand was affected by accelerated emigration, the sudden downscaling of large urban development and real estate projects and the reduction in business activities. Overall, large deviations (above 10%) between expected and actual data occurred because the impact of the economic crisis was not integrated into traffic forecast models used by project promoters that were based on pre-crisis data. The geographical distribution of the completed projects analysed suggests that countries in Southern Europe recorded the highest share of projects that did not achieve the expected traffic levels (12 out of the 17 projects implemented in Southern European countries did not achieve the expected traffic levels). At the time UPT projects were planned, there was strong economic growth in these countries and many urban development projects had been launched driven by high growth in the construction sector. Demand levels in Europe bounced back to pre-crisis levels only in 2014.

54. **Second, the promoters' estimates of passenger flows were sometimes over-optimistic, and were only partly corrected by the EIB's more conservative demand forecasts.** This has important implications for the accuracy of the cost-benefit analysis, since it ensures that the judgment on projects' economic rationale is based on more realistic traffic demand forecasts. However, in spite of the more conservative EIB adjustments, demand data at project completion remain, in most cases, below the expected levels at appraisal. Two past evaluations of the European Court of Auditors⁴⁷ also found that many UPT projects in Europe had lower than expected usage levels and found that "*insufficiencies in project design (insufficient feasibility studies including overestimation of users)*" was one of the main causes of underutilisation. The EIB already now applies more conservative estimates of ridership than those produced by its clients.

⁴⁵ Out of 31 projects failing to reach the anticipated demand, explanatory factors were provided in project completion documents in 24 cases.

⁴⁶ UITP statistics brief on local public transport in the European Union (2016). [here](#)

⁴⁷ European Court of Auditors (2019). *Sustainable Urban Mobility in the EU: No substantial improvement is possible without Member States' commitment*, available in: [here](#) and European Court of Auditors (2014) *Effectiveness of EU-supported public urban transport projects*, available in: [here](#).

55. **Third, in the case of projects facing a long ramp-up period, project completion reports were conducted too early to fully capture the materialisation of demand.** Based on its project evaluations and on information available in the Bank's project completion reports, this evaluation found that for about 20 to 25% of the completed projects, standard reporting procedures did not make it possible to adequately capture the long ramp-up period of projects. Of the 58 completed projects analysed, the Bank's services estimated at completion stage that 12 projects needed a longer ramp-up period for the anticipated ridership to materialise. Five of these projects (new metro and tramways) went into operation before the completion of all the planned sections and therefore the expected demand could only be achieved when all interchanges were completed and the line connected densely populated urban areas with economic activities and public services. From the projects' evaluations, this evaluation identified a similar proportion of projects (three out of 12 or 25%) for which the respective project completion reports pointed to deviations from initial forecasts, essentially because data at the completion stage did not fully integrate the length of the ramp-up period⁴⁸. The Bank's project completion reports are prepared within 15 months after project completion, a period that is not always sufficient to capture the actual usage. For these projects, more adequate reporting on usage level can only be carried out at a later stage.
56. **Fourth, the European Court of Auditors recently pointed to another cause of underutilisation, namely the fragility of municipal mobility policies,** often characterised by a *"lack of coordination between modes of transport and with parking policy, absence of urban mobility plan"*⁴⁹. Currently, the EIB requires as part of its due diligence the existence of an urban mobility plan, but the Bank does not verify the appropriateness or consistency of such a plan. This finding from the European Court of Auditors could not, however, be confirmed by this evaluation, which did not have the resources to verify the appropriateness of the sustainable urban mobility plans covered by its project evaluations.

3.2.2 Projects' contribution to a modal shift in favour of public transport is largely undocumented after completion

57. **Although the expected effect of UPT projects on a modal shift towards urban public transport varies significantly from one project to another, and from one city to another, most of the modal shift expected in all 12 projects evaluated was to occur largely from the old public transport mode to the new one, rather than from cars to public transport.** The UPT projects were expected to divert between 3% and 30% of passengers from using cars. The induced modal shift of a specific project was limited and very localised when this project only represented a small share of a large city's public transport network. This happened, for instance, in one project implemented in a Northern European city that aimed to divert 30% of passengers from cars to public transport, which represented less than 2% of total daily trips in the regional area, making any consideration in terms of modal shift challenging to prove. Conversely, another project carried out in a medium-size city in Southern Europe, which also aimed at shifting 30% of passengers from cars to public transport, was key in reducing car traffic levels in the city centre (by around 40% along the project catchment area), according to an independent study undertaken by a local university.
58. **This evaluation was unable to systematically assess the achievement of modal shift for the projects evaluated in-depth.** Improving modal shift towards public transport is a major justification of EIB-financed UPT projects, but this dimension is not systematically monitored at project completion. The expected modal shift is included in projects' ex-ante cost-benefit analysis and is the result of traffic models used by project promoters. While this evaluation's in-depth analysis of 12 projects found that promoters often have information on actual modal shift, this information is generally not reported by project completion documents: only 14% of the 65 completed projects within scope provided data on modal shift at completion.
59. **While some of the cities included in the 12 project evaluations were well advanced in implementing coherent urban mobility policies, others were slower in setting up appropriate measures to discourage the use of private cars.** For two of the projects evaluated, the attractiveness

⁴⁸ For these three projects, current demand shows excellent results and is increasing every year.

⁴⁹ European Court of Auditors (2019). *Sustainable Urban Mobility in the EU: No substantial improvement is possible without Member States' commitment*, available [here](#).

of public transport was not sufficient to reverse users' preference for cars. The user's decision to choose a transport mode ultimately thus depends on a combination of complex factors, most of which are beyond the remit of a single UPT project, including the combination of incentives for public transport (e.g. low fares, high frequency and reliability, high safety and security standards, improved parking management) and deterrents for car usage (e.g. congestion charges, restriction to the use of private cars). Evolutions in modal share depend also on the importance of social significance attached to car ownership, which is increasing in Eastern Europe and decreasing in large cities in Western Europe⁵⁰, and to habits in mobility choices. Transport systems change slowly and several dimensions underlie the decision to use public transport regularly, including:

- Socio-demographic factors (e.g. age, gender, education, occupation, income, population density, household composition, car availability and social significance associated with car ownership);
- Journey characteristics (e.g. reason for travel – e.g. professional, leisure, etc.; distance, travel time and costs, departure time, trip chaining, weather conditions, information, interchange availability);
- Spatial patterns specific to each urban area (e.g. urban population density, diversity, proximity to infrastructure and services, frequency of public transport, availability of parking)⁵¹.

60. **Travel time gains were found to bring about a change in passenger modal choices when combined effectively with other key urban policy measures and incentives discouraging the use of private cars.** All 12 projects evaluated, except one, attained the expected time savings for previous car users, which ranged from four minutes up to ten minutes per trip. However, success in achieving modal shift was most visible in the case of time savings combined with other key measures and incentives discouraging the use of private cars in urban areas. For example, a tram project in a Southern European city offered better safety conditions, comfort gains, higher frequency, and a shorter trip, which largely explain the positive results in modal shift (40% reduction in car traffic in the project's catchment area).

3.2.3 Projects' contribution to carbon reduction has likely been positive, but lower than expected

61. **EIB-financed UPT projects were expected to contribute positively to a reduction of carbon emissions, but such contribution could not be confirmed at project completion.** Public transport is generally considered a low-emission transport mode compared to the use of private cars, but calculating the magnitude of these benefits is challenging. Greenhouse gas emissions reduction (absolute and net) is based on complex modelling that has to consider expected changes in the modal share induced by the projects, the energy mix of the city's power supply, energy consumption in the new project and changes in the transport networks (e.g. tramway or metro that substitute bus routes). Since 2012, as part of the project appraisal procedures, the EIB has estimated the project's absolute greenhouse gas reduction and net carbon footprint. In the sample of 12 projects evaluated in-depth for this evaluation, ex-ante estimates on net carbon emissions were negative, implying that projects were expected to reduce greenhouse gases relative to the "without project" scenario. These projections could not be confirmed at project completion, as data on absolute greenhouse gas reduction was not available at project completion.
62. **Overall, greenhouse gas reduction effects induced by the projects are likely to be lower than expected because of lower than expected usage levels upon completion.** Ex-ante estimates of net carbon reductions were based on usage forecasts and on a relatively modest expected decrease in car use. The fact that actual passenger flows fell short of their initial targets reduces the potential positive impact of projects on climate, since the expected benefits of reduction in car mileage and congestion relief have not fully materialised.

⁵⁰ UITP (2016). Statistics brief: Local public transport in the European Union. [here](#)

⁵¹ European Parliament (2018), Study Research for TRAN Committee - ["Modal shift in European transport: A way forward"](#), pages 39-41.

3.2.4 Project contribution to reducing air pollution and noise could not be assessed

63. **Although EIB-financed projects were expected to reduce congestion and improve air quality, their environmental benefits attained upon completion could not be captured by this evaluation.** Such effects of UPT projects could not be proven, because baseline and targets were not defined at project appraisal and there were no data at project completion. The benefits of air quality improvements are localised and are difficult to attribute to UPT projects without location-specific information on pollutant concentrations, population exposures, traffic emissions data and dispersion modelling. The collection of such data is costly for promoters and is not requested by the EIB. Having said that, however, it can be expected that technological improvements⁵² and the development of smart cities may soon contribute to reducing the cost of data collection and analysis on environmental benefits, although the attribution of such benefits to individual projects remains an unresolved question.

3.3 Fragmented qualitative evidence suggests that projects contributed to achieving broader socioeconomic impacts

64. **The evaluation found that the EIB-financed UPT projects are estimated to contribute to territorial cohesion and city growth under certain conditions.** This evaluation collected qualitative evidence from project evaluations suggesting a contribution of UPT projects to quality of living, city attractiveness and competitiveness and territorial cohesion. In five projects evaluated, the development of the UPT project was conceived as an integral part or was undertaken together with an urban renovation programme, including in less privileged neighbourhoods. These projects were likely to contribute to social cohesion, by bringing UPT services to previously underserved areas. Such approaches were often identified for UPT projects in France. Although this evaluation did not collect data on changes in land values in the proximity of the UPT projects, in at least two cases tangible signs of city growth (e.g. new buildings, skyscrapers, new apartment blocks) were already visible in the areas served by the projects. Such effects are very much related to the areas served by the projects and are likely to be higher in commercial and/or central areas compared to residential areas.
65. **The achievement of socioeconomic and environmental impacts results from the cumulative effects of larger urban investment programmes, of which the UPT projects were often one component.** The magnitude of broader impacts depends on how cities combine their public transport, land-use and social policies. It also depends on the project size with respect to the city size (e.g. the construction of the first tramway or metro line in a mid-size city is likely to generate large city-level effects compared to the extension of an existing metro network by a few kilometres or to the purchase of new rolling stock). This perception is by and large shared by external stakeholders interviewed for the purpose of this evaluation – including EIB staff – some mentioning also the need for the Bank to move away from a “sector and project-by-project” approach towards more systemic city-wide support for urban public transport.

⁵² Such technologies include big data collected by internet of things (IoT) sensors, such as devices installed on vehicles or mobile phones, as well as the analytical techniques to process these data and extract relevant information.

3.4 Project sustainability is usually ensured, albeit with risks associated with capacity to sustain new investments and increasing running costs

66. **The EIB's assessment of UPT project financial sustainability was adequate.** The EIB analysis builds on the assumption that an UPT operation cannot have a positive financial return given that this is normally calculated based on fare box revenues and municipalities' fixed prices of ridership to keep it affordable and attractive for the largest possible share of users. Public subsidies draw on the local or national tax base (covering both the investment and the operational costs).

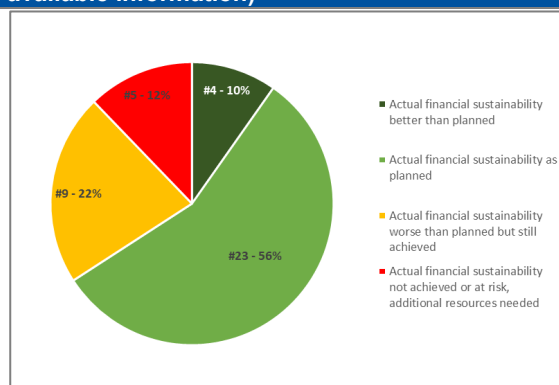
Box 5 Different systems for financing public transportation in Europe

- In France, one of the main funding sources is a local payroll tax earmarked for public transport, which is then transferred to the transport operator to compensate the gap in the cost of operating the system.
- In Spain, a pre-defined amount of resources is transferred by the central government to municipalities with a statutory obligation to provide UPT services.
- In the United Kingdom, the arrangements are more ad hoc and rely on a variety of mechanisms, ranging from the use of formulas determining the level of central budgetary support needed by local councils to deliver transport services, to grants awarded to local authorities through a competitive bidding process, to specific initiatives approving spending commitments for major UPT projects and multi-year agreements with transport authorities.

Source: Project evaluations

67. **Around two-thirds of the projects analysed attained or exceeded the planned financial sustainability.** The evaluation analysed 41 completed projects for which information on actual financial sustainability was reported at completion. Out of these 41 projects, about two-thirds achieved or exceeded the planned financial sustainability. In five out of the 41 cases, EIB services found that actual financial sustainability was not achieved or at risk, with additional resources needed (Figure 14, right). In the PCRs analysed, EIB services indicated that the majority of municipalities concerned had laid the foundations for ensuring continuity of service. When project financial sustainability was rated as being at risk by EIB services at completion, such judgment was due to a worsening of the budgetary conditions with municipalities and/or transport operators compared to the appraisal stage rather than to a real financial risk for continuity of services. Financial conditions worsened in a limited number of projects, where promoters had to deal with overambitious UPT investment plans during the economic crisis.

Figure 14 Achievement of project financial sustainability (# of projects, % of projects with available information)



Source: PCR review, based on 41 projects for which the information was available at completion.

68. **Overall, the sustainability of EIB-financed UPT projects was supported by the integration within long-term strategic frameworks, a sound management structure, an operation and maintenance policy, and a robust financial configuration.** In particular, the integration of projects within cities' urban mobility strategies facilitated the long-term sustainability of project effects⁵³. The project completion reports analysed indicate that factors likely to increase the risks for the continued project effects include: (i) changing policy support, (ii) conflicting urban mobility policies (e.g. new competitive infrastructure, free access to the city centre, free parking spaces) and (iii) uncertainty on complementary urban development projects. From the 12 project evaluations, examples of interventions that are likely

⁵³ In the project completion report review this indicator provides an assessment of the persistence in the medium and long run of the project benefits (e.g. modal share, environmental and climate outcomes). It is a qualitative assessment based on information included in the PCR concerning the effects of complementary or competing projects or the expected recovery of ridership demand at the end of the ramp-up phase.

to reinforce project effects include congestion charges, parking limitations in city centres, construction of park-and-ride facilities near major transport nodes, awareness-raising and promotional campaign activities. To encourage public transport utilisation, cities are also investing in the creation of more efficient feeder networks and in improving the integration of multimodality traffic.

69. **Nevertheless, in the long term, an unbalanced cost recovery ratio⁵⁴ might affect cities' capacity to properly operate the service and to finance more UPT projects.** As concerns the 12 projects evaluated in-depth, full coverage of operation costs through fare box revenue was achieved in only one case. In the other projects, the functioning of the public transport systems was subsidised, ranging between 70% and 25%. Concerns were expressed in interviews with stakeholders with respect to cities' capacity to sustain a high level of investment and increasing service running costs, and to think more strategically about how to finance and operate sustainably expanded UPT systems. These concerns are also reflected in literature⁵⁵. The level of financial sustainability of public transport networks is determined by political choices, which also include affordability considerations, and goes beyond the individual UPT projects financed by the Bank. In this respect, the Bank's role focuses on identifying particularly critical and unbalanced situations that might undermine project bankability.

⁵⁴ Share of operating expenses covered by the fares paid by passengers.

⁵⁵ See for instance Mateu Turró, et al. (2018), *Pilot project study on innovative ways of sustainably financing public transport*, Study prepared for the European Commission, DG Move available [here](#); EIB (2018). *Financing innovation in clean and sustainable mobility- Study on access to finance for the innovative road transport sector*; European Platform on Sustainable Urban Mobility Plan (2019). *Funding and Financing Options for Sustainable Urban Mobility*.

4. EFFICIENCY OF EIB URBAN PUBLIC TRANSPORT PROJECTS

70. This chapter assesses the quality of project implementation (the extent to which the project's components were implemented on time and within budget) and to what extent projects' economic benefits outweighed their economic costs.

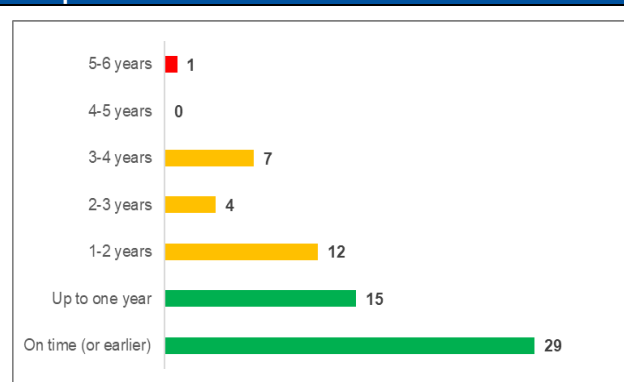
71. Key findings:

- Almost two-thirds of the completed projects analysed (i.e. 65 operations for which a project completion report was available) were completed on time or with a delay of less than one year.
- The EIB made a sound assessment of project costs, resulting in a limited number of projects that had significant cost overruns.
- The EIB acted proactively to support borrowers when their capacity to repay a loan was considered at risk.
- The EIB appraisal procedures led to the selection of projects with a sound business case. However, projects with low ex-ante economic viability were more at risk of not delivering the expected economic net benefits, especially when ridership fell below expectations.

4.1 Almost two-thirds of the projects within scope were implemented on time or with a small delay

72. **65% of the UPT completed projects within scope were implemented on time or with a delay of less than a year** (see Figure 15). In the case of the projects which had a delay exceeding one year (35%), delays involved both experienced and less experienced project promoters and could not be fully anticipated. Delays also occurred in all UPT sectors and were especially long for metro and light rail projects, which are technically more complex.

Figure 15 Delays in urban public transport project completion



Source: IG/EV based on portfolio review (68 projects completed at the time of evaluation)

73. **Substantial delays in UPT projects occurred under specific circumstances that could not be fully anticipated at appraisal.** At project appraisal, the Bank revises the project work plan submitted by promoters and usually includes extra time contingencies to factor in promoters' capacity and the projects' technical complexity. An in-depth analysis of projects with delays of more than one year (21 projects) found that delays are mostly driven by the following factors: (i) low maturity of projects at appraisal (29%), (ii) procurement issues phase or poor management (29%), (iii) technical issues (24%), and (iv) financial problems of contractors and/or promoters (18%).

74. **Case studies focusing on majorly delayed projects show that a combination of factors was at stake, including insufficient risk identification and planning of mitigation measures.** Delays observed in the case studies⁵⁶ could not be entirely attributed to project technical complexity, but were also related to country-specific characteristics, such as the complexity of administrative procedures and project governance arrangements, lengthy procurement processes, excessively slow disbursement of national funds, and political changes to public support. Problems in risk identification and in designing appropriate mitigation strategies were common to all four case studies including heavily delayed projects. Even if risks were known at project appraisal, as in the case of archaeological or geotechnical risks, their potential impacts on project implementation were underestimated both by promoters and by the EIB. When mitigation and correction measures were taken by the promoter during the

⁵⁶ Four out of the six case studies undertaken for this evaluation focused on ongoing projects that had accumulated considerable delays.

implementation phase, these were not enough to keep projects on track or to avoid changes in some project components. This resulted in a reduction of some of the expected project outputs.

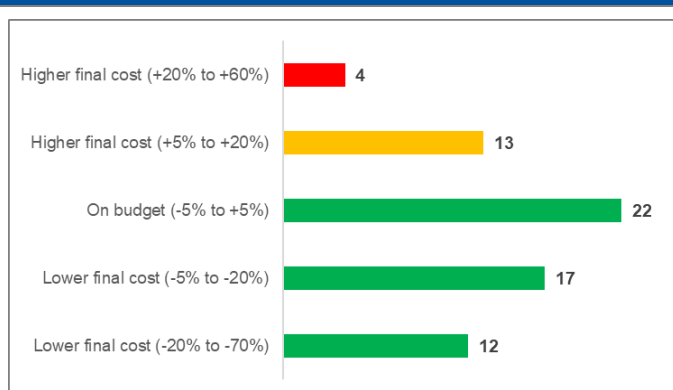
75. **The EIB monitoring requirements and resources seemed appropriate for well-performing projects but not enough for underperforming projects.** Project evaluations confirm that, in most cases, the monitoring requirements and risk mitigation strategies set at the appraisal stage turned out to be appropriate, but case studies show the limitations of EIB monitoring when projects severely underperformed. EIB monitoring requirements differentiate between light and heavy monitoring that depend on project complexity and promoters' capacity assessed at project appraisal. When the promoter's experience is not deemed adequate, the EIB may require promoters to set up dedicated project implementation units. When something unexpected happens, promoters are asked by the Bank's services to clarify the extent of the problem and to provide evidence that appropriate actions are going to be taken to ensure continuation of works. Site visits during implementation of underperforming projects are only carried out exceptionally because of time and resource constraints. The Bank has neither the in-house capacity nor the financial resources to provide technical support during project implementation.
76. **The EIB supported project borrowers when they had financial issues.** When the capacity of borrowers to repay the loan was at risk, strict financial monitoring was carried out and the Bank supported borrowers facing financial problems by renegotiating the loan conditions. In UPT projects, these interventions concerned project borrowers that were hit hard by the economic crisis.

4.2 Three-quarters of the projects within scope were implemented within budget

77. **The Bank's services have performed reasonably well in gauging risks related to construction and manufacturing costs, except when project appraisal occurred at an early stage.** Three-quarters of the completed projects did not exceed the anticipated budget (Figure 16). This is a good result considering that cost overruns well in excess of 10% are common in large-scale UPT projects⁵⁷. Unit costs identified by project promoters are systematically compared against industry standards based on EIB in-house experience and sector benchmarks. The EIB services are generally in a good position to estimate costs since EIB involvement often takes place late in the project cycle, when the nature of the technical solution adopted

is well understood and detailed studies have already been carried out. As expected, cost increases above 10% were observed in complex projects, namely for 20% of metro and 14% of tramway projects. For 43% of the projects included in the PCR review⁵⁸, unexpected changes in the design, scope or procurement method in less mature projects were the major reason for cost overruns, followed by poor project management capabilities of the promoters (21%), and unforeseen technical issues (21%). Savings on the project budget were sometimes achieved when the Bank's technical contingencies were unnecessary because of good project management, more efficient procurement procedures or declining unit prices determined by increased competition between construction companies and manufacturers during the economic crisis.

Figure 16 Deviations from expected project costs.



Source: UPT portfolio (68 projects completed at the time of evaluation). Only 2 framework loans with a 100% UPT allocation are included.

⁵⁷ Flyvbjerg, B. (2007), *Policy and planning for large infrastructure projects: problems, causes, cures*, Environment and Planning B: Planning and Design, 34 (4): 578-597.

⁵⁸ There was no information available for 15% of projects that had cost overruns.

4.3 Almost all projects within scope were estimated to be economically sound after completion, but the few exceptions call for a more robust sensitivity analysis at appraisal

Box 6 EIB's approach for assessing the economic viability of urban public transport projects

Economic viability of projects is an important dimension of efficiency. Indeed, UPT projects most often have a negative financial internal rate of return (FIRR). Municipalities fix prices of ridership to keep it affordable and attractive for the largest possible number of users and use subsidies to cover both investments and operational and maintenance cost. In this context, a project is worth implementing only if it provides non-monetary economic benefits (reduced pollution, less congestion, reduced CO₂ emissions, etc.) that cover its costs.

At the project appraisal stage, projects' promoters conduct a cost-benefit analysis. The Bank, in turn, takes into account the information provided by the promoter to perform its own ex-ante cost-benefit analysis assessment. The analysis accounts for all the benefits and costs whatever their nature, both financial and non-financial. It assesses the value of a project using two synthetic indicators: the net present value and the economic rate of return. EIB procedures state that only projects with an economic rate of return above a given threshold should be financed.

At the project completion stage, the EIB services provide in project completion reports estimates of the likely evolution of the economic rate of return, which are based on the achievement of key performance indicators, such as demand levels, capital expenditures involved, and changes in the level of operational expenditures and in output. This makes it possible to assess whether the project performance was in line with expectations.

78. All the UPT projects analysed had an ex-ante economic rate of return that was at least at the EIB's minimum acceptable threshold. The evaluation analysed the appraisal documents of 57 completed projects for which the economic rate of return could be compared ex-ante to ex-post. All 57 projects had an ex-ante economic rate of return estimated by the EIB services to be of at least at the minimum threshold acceptable for EIB's financing. About half (48%) had a relatively weak economic rate of return, reflecting the characteristics of the investments in this sector (e.g. significant investment and operational costs, and several unquantifiable benefits). One-third had an acceptable economic rate of return. For 19% of the projects the economic rate of return was deemed good or excellent with respect to the EIB's required acceptability threshold. Only a limited number of projects (12%) had a very weak economic rate of return.
79. At project completion, 58% of the projects within scope were estimated by the EIB services to perform better or in line with ex-ante expectations, but some 19% were found to perform much worse than expected. From the population of 57 projects for which the economic rate of return could be compared ex-ante to ex-post, a majority (58%) were estimated to perform better or as expected *ex-ante*, while a sizeable proportion performed worse (23%) or much worse (19%) than expected. Geographical patterns show that projects in the Eastern region performed better thanks to better project implementation performance and a higher than average ex-ante economic rate of return. The relatively poorer performance in Southern European countries was mainly due to implementation issues and low patronage levels, which significantly reduced projects' economic efficiency. Western and Southern European regions also had a higher proportion of UPT projects with a marginal or lower than marginal economic rate of return, which increased the risk of delivering an unsatisfactory economic rate of return at project completion.
80. **In six out of the 57 projects analysed, the EIB services estimated that investments had become economically unsound.** In general, an ex-post economic rate of return falling below what was expected ex-ante does not in itself indicate that the project performed badly. In such instances, a project may still be considered as economically viable and worth implementing, even though its value for society is slightly lower than expected at appraisal. Out of the 57 projects analysed, the EIB services estimated at completion that six projects were economically unsound from the Bank's perspective as their economic rate of return was below the minimum acceptable threshold for the EIB's financing. Three of them had an expected economic rate of return equal or superior to the minimum acceptable threshold at appraisal, but suffered from a combination of adverse factors (a combination of delays and/or increasing costs and/or lower steady-state patronage than expected). The other three were already estimated to have a marginal economic rate of return at the appraisal stage with respect to the EIB's required acceptability threshold, and suffered from significantly lower patronage than expected, which was in itself sufficient to make these projects economically unsound.

81. **This evaluation's ex-post cost-benefit analysis confirms that projects estimated to have a weak economic rate of return at the appraisal stage were at high risk of being economically unsound ex-post.** This evaluation performed an ex-post cost-benefit analysis of eight UPT projects. This exercise aimed at illustrating factors which may explain the (under)performance of UPT projects after completion, and which could therefore be better taken into account by the Bank's ex-ante cost-benefit analysis. Of the eight cases analysed, two were found as having an ex-post economic rate of return significantly below the EIB's minimum acceptability threshold. The unsatisfactory ex-post economic performance of these two projects was due to the combination of lower than expected demand, higher than expected investment costs and lower than expected steady-state patronage. At appraisal, these two projects were already expected to have a marginal economic rate of return⁵⁹. A lesson from this evaluation's ex-post cost-benefit analysis is that, for those two projects already flagged as having a marginal economic rate of return at the appraisal stage, the EIB's standard sensitivity analysis (aimed to test the robustness of the economic rate of return estimates) did not adequately account for the combination of risks on the economic soundness of the project. A more robust analysis of risks to the economic viability – that simulates the combined effects of changes in multiple variables – is particularly important for projects characterised by a marginal economic rate of return, because they face a higher risk of suffering the consequences of minor implementation issues and/or minor deviations from demand forecasts.

⁵⁹ In particular, the project which this evaluation found as having a negative ex-post economic rate of return also had the lowest ex-ante economic rate of return of all eight projects analysed. It should be noted that the project completion produced by the EIB services for this project did not detect an ex-post economic rate of return falling short of the ex-ante expectation; the light analysis produced at the project completion report stage was not sufficient to identify the negative economic performance of this project.

5. EIB FINANCIAL AND TECHNICAL CONTRIBUTION TO THE PROJECTS

82. This chapter examines the extent to which the EIB made a financial and technical contribution to UPT projects. Following the EIB 3-Pillar Assessment (3PA), this evaluation measured three dimensions of the EIB's contribution:

- The EIB financial contribution measures to what extent the EIB was able to improve borrowers' funding terms compared to alternative sources of finance.
- The EIB financial facilitation identifies how the EIB's involvement has a catalytic role in mobilising other financiers. Financial facilitation may result from providing innovative products, or from attracting other private-sector financing or leveraging public-sector financing (from national or EU budget and financial instruments, for example).
- The EIB technical contribution relates to any non-financial contribution to the project design and/or implementation provided by the EIB, which may take the form of improvements in the technical, economic or financial aspects of the projects financed⁶⁰.

83. Key findings:

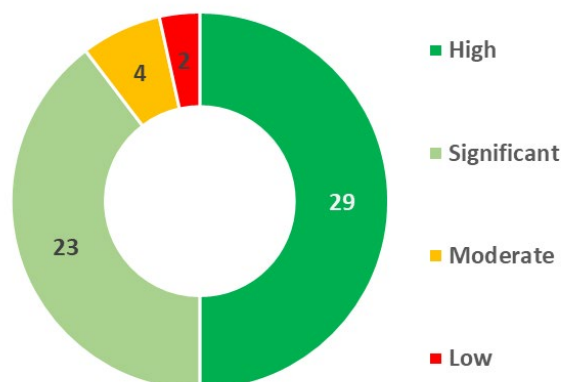
- The EIB financial contribution was substantial, and it was particularly strong during the global financial crisis, during which availability of financing for urban transport investments was reduced.
- The EIB financial facilitation was high in UPT projects that required complex financing arrangements to be set up with multiple financiers, as in the case of public-private partnerships (PPPs), but limited elsewhere.
- Except in cases where UPT projects were complemented by formal technical assistance, the EIB technical contribution to UPT projects was moderate. Indeed, in most cases, promoters were highly experienced and did not request such services, or alternatively the Bank was brought in late to investments and consequently had little margin to provide technical input to project promoters.

⁶⁰ This includes both the in-house support provided by the relevant Bank's services and support provided through mandates (e.g. JASPERS, ELENA, Eastern Partnership Investment in Connectivity—EPIC).

5.1 The EIB financial contribution was substantial, especially in the context of the financial crisis

84. **The EIB financial contribution was deemed high or significant for the vast majority of UPT projects** (Figure 17). The analysis of data from the project completion report review revealed that for almost 90% of completed projects the EIB financial contribution was deemed high or significant, both at project appraisal and completion⁶¹.

Figure 17 EIB financial contribution by rating (# of projects)



Source: *Project completion report review, based on 58 projects, for which the data were available in project appraisal reports.*

Note: Rating is based on EIB ex-ante project assessment.

85. **The EIB financial contribution enabled municipalities to finance their UPT projects at conditions that could not be matched by other financiers.** Such contribution was high and significant for most UPT projects and was built on the provision of cheaper, sizeable and long-term loans that were delivered through tailored financing arrangements. Project promoters and borrowers interviewed for this evaluation stressed that EIB financing for their UPT projects was valuable, because it made their investments more affordable and helped municipalities to comply with tight fiscal constraints and adjust their debt exposure. UPT investments often involve considerable amounts, especially when related to the construction of metros, tramways and light rail systems that often go beyond the capacity of commercial banks. The large amounts⁶² that could be made available via EIB loans enabled municipalities to limit the number of financiers and reduce the costs of overly complex financing schemes. The flexibility attached to the EIB loans was critical for UPT projects, since it enabled municipalities to meet their debt exposure targets. In addition, the EIB offered a range of financial options to borrowers, allowing them to tailor the product to their needs and to changing market conditions. The borrowers interviewed during project evaluations indicated that such flexible arrangements could not be offered by the market, and that that lower investment costs generate financial benefits that municipalities can pass on to transport users and taxpayers. Project promoters and borrowers also pointed out that the cumulative advantages of the EIB loans offset any additional reporting requirements and the EIB's thorough due diligence process.

86. **The importance of the EIB's financial contribution was context-specific, reinforced by the economic and financial crisis.** The EIB played an important role as "lender of last resort" when financial markets tightened throughout Europe, including for municipalities. The Bank's participation enabled projects to reach financial closure under favourable financing conditions, given the prevailing market context. This was particularly evident in more developed cities that benefited less from the support of EU funds for urban transport.

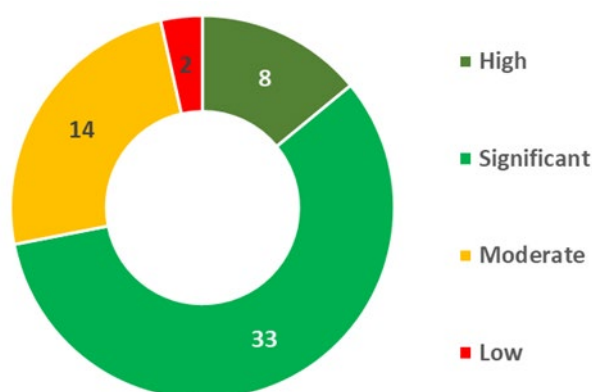
⁶¹ Data at project completion were available for a smaller sample of projects (24) that substantially confirmed the ex-ante assessment.

⁶² EIB financing cannot exceed 50% of the project costs.

5.2 Except for PPP projects, EIB financial facilitation was limited

87. **The EIB services expected EIB financial facilitation to be high or significant for most of the UPT projects analysed, particularly for PPP projects.** The evaluation examined the appraisal documents of 57 completed projects, and found that nearly 72% were estimated by the EIB services to have a significant or high catalytic effect for borrowers (Figure 18). While the analysis by country and sector groups does not reveal any specific pattern, the data suggest that the EIB's facilitation role was higher for the seven projects procured under PPPs⁶³. This evaluation analysed in-depth two of these PPP projects, and found that in these cases the EIB's involvement was considered to give a strong signal to potential concessionaires and to be a driver of trust with other financing partners. The EIB's ability to intermediate part of the loan through commercial banks helped to bring in private financiers and, at the same time, reduce the EIB's direct exposure.

Figure 18 EIB Financial facilitation estimated at the appraisal stage (# of projects by rating category)



Source: IG/EV based on appraisal documents for 57 completed UPT projects

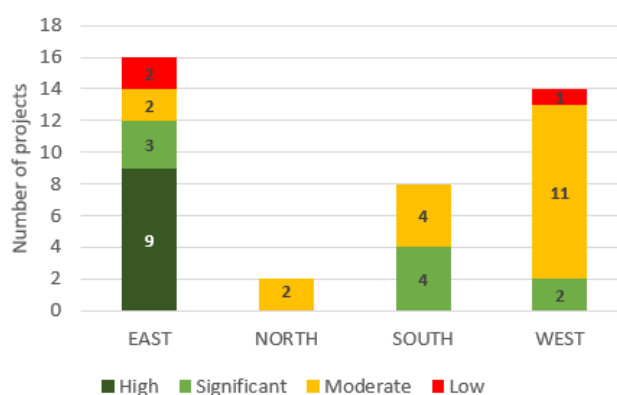
88. **The EIB loans complemented national or European grants for public transport.** The Bank's UPT portfolio includes 48 projects (22%) that were financed by the European Structural and Investment Funds. In these projects, the EIB loans supported municipalities in mobilising their co-financing share of the investment supported by EU grants.
89. **Evidence from the 12 project evaluations indicates that actual EIB financial facilitation was less prominent than estimated in appraisal documents.** The data available in the project completion report analysed was not sufficiently informative to enable a comparison between the expected and actual financial facilitation provided by the EIB. Consequently, ex-post analysis of EIB's financial facilitation could only be undertaken for the 12 in-depth project evaluations. In ten out of 12 cases, there was no evidence that the high or significant signalling and crowding-in effects estimated at appraisal had materialised. Other sources of financing had usually been secured by the time the Bank was contacted by the promoters. There was consequently limited room for the EIB's involvement to mobilise any additional financier. By contrast, the two cases for which the high or significant facilitation expected at appraisal had materialised were projects procured through a PPP. Except for these two cases, EIB financial facilitation was more likely to occur in the long run, in the context of well-established long-term partnerships. The promoters interviewed in cities that had a long-standing partnership with the EIB mentioned that the EIB's funding had, in general, a positive signalling effect for other investors for future projects.

⁶³ The project completion report review includes seven projects. In the EIB UPT portfolio, PPP schemes were used in 12 operations (6% of the entire UPT portfolio), half of which for financing metro projects in Spain.

5.3 The EIB technical contribution to UPT projects was moderate

90. **The EIB technical contribution was expected to be the most significant in the limited number of UPT projects supported by technical assistance, and implemented in Eastern EU cohesion regions.** The evaluation analysed 40 completed projects, for which EIB services had rated the Bank's technical contribution at appraisal (Figure 19). Amongst these 40 projects, those expected to benefit from the highest EIB technical contribution were located in the cohesion regions of Eastern EU countries and/or benefited from a combination of EIB financing and technical assistance support through JASPERS⁶⁴ (project preparation schemes).

Figure 19 EIB technical contribution by country groups estimated at appraisal stage (# of projects)



91. **The Bank has provided advisory support services selectively and where its impacts were estimated to be larger** (e.g. replicable investment schemes, programme loans). The provision of advisory services by the Bank depends on the combination of demand from counterparts and on the availability of the EIB's financial and human resources. The EIB's resources are especially provided through specific mandates (e.g. JASPERS, Advisory Hub).

Source: Project completion report review, based on 40 UPT projects for which the data were available in project appraisal reports.

Note: The rating is based on EIB ex-ante project assessment.

- Less experienced promoters benefited from JASPERS support, which helped to improve project design and procurement processes. Three of the 12 projects evaluated in-depth received significant technical support from JASPERS at the very early stage of project development. The promoters interviewed underlined that JASPERS has played a significant role in enabling individual urban public transport projects to be embedded into wider urban strategies. JASPERS' involvement, which typically occurs at the early stage of UPT project development, also helped project promoters in the definition and improvement of the projects' technical and/or procurement specifications.
 - The enhancement of the EIB advisory role, through initiatives such as the Advisory Hub established under the Juncker Plan in 2015, is a relatively recent development. In this framework, the EIB launched with the European Commission in November 2017 a dedicated urban advisory platform within the Advisory Hub called URBIS, designed to provide advisory support to urban authorities in order to facilitate, accelerate and unlock urban investment projects, programmes and platforms by, amongst others, exploring innovative financing approaches for city investments. The EIB's 2019 and 2020 COP underscored the intention for the Bank to continue advisory programmes such as URBIS and "explore with the European Commission how such programmes can be continued and funded during the next MFF".
92. **Evidence from the project evaluations indicates that the low rating attributed by the EIB services to the Bank's technical contribution reflected a lack of demand from clients.** Of the 12 projects evaluated in-depth, eight expected at best a moderate EIB technical contribution. These projects were characterised by highly capable project promoters that did not seek EIB technical advice and were often not aware of these services. The project promoters interviewed do not perceive the EIB as a source of technical expertise in UPT and are mostly attracted by the financial advantages of the EIB loans. The Bank's technical contribution was typically limited to a bankability check and the EIB concentrated its technical advisory capacity on the identification of risks (technical and financial) and mitigation

⁶⁴ JASPERS was launched by the European Commission, the EIB and the European Bank for Reconstruction and Development in November 2005 to help speed up the absorption of the EU Structural and Cohesion Funds, available under the Connecting Europe Facility (CEF) and the Instrument for Pre-Accession Assistance (IPA).

measures. Except under project preparation schemes such as JASPERS, there has been limited scope for the Bank to bring in technical contribution to UPT projects.

93. **The EIB was often brought in late in UPT investment projects and this substantially reduced its capacity to provide a high level of technical contribution.** Municipalities design and develop UPT projects in line with their urban mobility strategic plans. Evidence from project evaluations shows that urban transport investment decisions can also be influenced by political considerations. In general, the Bank does not intervene in technical implementation issues or in the promoters' procurement schemes since this could potentially expose the EIB in sharing liabilities with promoters. While the Bank verifies the soundness of the proposed project, it is not always in a position to question design, technological or investment choices. Having said that, many projects do not reach the Bank's appraisal stage if the Bank services do not consider that the proposed project design is efficient, sustainable or well dimensioned. The EIB's services do not have the information and resources required to assess independently whether a particular design or solution would be better adapted than that envisaged. The appraisal thus tends to rely on 'with and without project' scenarios. The in-depth evaluation of 12 projects revealed that when the EIB is brought in late on a project⁶⁵, as is often the case with experienced municipalities, it is often put in a 'take it or leave it' situation.

⁶⁵ Of the 216 projects included in the UPT portfolio, 128 were appraised when construction works had already started. Works for half of the UPT projects had already started 1-2 years before the EIB appraised the project.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 The EIB's products and procedures were adequate to address the urban public transport needs of municipalities in Europe, in particular during the economic and financial crises

94. **This evaluation found that EIB-supported UPT projects were relevant to the needs of municipalities**, notably due to their integration in cities' development plans. EIB due diligence ensures that they comply with EU directives and meet the Bank's priorities. The EIB support was mainly geared towards financing large-scale backbone infrastructure, namely urban railway, metro, tramway and bus. This evaluation found that these investments were appropriately anchored to the strategic documents of the municipalities concerned. Long-term partnerships with repeat clients – representing over two-thirds of UPT lending volumes – were particularly conducive in facilitating the alignment of the Bank's support with city needs over time.
95. **The EIB product offer has met demand from both larger and smaller municipalities.** The UPT portfolio is spread across 24 of the 28 Member States and covers approximately 100 European cities. In terms of volume, investments are mainly concentrated in capital cities, which accounted for approximately half (54%) of signed amounts, with London and Paris each totalling 12% of volumes signed between 2007 and 2019. This concentration reflects the fact that UPT investment gaps tend to be greater in large municipalities, as financial needs are proportional to city size. Small and medium-sized cities accounted for half of the EIB's UPT lending. In Central and Eastern European countries in particular, the EIB financed a large number of relatively small UPT operations. This was due to a combination of factors, including debt absorption capacity and promoters' capacity to design large-scale and complex UPT projects.
96. **In the urban public transport sector, the EIB had a countercyclical role during the economic and financial crisis, through its substantial financial contribution against the backdrop of reduced availability of financing for urban transport investments.** There was a sharp increase in UPT lending at the time of the financial and economic crisis: total amounts signed increased from €1.8 billion in 2008 to €4.1 billion in 2011. This increase was notably driven by higher demand from municipalities that were in the past able to finance their UPT projects through a combination of national/regional grants with commercial and/or national promotional bank financing. The EIB played an important role as "lender of last resort" when financial markets tightened throughout Europe, including for municipalities. The Bank's participation enabled projects to reach financial closure under favourable financing conditions given the prevailing market context. The Bank's countercyclical response to the crisis was particularly evident in more developed cities that benefited less from the support of EU funds for urban public transport.
97. **While the EIB's financial contribution to UPT projects was substantial, the Bank did not have much scope for providing financial facilitation (except for PPP projects).** The EIB made a significant financial contribution by providing loans of a size, tenor and with conditions that could not be offered by the market, and which were delivered through a wide range of financing options enabling borrowers to tailor the product to their needs and to changing market conditions. By contrast, this evaluation found that the EIB's financial facilitation (catalytic role in mobilising other financiers) was low in ten out of the twelve projects evaluated in-depth, which was contrary to the expectations set at appraisal. Indeed, by the time the Bank was contacted by the promoters, other sources of financing had already been secured. EIB financial facilitation was more likely to occur in the long run as part of long-standing partnerships. The two PPPs evaluated in-depth stand as an exception: for these projects which required setting up complex financing arrangements with multiple financiers, the EIB's involvement gave a strong signal to potential concessionaires and was a driver of trust for other financing partners.
98. **The limited technical contribution reflected a lack of demand from clients and/or late EIB involvement in project design.** In the majority of the completed projects analysed, the EIB's technical inputs were not requested as urban public transport operators already had strong in-house expertise. Except as part of project preparation schemes such as JASPERS, the EIB's ability to provide technical input was also reduced, largely due to its late involvement in project design. For about 60% of the 216 projects signed between 2007 and 2019, construction works had already started when the project was appraised by the Bank. The Bank's technical contribution was typically limited to a bankability check and to the mitigation of technical and financial risks. However, the EIB made a good assessment of project

costs, resulting in a limited number of projects that had significant cost overruns. The EIB acted proactively to support borrowers when their capacity to repay a loan was considered at risk.

6.2 While projects delivered on their production targets, they did not always achieve the expected level of ridership and the achievement of other important outcomes was largely undocumented

99. **The large majority of completed projects delivered their production targets.** EIB's initial production targets – measured in vehicle per km – were met or were even exceeded for 51 of the 65 completed projects within scope. Five of the 65 completed projects analysed encountered significant deviations from the original construction plans, which were due to factors beyond the remit of the EIB (promoters forced to downscale their investment strategies due to the economic crisis or the emergence of technical issues during construction, which resulted in modifications of the original plans). The EIB usually anticipated well the risks associated with construction problems but was not equipped with the resources or procedures that would enable it to support projects facing implementation issues. When delays occurred, they were due to a combination of factors, including insufficient planning with mitigation measures.
100. **Despite the delivery of production targets, about half the completed projects did not achieve their expected level of ridership.** This evaluation found that 31 of the 58 projects for which data on usage was available at completion did not meet expected demand. Project completion documents and literature identify four main reasons for this deviation from initial forecasts.
- First, demand was significantly affected by the economic crisis. In Southern Europe in particular, demand was affected by accelerated emigration, the sudden downscaling of large urban development and real estate projects, and the reduction in business activities.
 - Second, the promoters' estimates of passenger flows were sometimes over-optimistic, and were only partly corrected by EIB's more conservative demand forecasts.
 - Third, for projects characterised by a long ramp-up period, the Bank's project completion reports were conducted too early to fully capture the materialisation of ridership. The materialisation of ridership was in some cases delayed by a longer ramp-up period, notably due to incomplete delivery of all interchanges in densely populated urban areas. This concerned 20% to 25% of the completed projects analysed. A lesson from project evaluations is that for projects characterised by a ramp-up period, project completion reports were completed too early to fully capture steady-state patronage. The Bank's project completion reports are prepared within 15 months of project completion, a period that is not always sufficient to capture actual usage.
 - Fourth, insufficient coordination between cities' urban mobility plans and their other policies was recently pointed out by the European Court of Auditors as a major cause of underutilisation (lack of coordination between modes of transport and parking policy, inadequate measures taken to discourage the use of private cars). Currently, the EIB verifies at the appraisal stage the integration of a UPT project within a city's urban mobility strategy, but does not verify the appropriateness or consistency of the strategy itself.
101. **The lack of data at completion hampered the assessment of other key outcomes, especially in terms of quality of services and modal shift.**
- The lack of systematic ex-post data did not make it possible to systematically assess the performance of the completed projects within scope in terms of accessibility, transport efficiency and service quality. Therefore, this evaluation gathered qualitative evidence from project documentation and site visits to 18 UPT projects (12 project evaluations and six case studies). This evidence suggests that projects supported by the EIB led to improvements in terms of time efficiency, safety, and accessibility, not only for people with reduced mobility, but more broadly for all users (including through accessibility to workplaces, leisure activities, etc.). Likewise, qualitative evidence collected on the 12 projects evaluated in-depth confirmed the benefits in terms of service quality (including comfort improvements, punctuality, frequency, reliability, and passenger security).
 - Modal shift was an important objective to verify, given its contribution to broader environmental objectives. However, data on this objective was only available in nine of the 65 completed

projects analysed. When project completion documents included information on modal shift, it was mostly qualitative and often not specifically linked to the projects but rather provided with reference to the entire urban areas. While the EIB's perspective is that adding further data collection and reporting requirements might undermine the relationship with clients and reduce the competitiveness of its products, most of the borrowers and promoters interviewed found that EIB reporting was not particularly burdensome and was largely compensated by the financial advantage offered.

R1. Recommendation: The Bank should expand and enhance its monitoring of the outcomes of UPT projects

In addition to monitoring the effects of UPT projects on transport mobility (time savings) and usage (number of users), it is recommended that the Bank collect more systematically from promoters data on service quality (including data on frequency, reliability and punctuality), accessibility (which includes opportunities for different categories of users – including women – to increase their transportation and destination options), and modal shift from private cars to more sustainable transport modes.

Considering that the environmental impacts of UPT projects cannot be attributed in a systematic manner and with affordable methods, it is critical that the Bank reports on modal shift, which is measurable and directly attributable to UPT projects. As the Bank accelerates the transformation of its business model towards becoming the EU climate bank, enhancing the measurement of modal shift constitutes a valid and affordable proxy for estimating the project contribution to higher objectives in terms of greenhouse gas emissions reduction and carbon footprint.

102. **Fragmented evidence suggests that UPT projects contributed to achieving broader socioeconomic impacts.** In addition to enhancing quality of living, city attractiveness and competitiveness, several UPT projects evaluated in-depth contributed to territorial cohesion. They were conceived as an integral part of urban renovation programmes, including in less privileged neighbourhoods. These projects were considered likely to contribute to social cohesion, by bringing UPT services to previously underserved areas. The magnitude of broader impacts largely depends on how cities combine their public transport, land use and social policies within a systemic city-wide programme.
103. **Almost all projects within scope were estimated to be economically sound after completion, but the few exceptions spotted call for a more robust analysis of potential risks to economic soundness at the appraisal stage.** From the population of 57 projects for which the Bank's services estimated the economic rate of return both ex-ante and ex-post, 51 were assessed as reaching the EIB's minimum acceptability threshold after completion. However, in six cases the EIB's services found that investments had become economically unsound (i.e. economic rate of return estimated to have fallen below the minimum acceptability threshold for EIB financing), projects suffered the consequence of a combination of factors (delays and/or increasing costs and/or lower steady-state patronage than expected). The ex-post cost-benefit analysis carried out by this evaluation found that, for those projects estimated at appraisal stage to have a marginal economic rate of return, the EIB's standard sensitivity analysis was not sufficient to identify the combined effect of risk factors on economic efficiency. In addition, the analysis of selected projects characterised by significant delays highlighted the insufficiency of the measures in place to monitor and mitigate those risks under the promoter's or the municipality's control. A more robust analysis of risks combined with monitoring focusing precisely on the main risks identified are particularly important for projects characterised by a marginal economic rate of return, because they face a higher risk of suffering the consequences of minor implementation issues and/or minor deviations from outcome forecasts, in particular ridership forecasts.

R2. Recommendation: The Bank should strengthen its ex-ante review and its ex-post estimate of ridership for UPT projects. To do so, the Bank could for example put in place the following procedures:

- i. At the appraisal stage, for the UPT projects characterised by a marginal estimated economic rate of return (close to 3.5%), the Bank could enhance the analysis of risks to economic viability, in order to enhance the associated mitigation measures. The economic

viability of these projects is more likely to suffer from minor implementation issues and/or minor deviations from forecasts, including in terms of ridership. A more robust analysis of risks will enable even more rigorous monitoring of, and dialogue with, promoters and municipalities on the main risks identified.

- ii. At completion, in the case of projects with a long ramp-up period, the Bank could systematically conduct an additional review of performance at a later stage. Measuring usage within the traditional timeframe for issuing a project completion report (within 15 months after the end of works) was found to be too early to fully capture the materialisation of steady-state ridership in 20% to 25% of the completed UPT projects analysed. In such cases, an additional project completion report focusing on verifying steady-state patronage and fine-tuning the economic rate of return estimate could be undertaken. This approach will increase the accuracy of the ex-post estimation, and will help the Bank improve its own demand modelling.

6.3 The Bank is gradually adapting its methods and products with the aim of speeding up the transition towards cleaner and new UPT technologies

104. Under the EIB Group Climate Bank Roadmap, the Bank is currently adapting its methods and products with the aim of supporting the acceleration of the transition towards cleaner and new UPT technologies.
105. **The Bank has expanded its product offer to address a more fragmented investment landscape (smaller and riskier tickets, new technologies).** Recent changes in the EU Clean Vehicles Directive (2019)⁶⁶ are bringing about the need for more diversified clean mobility solutions that involve smaller, riskier and more innovative investments. This evaluation considers that the EIB is on the right track for responding to this new investment landscape. First, sector-specific intermediated lending or programme loans already enable the Bank to aggregate its financing of granular investments (in vehicles or small-sized infrastructure) for smaller cities into operations reaching a critical mass. In addition, the Bank has developed a suite of products next to its long-term senior debt products, which includes non-recourse financing structures and, via the CEF Debt Instrument, quasi-equity structures to help the transition to the low-carbon future. Lastly, the EIB has mobilised existing mandates (EFSI) and will count on future mandates (InvestEU) to provide further risk-absorption capacity in the areas of climate action and environment funding.
106. **The Bank is well placed to embed its UPT offer into integrated support for municipalities.** In contrast to nearly all other sectors, greenhouse gas emissions from the transport sector continue to rise in the European Union. From the viewpoint of municipalities, decarbonising urban transport requires an integrated approach combining efficiency improvements in vehicles, shifting passengers and freight from high-emitting to low-emitting transport modes and using alternative low-carbon fuel sources, including electricity and biofuels. Cities are faced with the particular challenge of financing this necessary transition towards becoming “circular cities”, all while being constrained in terms of budget headroom and debt capacity. This major task calls for a variety of interventions and multi-sectoral investments across a wide range of sectors, beyond the sphere of UPT. This evaluation considers that the Bank is already well placed to embed its UPT operations within a system of integrated support for municipalities (multi-sector financing, blended with technical advisory). In addition to the new financing products mentioned above, the Bank has the ability via programme loans or framework loans to support integrated, planning-led investment across a city’s budget on a multi-sectoral basis. In addition, the EIB is already mobilising joint mandates with the European Commission to offer integrated support to cities, combining financing and advisory at different stages of programme design, notably through the European Investment Advisory Hub. Flagship mandates include the Cleaner Transport Facility (financial products and advisory services designed to accelerate decarbonisation of urban transport), URBIS (integrated, multi-sector, place-based advisory to urban investment programmes) or ELENA (technical assistance offering technological solutions to municipalities and transport operators).

⁶⁶ EU Directive 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles.

- R3. Recommendation: In order to accompany the transition towards “circular cities”, the Bank should assess the feasibility of adopting an integrated client-based approach, through which it can identify and offer to municipalities a granular package of solutions combining financing and advisory.**

The transition of urban areas towards becoming “circular cities” calls for a variety of interventions and multi-sectoral investments across a wide range of sectors, beyond the sphere of UPT. In order to accompany this transition, the Bank is encouraged to coordinate its various solutions beyond the boundaries of sector-based, product-based interventions, and to assess the feasibility of developing a client-based integrated support.

ANNEXES

Annex 1 –Theory of change of EIB support for urban public transport in the European Union during the period 2007-2019

Annex 2 – Evaluation methodology: Evaluation questions and approach

Annex 4 – Project sample: Ex-post cost-benefit analysis in a nutshell

Annex 4 – Project Sample: Project evaluation and case studies

Annex 5 – List of references and list of stakeholders

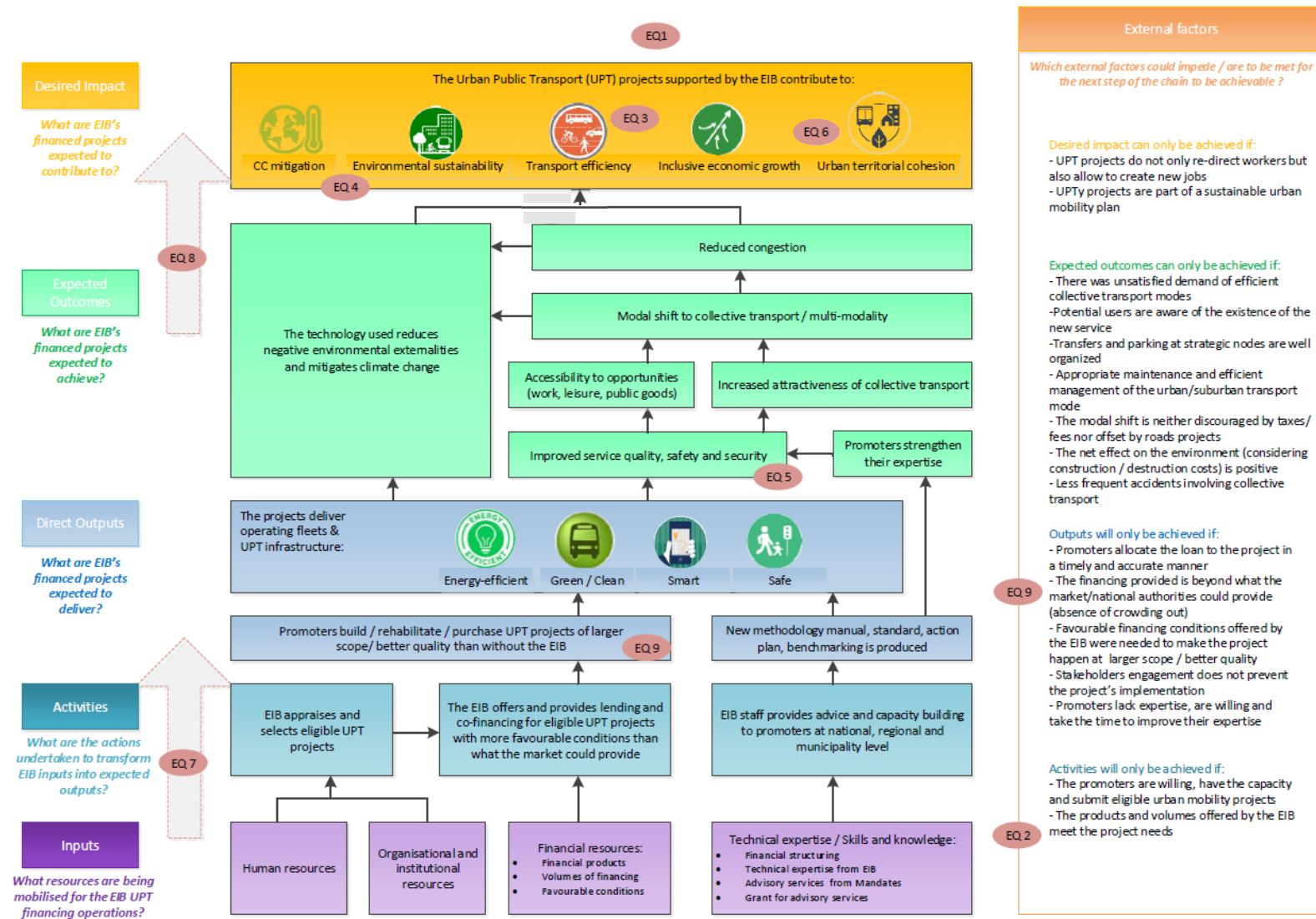
ANNEX 1 –THEORY OF CHANGE OF EIB SUPPORT FOR URBAN PUBLIC

TRANSPORT IN THE EUROPEAN UNION DURING THE PERIOD 2007-2019

The theory of change is a schematic and therefore simplified representation of how the EIB's support for UPT is expected to contribute towards its objectives. It was discussed and finalised in a workshop by end-2018 with the members of the Evaluation Reference Group (ERG) and other colleagues that are experts on the topic. This theory of change comprises the following components:

- **Inputs** mobilised by the EIB (financial, human, organisational and institutional resources, as well as technical expertise/skills and knowledge) in support of its UPT activities and operations.
- **Activities** performed by the EIB in support of UPT, including:
 - i. Appraisal and selection of UPT projects.
 - ii. Provision of lending for eligible UPT projects with more favourable conditions than what the market could provide.
 - iii. Advisory support and capacity building for promoters at national, regional and municipality level.
- **Outputs** delivered by the project and to which the EIB can have a direct influence as a co-financier:
 - i. Building, rehabilitation and/or purchase of UPT projects of larger scope/better quality than without the EIB.
 - ii. The production of a new methodology manual, standard and action plan, which combined could lead to:
 - iii. The delivery of operating fleets and UPT infrastructure that are energy-efficient, clean/green, safe, secure and/or smart.
- **Outcomes achieved by the projects financed**, including:
 - i. Intermediary outcomes in terms of improved service quality, safety and security, which would lead to:
 - a. Accessibility to opportunities (work, leisure, public goods).
 - b. Increased use of collective transport.
 - ii. Outcomes which justified UPT projects in the first place but for which the Bank has a more indirect influence:
 - a. Modal shift to public transport/multimodality.
 - b. Reduced congestion.
- **Impacts**: the broader and/or long-term effects to which the EIB-financed projects are expected to contribute, in favour of society as a whole, namely:
 - i. Transport efficiency.
 - ii. Climate change reduction and mitigation.
 - iii. Environmental sustainability.
 - iv. Inclusive and economic growth.
 - v. Urban territorial cohesion.

Theory of change of EIB support for urban public transport in the European Union (2007-2019)



ANNEX 2 – EVALUATION METHODOLOGY: EVALUATION QUESTIONS AND

APPROACH

1. Evaluation questions

The table below presents the eight thematic evaluation questions and corresponding Judgment Criteria (JC) that were formulated with a view to assessing selected issues identified through the theory of change⁶⁷. The formulation of the evaluation questions is based on the theory of change and the purpose of the evaluation is to test whether the effects that were supposed to materialise took place and whether the assumptions of the theory of change held up. The eight evaluation questions cover relevance and performance (effectiveness, efficiency and sustainability) – the traditional evaluation criteria used by IG/EV as per its Terms of Reference – as well as the EIB contribution.

Table 5 Evaluation questions (EQ) and judgment criteria		
EQ #	Evaluation question (EQ)	Judgment criteria (JC)
Relevance		
<i>The extent to which the objectives and activities are consistent with underlying policies and beneficiary needs.</i>		
1	To what extent were the EIB objectives in support of UPT consistent with EU objectives?	JC1.1. The Transport Lending Policies (2007) and (2011) were and remain suitable to contribute to EU policy objectives (as set out in the EU Urban Agenda and other relevant documents).
		JC1.2. The Transport Lending Policies (2007) and (2011) were and remain suitable to support municipal policy objectives (as set out in sustainable urban mobility plans and other relevant documents)
		JC1.3. The EIB's project appraisal tools (e.g. Value Added Framework, 3PA, cost-benefit analysis) are suitable to select UPT projects that contribute to EU objectives.
		JC1.4. The projects selected were in line with EU objectives.
2	To what extent were the EIB operations suitable to address needs/policy priorities at urban level?	JC2.1. Evidence suggests that there was latent demand for the project.
		JC2.2. Evidence suggests that the project was and over the years remained fully in line with UPT needs and the priorities established at urban level.
		JC2.3. Evidence shows that the processes and procedures in place at the EIB are appropriate for ensuring alignment of the EIB offer with 1) the municipalities' evolving policy priorities; 2) the needs of the project promoter.
		JC2.4. Evidence shows that the processes and procedures in place at the EIB are appropriate for ensuring the assessment of the promoter's capacity (in terms of knowledge, time and human resources).
		JC2.5. The product terms and conditions offered by the EIB were appropriate to address the needs of the project promoters.
		JC2.6. Evidence shows that the advisory support provided by the EIB was appropriate to address the needs of the project promoters.

⁶⁷ Not all the expected outcomes and desired impacts of the theory of change are covered by the evaluation questions. For instance, the effects of EIB-supported urban public transport projects on territorial cohesion or on inclusive growth were not investigated by the evaluation.

EQ #	Evaluation question (EQ)	Judgment criteria (JC)
Effectiveness <i>The extent to which EIB support for UPT in the EU-28 achieved its objectives</i>		
3	To what extent did the EIB-supported UPT projects contribute to improving transport efficiency?	J.C.3.1 The project is delivered as expected; fleets and UPT infrastructure are operating.
		JC3.2. EIB support enabled promoters to build/rehabilitate/purchase fleets and urban public transport infrastructure that are energy-efficient/clean/green/safe/smart.
		JC3.3. No endogenous/exogenous factor has prevented the implementation of the project as originally planned.
		JC3.4. Evidence shows that production is equal to the expected targets.
		JC3.5. Evidence collected shows that potential users are aware of the new service and the expected usage targets (i.e. expected number of passengers) are reached.
		JC3.6. Evidence suggests that the project has achieved the expected objectives in terms of improvement in quality of service.
		JC3.7. Evidence suggests that the project has achieved the expected objectives in terms of time savings and cost savings for urban transport users.
		JC3.8. Evidence shows that the project has contributed to a modal shift towards public transport in line with expectations.
		JC3.9. Evidence shows that the project has contributed to a reduction in congestion in line with expectations.
		JC3.10. Evidence shows that EIB processes and procedures in place are capable of monitoring the delivery of outputs and the achievement of outcomes in order to ensure EIB support for UPT operations contributes to improve transport efficiency.
4	To what extent did the EIB-supported UPT projects contribute to improving environmental sustainability and/or climate change mitigation?	JC4.1. Evidence suggests that the project has generated improvements in air quality.
		JC4.2. Evidence suggests that the project has generated a net reduction in greenhouse gas emissions.
		JC4.3. Evidence suggests that the project has contributed to reduce noise.
		JC4.4. Evidence shows that EIB processes and procedures in place are capable of monitoring the delivery of outputs and the achievement of outcomes in order to ensure that EIB support for urban public transport operations contributes to improving environmental sustainability and climate change mitigation.
5	To what extent did the EIB-supported UPT projects contribute to improving traffic safety and passengers' security?	JC5.1. Evidence suggests that the project has generated safety benefits.
		JC5.2. Evidence suggests that the project has generated security benefits.
		JC5.3. Evidence shows that EIB processes and procedures in place are capable of monitoring the delivery of outputs and the achievement of outcomes in order to ensure that EIB support for urban public transport operations contributes to improving traffic safety and passengers' security.
6	Cross-cutting aspects: To what extent did the project contribute to territorial and social cohesion?	JC5.4. There is evidence that the project increased accessibility to peripheral or previously not connected areas.
		JC5.5. There is evidence that the project increased accessibility to diverse opportunities (in terms of work, leisure, education, health) for socially vulnerable groups of people (e.g. disabled, elderly, poorest people).

EQ #	Evaluation question (EQ)	Judgment criteria (JC)
Efficiency		
<i>The extent to which benefits are commensurate with costs</i>		
7	To what extent were the results of the UPT projects supported by the EIB achieved (i) within the expected timeframe and (ii) within the expected costs?	JC6.1. Evidence proves that the project did not suffer delays in implementation.
		JC6.2. Evidence proves that the project did not suffer cost overruns in implementation.
		JC6.3. Evidence shows that the processes and procedures in place at the EIB are appropriate for ensuring 1) the delivery of the project at the best value for money; 2) proper assessment of expected time.
Sustainability		
<i>The extent to which the effects persist in the long run</i>		
8	To what extent will the outputs and outcomes of the EIB-supported projects be sustainable in the long run?	JC7.1. Evidence suggests that the effects generated by the project in the short run will be sustainable in the long run from an operational (maintenance), financial, economic, environmental and social point of view.
		JC7.2. Evidence suggests that project maintenance will be ensured in the long run.
		JC7.3. Evidence suggests that the project is financially sustainable.
		JC7.4. Evidence suggests that the institutional setup is suitable for ensuring the sustainability of project effects.
		JC7.5. The EIB has appropriate processes and procedures in place to make sure the projects meet the basic conditions of sustainability and support the continuation of positive effects following the project's completion.
EIB contribution		
<i>The extent to which the projects could not have been implemented by the market (additionality)/at national level (EU value added) with the same quality, scope or timeframe</i>		
9	To what extent could the EIB-supported projects have been implemented without the EIB's input (financial and non-financial) with the same scope, quality and/or timeframe?	JC8.1. There is evidence that the support provided by the EIB is beyond what was available, or was otherwise absent from the market as a result of market failures or sub-optimal investment situations.
		JC8.2. EIB contribution to EU value added –Evidence suggests that without EU-level intervention the project would not have been implemented by national/local public resources with the same quality, scope or time.
		JC8.3. The processes and procedures in place were adequate to demonstrate the project's additionality.

2. Evaluation approach

In order to answer the eight EQs outlined above, the evaluation used an integrated combination of quantitative and qualitative methods.

Annex 3 provides more details about the project evaluations (PEs) and case studies (CS), including a description of the projects selected.

Table 6 Overview of data collection and analysis methods by evaluation question						
Data collection, analysis tools and information sources	Evaluation criteria and evaluation questions					
	EQ1 Relevance to EU/EIB objectives	EQ2 Relevance to needs	EQ3,4&5 Effectiveness	EQ6 Efficient use of inputs	EQ7 Sustainability	EQ8 EIB contribution
1st Level – Thematic						
Policy review	✓	✓	✓	✓	✓	✓
Review of appraisal and project completion documentation	✓	✓	✓	✓	✓	✓
Portfolio analysis	✓	✓	✓	✓		
Focus groups with EIB staff	✓			✓		✓
2nd Level – Project Evaluations and Case Studies						
Project evaluations (12)	✓	✓	✓	✓	✓	✓
Project documentary review	✓	✓	✓	✓	✓	✓
Interviews with EIB staff	✓	✓	✓	✓	✓	
Site visit, including interviews with promoter, key local stakeholders	✓	✓	✓	✓	✓	✓
Ex-post assessment of benefits and costs ¹ (cost-benefit analysis)				✓	✓	
Case studies (6)						
Project documentary review	✓	✓	✓	✓	✓	✓
Interviews with EIB staff	✓	✓	✓	✓	✓	
Site visit, including interviews with promoter, key local stakeholders	✓	✓	✓	✓	✓	✓

Source: IG/EV

Note 1: An ex-post assessment of the benefits and costs was undertaken only for those projects selected for Project Evaluations, for which (a) an ex-ante cost-benefit analysis was available in the EIB data management systems and (2) was in operation for more than three years.

3. Thematic analysis: Data collection and analysis tools

To the extent possible, the EQs have been analysed at thematic level, considering the entire portfolio of UPT projects signed by the EIB in the period under evaluation. Four main tools were used for thematic analysis, namely:

- (1) A thorough desk and policy review, including strategic interviews with key stakeholders.
- (2) A review of the appraisal and project completion documentation (namely the project completion reports).
- (3) A quantitative portfolio analysis.
- (4) Two focus groups or collective interviews with key EIB staff.

3.1. Desk and policy review, including strategic interviews with key stakeholders:

As a starting point, the evaluation identified key documentation and secondary data sources and undertook an extensive review of desk and policy review. This review was complemented by a set of strategic interviews with informed UPT stakeholders, including both institutional and non-institutional players.

✓ Why was this tool used?
<ul style="list-style-type: none">• To better understand the objectives of the Bank and the European Union in the field of UPT by exploring the key EU legal and regulatory documents, as well as the EIB's strategic and policy documents (e.g. the EIB's Transport Lending Policy, Corporate Operational Plans, etc.).• To better understand the theoretical underpinnings of UPT in the general context of urban development, to enrich the methodology used in the evaluation and to ensure a better understanding of transport economics and urban economics.• To get an in-depth understanding of macroeconomic trends and the evolution of key parameters (e.g. population growth, population density, air pollution, greenhouse gas emissions, etc.) across the EU-28 during the period under evaluation.• To review relevant lessons learned from past IG/EV thematic and project evaluations, as well as from relevant evaluations from other institutions (e.g. European Commission, European Court of Auditors, etc.).

3.2. Project completion reports review:

The evaluation undertook a systematic review and analysis of project appraisal and completion documents of all completed projects within the EIB UPT portfolio between 2007-2019⁶⁸.

✓ Why was this tool used?
<ul style="list-style-type: none">• To review and document recurring findings and patterns from the appraisal reports and project completion reports in respect of several key performance indicators for each evaluation criterion.• To identify whether the project completion report process fulfils its three core objectives:<ul style="list-style-type: none">i. Improve accountability.ii. Facilitate lesson learning.iii. Report appropriately and consistently about projects' performance.
✓ Important methodological aspects
<p><i>Methodology for the selection of the sample:</i></p> <ul style="list-style-type: none">• This review included those projects in the EIB portfolio that had a project completion report available at the time this analysis was carried out (Q3-Q4 2019).• Of the 216 projects⁶⁹ that initially formed the portfolio of this evaluation, the initial sample of 75 projects with a project completion report at the time of this analysis (consisting of 59 investment loans and 16 framework loans) was reduced to 65 projects due to data availability considerations.• The 65 projects finally selected in the sample for this review included 59 investment loans and six urban transport projects forming part of a framework loan.

⁶⁸ The review included only the project completion reports available during the first half of 2019.

⁶⁹ At the time that the sample was selected, the portfolio of EIB-supported urban public transport projects consisted of 216 operations from the period 2007-2018. For the final report, the evaluation updated the analysis including UPT projects signed in 2019, which explains the difference in the number of operations in the total portfolio – see section 3.2. Portfolio review.

3.2. Portfolio review

The portfolio analysed included 216 EIB-supported UPT operations in the EU-28 during 2007-2019. Initially, the evaluation included the operations signed by the EIB in the period between 1 January 2007 and 31 December 2018, but it was later updated to include operations signed in 2019.

✓ Why was this tool used?
The portfolio review aimed at providing a detailed understanding of the key features of EIB investment in UPT operations over the period under evaluation.
✓ Important methodological aspects
<p><i>Methodology for the selection of the portfolio:</i></p> <p>The data for the portfolio of the UPT was extracted from the Bank's data management system. The main criteria for selection included:</p> <ul style="list-style-type: none">• Time scope: operations signed between 1 January 2007 and 31 December 2019.• Geographical scope: EU-28.• Sectoral scope: urban public transport, excluding urban nodes, urban road networks and car parks.• EIB products: all financing types, namely investment loans, equity/quasi-equity (funds with investments in the urban transport sector) and framework loans (covering multiple projects by the same borrower, including an urban transport component). <p>Based on these criteria, the portfolio of urban public transport operations analysed included 216 operations covering all public urban passenger transport projects financed by the EIB in European cities, namely tramways, metros, urban railways and buses. The portfolio included both infrastructure and rolling stock operations. It did not include freight transport, nor urban road projects (including car sharing or parking spots).</p>

3.2. Focus groups:

The evaluation examined two focus groups with a selection of staff involved with urban public transport activities across the Bank's services.

✓ Why was this tool used?
<ul style="list-style-type: none">• To better understand, amongst others:<ul style="list-style-type: none">○ The objectives of urban public transport at European Union and EIB level and how they translated into projects supported by the EIB.○ How the EIB support adapted to the evolution of the relevant policies and/or specific needs.○ The way in which needs in the field of urban public transport were assessed by the EIB.○ The validity of a certain number of observations stemming from the data collected from other methods (e.g. in-depth project evaluations).• To discuss and validate the findings emerging from project completion report reviews, project evaluations and case studies, etc.• To exchange views on the Bank's project selection procedures, appraisal, monitoring procedures and practices.• To understand how the most recent part of the urban public transport portfolio has changed.• To gather inputs on the implications for future EIB support for urban public transport in view of recent or upcoming developments (including the climate bank agenda and InvestEU, etc.).

ANNEX 3 – PROJECT SAMPLE: PROJECT EVALUATION AND CASE STUDIES

The 12 projects selected for **project evaluation** included:

- **Four tramway projects.**
- **Four underground network investment projects.**
- **One bus rapid transit.**
- **Two light rail projects.**
- **One hybrid operation**, which deals with the renewals of both tram and bus fleets.

Of the 12 projects selected, three projects were located in both France and Spain respectively, and the remaining projects were in Bulgaria (1), Czech Republic (1), Hungary (1), Poland (1), Sweden (1) and the United Kingdom (1).

The following table provides a brief presentation of the main features of the projects selected for project evaluation:

#	Country	Sub-sector	Type	Total project investment costs (●) & EIB loan amount in € (●)									
				<100m	<200m	<300m	<400m	<500m	<600m	<700m	...	900m-1bn	>1bn
PE1	UK	Light rail system	Infrastructure			●				●			
PE2	Spain	Tramway	Rolling stock and infrastructure		●		●						
PE3	Spain	Metro	Rolling stock and infrastructure			●		●					
PE4	France	Tramway	Rolling stock and infrastructure		●			●					
PE5	Spain	Metro	Infrastructure					●					●
PE6	Hungary	Tramway	Infrastructure		●			●					
PE7	France	Tramway	Rolling stock and infrastructure							●			●
PE8	France	Buses	Rolling stock and infrastructure	●		●							
PE9	Czech Republic	Metro	Infrastructure					●				●	
PE10	Poland	Metro	Infrastructure			●						●	
PE11	Sweden	Light rail system	Rolling stock and infrastructure				●			●			
PE12	Bulgaria	Buses and Trams	Rolling stock	●	●								

Source: IG/EV based on EIB portfolio and project documentation.

The figure below provides an overview of the six projects selected for **case studies**, which included:

- **Four metro projects**—entailing both infrastructural works and purchase of rolling stock. These projects were selected because they encountered significant **delays and/or cost overruns**.
- **Two bus projects** that were selected for their **innovative character**. These represent a **relatively new type of investment in a greener bus fleet with loans directed at municipal transport companies of small cities**.
 - Both bus projects benefited from the European Fund for Strategic Investment (EFSI) guarantee—a **risk-sharing instrument also leveraging public/private sector funds**—and were included in the Cleaner Transport Facility (CTF) initiative⁷⁰.

⁷⁰ An initiative launched in December 2016 by the EIB jointly with the European Commission to specifically assist investments, by both public and private entities, in cleaner transport projects through EIB products and new financial instruments.

- As compared to other case studies, these are recently approved operations, entailing a small investment, but where the EIB contribution accounts for a high share of the investment cost.
- Both projects include the purchase of buses as well as some infrastructural works (e.g. building of stations, stops, lanes, etc.).

The table below provides a brief presentation of the main features of the selected projects for case studies:

#	Sub-sector	Type	Total project investment costs (●) & EIB loan amount in € (●)									
			<100m	<200m	<300m	<400m	<500m	<600m	<700m	...	900m-1bn	>1bn
CS1	Metro	Rolling stock and infrastructure			●				●			
CS2	Metro			●			●					
CS3	Metro								●			●
CS4	Metro			●						●		
CS5	Bus		●	●								
CS6	Bus		●	●								

Source: IG/EV based on EIB portfolio and project documentation.

ANNEX 4 – PROJECT SAMPLE: EX-POST COST-BENEFIT ANALYSIS IN A

NUTSHELL

For the purpose of the assignment, an ex-post cost-benefit analysis was carried out on eight selected urban transport projects in the framework of seven project evaluations, which were already implemented and in operation by at least three years at the time of evaluation.

For those sampled projects, the evaluation estimated the benefits, costs and value to society of the projects based on actual data (at the time of evaluation – whenever possible). The aim of the ex-post cost-benefit analysis was thus to assess the actual net welfare gain brought about by the projects, exploiting the knowledge at the time of evaluation. The findings of this exercise fed into the evaluation questions on effectiveness and efficiency.

Hence, the evaluation carried out a *rather hybrid typology of cost-benefit analysis*, sharing features of both ex-post and ex-ante perspectives. The main implication of this choice is that direct comparison of ex-post indicators (such as economic rate of return and [economic net present value](#)) with ex-ante indicators would be misleading. Some methodological adjustments were thus needed to fit the standard ex-ante model into this hybrid approach (see table below).

Table 9 Ex-post cost-benefit analysis model in a nutshell	
Viewpoint of the analysis	The cost-benefit analysis needs to be undertaken from “today’s viewpoint”. This means that the assessment of projects in the middle of their lifecycle requires one to deal with the stock of knowledge accrued about past performance as well as to assume likely future development. In other words, the ex-post cost-benefit analysis is run both backwards, i.e. using past evidence on project performance until today, and forwards, i.e. forecasting future developments of the project from today until the end of the project’s time horizon. This dual approach calls for the adoption of two sets of discount rates.
Use of ex-ante cost-benefit analysis	The ex-ante appraisals provided by the EIB were used primarily as a reference to better understand the rationale of the project selection, the original expectations, the counterfactual scenario ⁷¹ , and the underlying assumptions. Such assumptions were adjusted to fit today’s viewpoint.
Use of knowledge	A ‘current’ state of knowledge was adopted. The assumptions, the parameters, and the unit values used in the ex-ante analysis were revised where appropriate in light of today’s knowledge. In cases where the project scope was changed during construction, the ex-post cost-benefit analysis reflects the new situation.
Effects	In some cases, thanks to the possibility of relying on real data and not on hypotheses, the types of effects included in the ex-post cost-benefit analysis differ compared to the ex-ante analysis in case they did not materialise. In a similar vein, whenever appropriate, benefits and costs not taken into account at the appraisal stage, but observed ex-post, were incorporated into the ex-post analysis.

Source: IG/EV

Like any other evaluation method, the ex-post cost-benefit analysis is not without limitations and challenges, the most important being:

- First, the difficult separability of the impacts of individual projects within a dense urban transport network resulted in a specific project being a sub-optimal unit of analysis and/or observed trends that are difficult to attribute to a project.

⁷¹ The counterfactual scenario is the baseline scenario against which the additional benefits and costs of the with-project scenario can be measured.

- UPT projects are often conceived and/or justified based on wider urban development and regeneration objectives, whose effects may be difficult to capture.
 - Similarly, some negative externalities generated by the implementation of the project were difficult to quantify and have therefore been left out.
- Secondly, most of the outcomes generated by UPT projects depend on demand trends and modal shift; their reconstruction would require specific traffic modelling normally impossible to replicate in the ex-post analysis unless suitable studies are already available.
- Lastly, an ex-post cost-benefit analysis requires, among other things, actual project-specific operational and financial figures, which may not be available or cannot be easily extracted from existing sources. Thus, the process of data collection depends on the availability of recorded data and the willingness of project stakeholders to cooperate in the evaluation.

ANNEX 5 – LIST OF REFERENCES AND STAKEHOLDERS CONSULTED DURING THE EVALUATION

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List of stakeholders consulted:

For the purpose of collecting first-hand information, validating and cross-checking information from other data sources explained above (see Annex 2), the evaluation team conducted semi-structured interviews with more than 200 stakeholders. These included EIB staff, project promoters and final beneficiaries of those projects, as well as other key external stakeholders (e.g. European Commission, EBRD, etc.). The majority of these interviews were carried out face-to-face.

In addition, the evaluation team organised targeted interviews with EIB services when needed throughout the evaluation with a view to better understanding relevant EIB policies and procedures and their evolution over time, as well as to keep up to date with ongoing developments (e.g. the revision of the Transport Lending Policy). Interviews with external stakeholders (particularly the European Commission) aimed at gathering information on the relevance, additionality and EU-level value added of EIB support for UPT in Europe.

Stakeholders interviewed by category	
Stakeholder category	Organisation/Department
European Investment Bank services	Projects Directorate
	Operations Directorate
	Economics Department/General Secretariat Directorate
	Advisory Hub/Advisory Services Department/General Secretariat Directorate
	JASPERS/Advisory Services Department/General Secretariat Directorate
	JESSICA and Investment Funds/Operations Directorate
Institutional (European Union)	European Court of Auditors
	European Commission/DG MOVE
	European Commission/DG REGIO
	European Commission/DG ENV
	European Commission/DG CLIMA
	Innovation and Networks Executive Agency (INEA)
International financial institutions	European Bank for Reconstruction and Development (EBRD)
Non-institutional stakeholders	Eurocities
	URBACT
	<i>Union Internationale des Transports Publics</i> (UITP)
	ELTIS/Polis Network
	European Environmental Agency

About Operations Evaluation

In 1995, Operations Evaluation (EV) was established with the aim of undertaking ex-post evaluations both inside and outside the European Union. Within EV, evaluation is carried out according to established international practice and takes account of the generally accepted criteria of relevance, efficacy, efficiency and sustainability. EV makes recommendations based on its findings from ex-post evaluation. The lessons learned should improve operational performance, accountability and transparency. Each evaluation involves an in-depth evaluation of selected investments, the findings of which are then summarised in a synthesis report.

These reports are available from the EIB website:

<http://www.eib.org/en/infocentre/publications/all/ex-post-evaluations/index.htm>

OPERATIONS EVALUATION

Evaluation of EIB support for urban public transport in the European Union (2007-2019)

Thematic report

February 2021



European Investment Bank
98-100, boulevard Konrad Adenauer
L-2950 Luxembourg
+352 4379-22000
www.eib.org – info@eib.org

Operations Evaluation
Evaluation@eib.org
www.eib.org/evaluation