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MULTILATERAL INVESTMENT FUND

**MEXICO**

**INCLUSION AND SUSTAINABILITY IN MOTION**

**(ME-T1406)**

**DONORS MEMORANDUM**

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## **PROJECT SUMMARY**

### **INCLUSION AND SUSTAINABILITY IN MOTION (ME-T1406)**

Mexico's cities have seen a troubling increase in the use of motor vehicles that has a negative impact in terms of quality of life, pollution, and greenhouse gas emissions. Partly in response to these challenges, Mexico's urban areas have recently seen an accelerated transformation of their transportation systems, driven by transportation network companies (TNCs),<sup>1</sup> including ride-hailing companies like Uber, vanpooling companies like Jetty, short-trip solutions like Mobike and Bird, and others. Most TNCs are oriented toward new digital technologies and, in some cases, toward new individual transportation technologies as well, such as scooters or electric bicycles.

On the positive side, development of the TNC market has the potential to narrow gaps in access to places of education and employment, which are often located far from disadvantaged urban areas; mitigate emissions by generating synergies with sustainable modes of transportation; and provide low-emissions transportation options while reducing vehicular traffic congestion. Yet the negative externalities caused by TNCs in Mexico's cities is a cause of growing concern. They increase traffic congestion by putting more vehicles on the road, often carrying only one passenger. Indeed, Mexico's cities are among the markets where companies like Uber and Cabify have their largest numbers of vehicles.<sup>2</sup> To ensure that development of the TNC market is oriented toward environmental sustainability and social inclusion, and that it complements public transportation, the project will carry out pilot projects to test innovative solutions.

These initiatives will be of two kinds: (a) pilot initiatives with the public-private urban transportation ecosystem, leading to strategic partnerships that complement the TNCs and public transportation operators to solve specific transportation problems related to environmental sustainability and social inclusion; and (b) pilot initiatives directly with the TNCs to produce scalable mobility solutions focusing on vulnerable groups or on reducing environmental or social externalities, which require no government involvement, at least not in the pilot phase.

The project's pilot initiatives will have two types of outcomes. First, they will generate replicable improvements in terms of both coordination between TNCs and the public transportation sector (Component 1) and the incorporation of environmental and social considerations into TNC business models (Component 2). Second, they will generate real-time data, lessons, and knowledge on environmental and social aspects of TNCs, which will be immediately available to public and private actors in the transportation sector, through the data center to be developed by the project in partnership with leading national institutions in technological research and development (Component 3).

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<sup>1</sup> The term "TNC" is used here for consistency with industry usage, but they could also be considered transportation technology companies.

<sup>2</sup> <https://www.reuters.com/article/us-didi-mexico/chinese-uber-rival-didi-launches-in-mexico-recruits-drivers-idUSKCN1HD0PH>.

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## **ABBREVIATIONS**

|         |                                                            |
|---------|------------------------------------------------------------|
| HOV     | High-occupancy vehicle                                     |
| INE/TSP | Transport Division of the Infrastructure and Energy Sector |
| ITDP    | Institute for Transportation and Development Policy        |
| PEU     | Project execution unit                                     |
| TNC     | Transportation network company                             |

**MEXICO**  
**INCLUSION AND SUSTAINABILITY IN MOTION**  
**(ME-T1406)**

**EXECUTIVE SUMMARY**

|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |             |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------|
| <b>Country and geographic location</b>                 | Mexico, primarily its urban areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |             |
| <b>Executing agency:</b>                               | Institute for Transportation and Development Policy (ITDP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |             |
| <b>Focus area:</b>                                     | Inclusive Cities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |             |
| <b>Coordination with other donors/Bank operations:</b> | The project has been coordinated with specialists from the Transport Division (INE/TSP). The lessons learned from this project are replicable in other countries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                      |             |
| <b>Beneficiaries:</b>                                  | According to preliminary calculations, some 95,250 people may benefit from transportation network companies (TNCs), including (a) 30,000 users of controlled-access roads <sup>3</sup> whose travel times will shorten by up to 30%; <sup>4</sup> (b) 20,000 users of TNCs who will shorten their travel times by 30% and lower their travel costs on controlled-access roads by up to 50%; (c) 20,000 people who will benefit from enhancements made to public areas in coordination with TNCs; (d) 250 people with limited mobility who will gain access to their destinations; (e) 15,000 women who will be at lower risk of being harassed on the last leg of their travel; (f) at least 10,000 people who will benefit from pilot initiatives to be developed in conjunction with the TNCs; (g) at least 15 companies that will benefit from new business models; and (h) at least nine government agencies that will built management and regulatory capacities related to TNCs. |                      |             |
| <b>Financing:</b>                                      | IDB Lab nonreimbursable technical cooperation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | US\$785,000          | 50%         |
|                                                        | Counterpart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | US\$785,000          | 50%         |
|                                                        | <b>Total project budget</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>US\$1,570,000</b> | <b>100%</b> |
| <b>Execution and disbursement periods:</b>             | 36 months for execution, and 42 months for disbursement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |             |
| <b>Special contractual conditions:</b>                 | The formation of the project steering committee, to the Bank's satisfaction, will be a condition precedent to the first disbursement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                      |             |
| <b>Environmental and social impact review:</b>         | This operation has been prescreened and classified in accordance with the Bank's Environmental and Safeguards Compliance Policy (Operational Policy OP-703). Given its limited impacts and risks, the proposed category for the project is "C."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |             |

<sup>3</sup> An estimated 30,000 people use the Supervía Poniente roadway during the six hours of heaviest traffic.

<sup>4</sup> These people are not TNC users but benefit from rate scheduling based on traffic congestion and higher vehicle occupancy rates. The range of potential savings is taken from Dixon, C., and K. Alexander, 2005. "Literature Review of HOV Lane Schemes." TRL.

## I. THE PROBLEM

### A. Description of the problem

- 1.1 **Urban traffic congestion in Mexico.** Mexico's cities have seen a troubling increase in the use of motor vehicles in the past 10 years, which has a negative impact in terms of quality of life, pollution, and greenhouse gas emissions. Economic losses stemming from traffic congestion in Mexico are estimated at more than US\$10 billion per year.<sup>5</sup> A prime example is Mexico City, now renowned as having the worst traffic in the world, which adds an average of 59 minutes onto people's already long daily commutes. This takes a significant toll on people's health and well-being.<sup>6</sup> Moreover, official data show that more than 34 million people are exposed to poor air quality, largely due to emissions from motor vehicles.<sup>7</sup>
- 1.2 **TNCs and traffic.** Partly in response to these challenges, Mexico's cities have recently seen an accelerated transformation of their transportation systems, driven by transportation network companies (TNCs).<sup>8</sup> **Most TNCs are oriented toward new digital technologies and, in some cases, toward new individual transportation technologies as well, such as scooters or electric bicycles.**
- 1.3 TNCs operating in Mexican cities (technical files) include (a) microtransit solutions for short distances such as scooters or shared bicycles under various business models, e.g., Mobike and Lime; (b) vanpooling solutions such as Jetty and Bussi; (c) ride-hailing platforms such as Uber, Cabify, and Didi; (d) ride-sharing services such as Bla Bla Car; and (e) delivery companies such as Rappi. There are also a variety of TNCs providing data services to transportation users, such as Waze.
- 1.4 At least 70 TNCs of various types are estimated to have been operating in Mexico in 2018, and new companies are constantly entering the market. According to the latest origin-destination survey for Greater Mexico City, some 156,000 trips purchased through a mobile app were completed in 2017, and this number is sharply rising. In Mexico City alone, the number of vehicles providing rides to people has doubled, according to estimates, from 130,000 taxis to 260,000 vehicles, worsening urban traffic congestion.
- 1.5 In February 2019, Uber stated that Mexico City is its second most important city in the world, and it was planning to add 500,000 drivers to its platform. Uber has not said how many vehicles it has in Mexico City, but has said that it has 230,000 vehicles nationwide.<sup>9</sup>
- 1.6 **TNCs' environmental and social challenges.** On the positive side, development of the TNC market could narrow gaps in access to places of education and

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<sup>5</sup> These losses are from lost hours of work, lost productivity, increased cost of freight transportation, fuel costs, and other factors. For more information, see <http://mexico.itdp.org/wp-content/uploads/Transformando-la-movilidad-urbana-en-Mexico1.pdf>.

<sup>6</sup> TomTom Index, 2017. Health costs are related to respiratory conditions associated with pollution from motor vehicles, as well as stress and spinal and back problems associated with excessive time in a vehicle.

<sup>7</sup> INE, 2011.

<sup>8</sup> The term "TNC" is used here for consistency with industry usage, but they could also be considered transportation technology companies.

<sup>9</sup> [https://www.parentesis.com/noticias/negocios/Uber\\_busca\\_500\\_mil\\_conductores\\_al\\_cierre\\_de\\_2018](https://www.parentesis.com/noticias/negocios/Uber_busca_500_mil_conductores_al_cierre_de_2018).

employment, which are often located far from disadvantaged urban areas; mitigate emissions by generating synergies with sustainable modes of transportation; and provide low-emissions transportation options while reducing vehicular traffic congestion. Yet the negative externalities caused by TNCs in Mexico's cities is a cause of growing concern. They increase traffic congestion by putting more vehicles on the road, often carrying only one passenger. Indeed, Mexico's cities are among the markets where companies like Uber and Cabify have their largest numbers of vehicles.<sup>10</sup> This also means increased pollution and greenhouse gas emissions, as well as longer average commuting times, since the relative safety and convenience of these options compared to public transportation are often more important to riders than travel times.

- 1.7 TNCs also often reduce the appeal of affordable modes of mass transportation with lower emissions per passenger, such as buses and subway systems, which are precisely the options that provide low-income people with access to their destinations. This adversely impacts the long-term viability of many routes, which often serve low-income neighborhoods located far from workplaces. Studies have shown that transportation-related difficulties in Mexico City in getting to workplaces from disadvantaged urban areas is one of the leading causes of poverty and inequality.<sup>11</sup>
- 1.8 The use of digital technologies is a distinctive feature of TNCs and allows for exponential scaling of their positive and negative aspects alike. Yet market incentives and an absence of regulations applicable to TNCs push them to prioritize the most economically viable solutions. For example, they tend to focus on serving higher-income customers in certain neighborhoods while ignoring lower-income areas, and they lack strategies to reduce emissions and traffic.
- 1.9 These factors run counter to environmental sustainability, social inclusion, and synergies with public transportation. The patterns can now be identified using data partially disclosed by TNCs, provided by companies like Waze and Sin Tráfico, or collected in the field. Still, TNCs' operations cannot yet be monitored in real time, nor can this information be used to improve urban transportation services or road safety due to a lack of information-sharing protocols and limited institutional capacity in local governments.<sup>12 13</sup>
- 1.10 **Potential for a technology-based solution.** Technological advances offer a dual opportunity to promote and accelerate the use of environmental and social solutions by TNCs. Traffic data can be generated in real time, which means that data on services provided by TNCs can be disseminated more quickly. This will help other TNCs in Mexico and elsewhere in the region incorporate lessons learned. This information has tremendous value and growth potential: six million people use public transportation in the Mexico City metropolitan area alone. The

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<sup>10</sup> <https://www.reuters.com/article/us-didi-mexico/chinese-uber-rival-didi-launches-in-mexico-recruits-drivers-idUSKCN1HD0PH>

<sup>11</sup> Organisation for Economic Co-operation and Development: Territorial Reviews (2015).

<sup>12</sup> ITDP, 2017. Movilidad Inteligente en la Ciudad de México. Available at <http://mexico.itdp.org/documentos/movilidad-inteligente-ciudad-de-mexico/>.

<sup>13</sup> ITDP, 2018. Sistema de Información y Seguimiento de Seguridad Vial: Propuesta de Política Pública para la Ciudad de México. Available at <http://mexico.itdp.org/documentos/sistema-de-informacion-y-seguimiento-de-seguridad-vial/>.



rate of users with Internet access has also increased significantly, with two thirds of all Mexicans using smartphones.<sup>14</sup> This means that TNCs' potential for scaling environmental and social solutions is significant.

- 1.11 **Trends in the TNC market.** Jetty, a local vanpooling<sup>15</sup> company, reported 1,000 seats sold per day in October 2018, in its first year of operation. The company also reported that its business is compromised by off-peak hours, when vehicles and drivers are not operating. According to estimates, with greater regulatory certainty and support they could increase this figure many times over in the medium term to 10,000 shared rides per day. A number of dockless micromobility<sup>16</sup> companies began operating in Mexico City in 2018, and their numbers of users have visibly increased in pedestrian areas. Their expansion to other cities in Mexico may hinge on how well they do in Mexico City. Cabify, with 200,000 registered drivers in 2017, focuses on single-passenger rides. AllRide, a ride-sharing company starting operations in Mexico, has a business model closely tied to companies with employee transportation plans. Their success in the market may get a boost from the project's pilot initiatives, especially the tie-in of TNCs and companies with transportation plans and the implementation of high-occupancy vehicle (HOV) lanes to make ride-sharing more competitive.
- 1.12 **Institute for Transportation and Development Policy (ITDP).** ITDP, through its team in Mexico, has been supporting the implementation and dissemination of international best practices in urban transportation and advocating for public policies to transform the future of transportation and sustainable urban development. In recent years it has been working with Mexico's transportation authorities to improve the urban transportation ecosystem. As part of this effort, with the participation of IDB Lab and the IDB Transport Division, ITDP has been in dialogue with TNCs<sup>17</sup> to mitigate their negative externalities and enhance their contribution to environmental sustainability and social inclusion through collaborations and pilot initiatives.
- 1.13 **TNC partnerships.** A number of TNCs have recently begun meeting and expressed willingness to form partnerships to address their shared challenges as companies. One of their greatest challenges is their relationship with government authorities, which have varied from one city to another. Regulations in some places have been limited or nonexistent, while other locales have banned this type of service on the grounds that it constitutes unfair competition with traditional taxi service or a disincentive to use public transportation. Sector leaders have said they would like to be allowed to operate and compete on an equal footing with other private transportation providers, and that certain types of regulations may stymie an industry whose emergence and growth have been driven by innovation and new digital and transportation technologies. TNCs could also be an ally for both

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<sup>14</sup> <https://www.razon.com.mx/los-smartphone-64-mexicanos-internet/>

<sup>15</sup> Use of passenger vans to provide ride-sharing for people with different itineraries.

<sup>16</sup> Use of vehicles designed for short trips, such as scooters.

<sup>17</sup> The following attended a recent event at the Bank's offices in Mexico: DiDi, Cabify, Uber, and Taximo (ride-hailing); Mobike, Jetty, Bird, Dezba, Lime Grin, Econduce, and Movo (micromobility), Allride (carpooling); Autoclupp and Sin Tráfico (data mining); and MaaS Latam (partnering). Discussions have also been held with Waze, which is interested in participating in the project.

government and residents in helping to achieve more equitable, sustainable, and competitive cities.

- 1.14 **Beneficiaries.** In the long run, the project has the potential to benefit Mexicans living and working in urban areas, who will experience benefits including: (1) more and better transportation options; (2) less traffic; (3) reduced emissions; and (4) enhanced public areas and road safety.
- 1.15 Specifically, over the course of its execution the project has the potential to benefit some 95,250 users of TNCs, who could see their travel and commute times decrease by 15% to 30% and could lower their transportation costs by switching to more inexpensive options. These 95,250 direct beneficiaries include: (a) 30,000 users of controlled-access roads<sup>18</sup> whose travel times will shorten by up to 30%;<sup>19</sup> (b) 20,000 users of TNCs who will shorten their travel times by 30% and lower their travel costs on controlled-access roads by up to 50%; (c) 20,000 people who will benefit from enhancements made to public areas in coordination with TNCs; (d) 250 people with limited mobility who will gain access to their destinations; (e) 15,000 women who will be at lower risk of being harassed on the last leg of their travel; (f) at least 10,000 people who will benefit from pilot initiatives to be developed in conjunction with the TNCs; (g) at least 15 companies that will benefit from new business models; and (h) at least nine government agencies that will build management and regulatory capacities related to TNCs.
- 1.16 More broadly, Mexico's urban transportation ecosystem will benefit from the fact that at least 15 TNCs will incorporate environmental and social sustainability strategies into their business models and will be governed by clear, effective regulations in accordance with best practices to maximize social benefits and encourage competition and innovation. Lastly, at least nine government agencies will benefit from greater data, evidence, and capacity to effectively and equitably regulate the new services provided by TNCs.

## II. THE SOLUTION

### A. Project description

- 2.1 The expected impact of the project is improved quality of life for Mexico's urban and periurban population as a result of a decrease in vehicular traffic congestion, pollution, greenhouse gas emissions, and average travel times, as well as access to safe, affordable, quality transportation solutions.
- 2.2 The expected outcome of the project is that TNCs in Mexico will incorporate solutions and technologies for environmental sustainability and social inclusion into their business models, thereby helping to serve vulnerable and "last mile" populations.
- 2.3 **Model/solution.** To ensure that development of the TNC market is oriented toward environmental sustainability and social inclusion, and that it complements public

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<sup>18</sup> An estimated 30,000 people use the Supervía Poniente roadway during the six hours of heaviest traffic.

<sup>19</sup> These people are not TNC users but benefit from rate scheduling based on traffic congestion and higher vehicle occupancy rates. The range of potential savings is taken from Dixon, C., and K. Alexander, 2005. "Literature Review of HOV Lane Schemes." TRL.

transportation, the project will carry out pilot projects to test innovative solutions. Pilot initiatives will be selected on a competitive basis with the involvement of the TNCs with which the Bank has been engaged in dialogue through INE/TSP, IDB Lab, and leadership of the Institute for Transportation and Development Policy (ITDP).

- 2.4 The TNCs will be notified about the solicitations for pilot initiatives through workshops with five working groups (micromobility, vanpooling, delivery service, shared vehicles, and other TNC issues) and via social media. The criteria to be used in selecting the pilot initiatives are (1) technical feasibility, (2) commitment (human and financial resources), (3) replicability, (4) potential social and environmental impact, and (5) provision of data. Most of the pilots are expected to be executed in Mexico City, the State of Mexico, Monterrey, Guadalajara, and other metropolitan areas, at least at the start of the project, given both the greater presence of TNCs there and the greater magnitude of the problem.
- 2.5 Additionally, **the project will generate and disseminate knowledge** on the outcomes of the pilot initiatives, to encourage the replication of solutions in Mexico and elsewhere in the region. The proposed pilot initiatives will help explore and disseminate solutions in an enabling, controlled environment that the TNCs could not achieve on their own. This will generate learnings and evidence of what does and does not work. The TNCs' responses to the region's huge challenges in urban transportation can then be oriented toward solutions that are not only cost-effective but environmentally and socially sustainable. Encouraging TNCs to focus on developing solutions to environmental and inclusion-related problems is a powerful initiative because it can integrate digital and transportation technologies with the potential to be scaled up rapidly (Component 1). The project will also include pilot initiatives (Component 2) that will partner with public transportation and with governmental and nongovernmental actors to create synergies between TNCs and public transportation solutions. This will generate a field of coordinated action between IDB Lab and INE/TSP to help align innovation with public policies and strategies for sustainable transportation.
- 2.6 This proposal differs from other urban transportation projects in that it involves **pilot** initiatives to address specific transportation and access problems in various Mexican cities, which relate to the business models of a wide range of companies. The project's focus is on solving public problems with private-sector participation, which differs from startup incubation processes that focus on developing new enterprises or strengthening young companies.
- 2.7 **Innovation.** The project is innovative because, whereas support for new TNCs has focused on digital technologies for interaction with customers, such as apps for requesting or managing the services, and on transportation technologies such as electric vehicles, a project aimed at generating positive social and environmental impacts of new urban transportation companies is a novel development. Another innovation of the project is that, as part of component 2, it aims to develop solutions to improve the transportation ecosystem in cities through the interaction of public-sector actors and new private-sector actors, which is innovative compared with the traditional approach of working separately with each sector. Lastly, the project seeks to address, as part of component 3, the ability to gather data in real time and immediately measure project outcomes.

- 2.8 **Component 1: Pilot initiatives for the public-private ecosystem to address transportation problems.** This objective of this component is to foster strategic partnerships to complement TNCs and public transportation actors,<sup>20</sup> in order to solve specific transportation problems related to environmental sustainability and social inclusion.
- 2.9 ITDP will promote transportation pilot initiatives in the following four areas: (1) mitigation of emissions and/or reducing traffic congestion in cities generated by the TNCs themselves or other means of transportation; (2) integration of TNCs with mass transportation in Mexico's cities; (3) at least one pilot initiative to promote better use of infrastructure in cities by TNCs; and (4) other synergies between TNCs and cities, to be determined in dialogue with TNCs.
- 2.10 On the basis of conversations with TNCs and transportation ecosystem actors, the pilot initiatives are expected have the following features:
- 2.11 **Pilot initiative(s) for HOV lanes in partnership with TNCs**, to increase the number of people transported and shorten travel time per person. This could solve the problem of low occupancy in private vehicles (1.3 persons per vehicle on average). International experience has shown that the main obstacle to implementing this type of solution is monitoring and enforcement of HOV lanes. This pilot initiative will test the capacity of vanpooling and car-sharing enterprises to enforce HOV lanes, while the use of HOV lanes will make TNCs and public transportation more competitive vis-à-vis private vehicles.
- 2.12 **Pilot initiative(s) for dockless micromobility in public areas**, to bring viability to "last mile" solutions such as shared bicycles and scooters in partnership with public-sector actors and public transportation. This will help eliminate obstacles for pedestrians and minimize disorder in public areas.
- 2.13 **Other pilot initiatives.** Other solutions will be tested under this component, e.g., to allow TNCs to operate at public transportation hubs or to facilitate the interoperability of payment methods between TNCs and public transportation. This will help make TNCs and public transportation more complementary. It could also include multimodal solutions and trips, to build mutually beneficial partnerships between mass transportation systems and vanpooling or car-sharing enterprises, increasing access to employment and education centers from areas underserved by public transportation.
- 2.14 **Component 2: Private-sector pilot initiatives to address transportation problems.** This objective of this component is to provide scalable transportation solutions to better serve vulnerable populations or people with disabilities or limited mobility,<sup>21</sup> as well as women, and/or to reduce environmental or social externalities. These pilot initiatives will be carried out directly with TNCs and will be aligned with sustainable transportation strategies and lessons learned by the Bank (INE/TSP), with no need for active coordination with public transportation.

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<sup>20</sup> In Mexico City, the counterpart will be the Department of Mobility of Mexico City (SEMOVI). Similarly, when pilots are implemented in other municipal, state, or federal jurisdictions, the project will coordinate with the corresponding agency, for example, the Department of Mobility of the State of Mexico for pilots in that state.

<sup>21</sup> Including older adults, LGBT persons, persons with disabilities, and ethnic minorities.

- 2.15 The pilot initiatives will focus on three lines of innovation in business models: (1) sustainable solutions for **“last mile” delivery service**; (1) adaptation of TNC services to **include a gender focus**; (2) improved transportation services for **people with disabilities or limited mobility** and the population of underserved areas; (3) other innovations to enhance the **social and environmental sustainability** of TNCs.<sup>22</sup> Based on discussions with TNCs, the pilot initiatives are expected to have the following features:
- 2.16 **Pilot initiative for gender solutions with TNCs**, to make the service better and safer for female customers or increase the number of women entrepreneurs and/or workers in the transportation sector, where they feel safe. One example to be explored with participating TNCs is the creation of programs offering preferential rates for women to safely complete the final leg of their trip in high-risk areas and during high-risk hours, in order to improve the quality and accessibility of the transportation ecosystem for women users of TNCs and public transportation.
- 2.17 **Pilot initiative(s) for vanpooling for people with limited mobility during off-peak hours**, to improve access for people with limited mobility by optimizing vanpooling companies and uses of new technologies to make routes for users with disabilities more efficient. This would provide a solution for the large number of people with limited access to health care facilities, recreational sites, or places of employment due to a lack of mobility associated with a range of disabilities or advanced age. It would also make vanpool vehicles more efficient by putting them into service during idle time, generally 10 a.m. to 5 p.m.
- 2.18 **Pilot initiative(s) for sustainable “last mile” freight transportation**, to generate synergies between underutilized parking lots or urban areas and delivery companies through environmentally sustainable means such as delivery bicycles for the final leg of deliveries. This would mitigate the emissions generated by the increased delivery of merchandise (to businesses and final customers) purchased on the Internet.
- 2.19 **Pilot initiative(s) for partnerships between TNCs and enterprises in other sectors**, to connect companies that develop company transportation plans with car-sharing services based on mobile apps and vanpooling. This would help increase the average occupancy of private vehicles on commutes to work and reduce emissions.
- 2.20 **Other pilot initiatives** to promote changes in the transportation habits of TNC users, making urban transportation more environmentally and socially sustainable. The Massachusetts Institute of Technology's Urban Mobility Lab has worked with instruments that can have a positive impact on the behavior of users of public transportation, such as evoking feelings of pride, peer pressure, improved self-control, and motivation through pricing or nominal rewards.
- 2.21 **Component 3: Data generation, best practices, and communication.** This objective of this component is to generate useful data for planning and monitoring transportation systems, both to evaluate the initiatives included in this proposal and to improve public policy decision-making. An example would be identifying points

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<sup>22</sup> Examples include solutions offering payment methods for users without bank cards, improved working conditions for TNC personnel (retirement savings), institutional transportation solutions focusing on low-income workers, and transportation to institutions during off-peak hours.

where public transportation slows down significantly, so that actions may be targeted there for improved performance. Another example would be to draw on features of TNCs, such as information on vehicle location and others, for an improved user experience on conventional public transportation.

- 2.22 Through transfer protocols and agreements for data use, the city government will have tools to effectively monitor TNCs, guarantee that they mitigate their external costs, and use the data for planning of the urban transportation system as a whole. As part of this component, ITDP will prepare and adopt an internal privacy policy consistent with the Principles for Digital Development.<sup>23</sup>

## **B. Project outcomes, impact, monitoring, and evaluation**

- 2.23 **Outcomes.** The project's pilot initiatives will have two types of outcomes. First, they will generate replicable improvements in the incorporation of environmental and social considerations into TNC business models and coordination between TNCs and the public transportation sector. Second, they will generate real-time data, lessons, and knowledge on environmental and social aspects of TNCs, which will be immediately available to public and private actors in the transportation sector, through the data center to be developed by the project in partnership with leading national institutions in technological research and development.
- 2.24 The Results Matrix includes the project's expected indicators. The following are expected by the end of the project: (a) three TNCs will have successfully implemented a vanpooling solution aimed at people with limited mobility, women, and girls; (b) 5,000 people with limited mobility, people with disabilities, women, and girls will benefit from a vanpooling solution; (c) "last mile" deliveries on sustainable modes of transportation will be doubled to more than 10,000 deliveries per day; (d) two HOV lanes oriented toward TNC ride-sharing solutions will have been opened; (e) the indicator for people per individual vehicle in HOV lanes targeted by the project will increase 30%;<sup>24</sup> (f) five spaces will be allocated for micromobility options in connection with mass transportation, serving a combined 10,000 trips per day; (g) three last-leg freight delivery companies with zero-emissions vehicles participate in a pilot initiative; (h) 15 companies share data with the TNC online data and monitoring center; (i) nine government agencies make public policy decisions based on data from the TNC data center and/or use the center to monitor transportation systems and/or evaluate the performance of transportation policies and TNCs; and (j) the focus on sustainable modes of transportation at TNCs will lead to an average 10% decrease in emissions of pollutants and greenhouse gases in HOV lanes.
- 2.25 Based on the outcomes of the pilot initiatives (Components 1 and 2) and communication activities (Component 3), the urban transportation regulations, which are primarily set by state governments, are expected to be amended to promote sustainable, equitable transportation systems through TNCs. Similarly, regulations on the use of public space, which are set at the municipal level, are expected to be amended to allow for TNC-based micromobility plans that promote

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<sup>23</sup> <https://digitalprinciples.org/privacy-policy/>.

<sup>24</sup> HOV lanes have been found to increase average occupancy by up to 17%. Since this intervention will include vanpooling solutions, a larger increase can be expected. Dixon, C, and K. Alexander. 2005. "Literature Review of HOV Lane Schemes." TRL.

its more equitable use. The impact at the federal level is expected to occur in regulations on economic competition, which thus far have been the primary regulatory factor enabling the development of TNCs.

- 2.26 **Impact.** The project will have the following impacts: In the sustainable transportation ecosystem, the project will implement (a) a mechanism to support pilot initiatives to make urban transportation more environmentally and socially sustainable in Mexico; and (b) a TNC data center to allow the environmental and social sustainability of TNC services to be monitored in real time. The project is also expected to directly impact the quality of life of Mexico's urban population, specifically: (a) average travel times on the roads in question are 15% shorter, benefiting 50,000 users per day;<sup>25</sup> (b) one million more users nationwide are using TNCs for ride-sharing by 2020; and (c) the emissions per trip<sup>26</sup> generated by one million TNC users are 80% lower (as a result of the above factors).
- 2.27 **Monitoring.** ITDP will monitor and evaluate project results, as presented in the Results Matrix, and will develop information-technology tools to do so, integrating data from several different applications and the project's interactions with the beneficiary population and health care professionals, in order to evaluate the Results Matrix indicators as well as the overall telemedicine care model. Additionally, the project results may be reviewed on a six-monthly basis through the data centers to be supported by the project.
- 2.28 **Evaluation.** The project will include a midterm evaluation, to be commissioned by the executing agency with the agreement of IDB Lab. This evaluation will (a) examine fulfillment of project objectives and indicators as described in the Results Matrix; (b) derive and analyze lessons learned from the project; and (c) make recommendations for actors in the region's transportation ecosystems in relation to the TNCs' role in improving transportation. The evaluation will be prepared for the purpose of publication and dissemination by IDB Lab, INE/TSP, and ITDP.

### III. ALIGNMENT WITH THE BANK, SCALABILITY, AND RISKS

#### A. Alignment

- 3.1 **Alignment with the Bank and IDB Lab.** The Bank has been supporting sustainable transportation through subnational entities in Mexico by financing the development of urban transportation plans and providing technical assistance to strengthen their institutional structure. The Bank is currently supporting the Comprehensive Road Safety Program for Mexico City, which will be the first public policy document on this topic and will specify actions to reduce traffic accidents. The project will be implemented in cooperation with the Bank's transportation specialists, to ensure strategic alignment and direction of the innovative solutions to be implemented. The project is also aligned with IDB Lab's thematic area of Inclusive Cities, as it will contribute to improving the quality of life of the region's

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<sup>25</sup> A study in Jakarta found that eliminating HOV lanes caused a 12% decrease in average speed (Hannah et al., 2018).

<sup>26</sup> Switching to a vehicle-sharing approach can reduce transportation-related emissions by 80%. <https://www.itdp.org/2017/05/03/3rs-in-urban-transport/>.

population with an emphasis on the vulnerable through access to better transportation service. The Bank's Transport Division has worked closely with IDB Lab to prepare this project, ensuring alignment between the social and environmental lessons learned by the private companies involved in the pilot initiatives and the lessons for transportation policies and the operations pursued by Mexico's municipal, state, and federal governments.

- 3.2 **Alignment with the country.** The project is aligned with pillars 2 and 3—economic development and well-being—of the draft National Development Plan,<sup>27</sup> which note the importance of health, the environment, and transportation infrastructure. The Mexico City Strategic Transportation Plan (2019) explicitly includes the objective of creating conditions for more efficient and equitable urban transportation, specifically mentioning the adoption of technology and policies for freight transportation.

## **B. Scalability and risks**

- 3.3 **Scalability.** The scalability of the pilot initiatives will be based on their success as a business model and the transformation of the TNC regulatory frameworks by the state and municipal authorities working with the program. The companies participating in the pilot initiatives for TNC solutions (Component 1) are expected to continue providing these services and expand them after the project, and new companies with similar models are expected to be started, generating business opportunities on a larger scale and leading to other projects of a similar nature. For the pilot initiatives for the ecosystem (Component 1), the Institute for Transportation and Development Policy (ITDP) is well positioned to work with government entities, such as the municipal and state transportation departments, to ensure that urban public policies promote the expansion and replicability of successful pilot initiatives. ITDP previously did this for the Ecoparc smart parking meters, which were scaled exponentially through a pilot initiative. It also made possible the development of companies offering this type of solution, such as Parkimóvil, which operates in five cities. Another similar example is Ecobici, which went from 70 to over 400 stations, with similar systems developed in other cities in Mexico. In 2018, ITDP carried out a pilot project to implement Internet of Things technologies on two public transportation routes with 65 buses, and the Mexico City government recently announced its interest in implementing similar strategies on the 32,000 mass transportation vehicles registered in Mexico City.
- 3.4 **Cost per beneficiary.** The cost per beneficiary is expected to be low, as the project will invest in pilot initiatives with the support of TNCs, emphasizing the long-term financial sustainability of these initiatives. Money will not be spent on infrastructure, but on the generation of valuable information that can be replicated in other cities. Given the project's scale, the cost per direct beneficiary of the pilot initiatives (expected to be about 100,000) is estimated at around US\$10. This is a conservative figure, however, and the results of this project, as mentioned previously, have strong potential to indirectly impact a large percentage of the 94 million people who make up the urban population in Mexico, as well as other countries of Latin America and the Caribbean.

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<sup>27</sup> The major focus areas have been submitted, but the National Development Plan 2019-2024 will be considered and approved in Congress in the coming months.



- 3.5 **Ease of transfer.** ITDP will develop a project dissemination strategy that includes workshops with TNCs, press releases, a website, social media, and publications. ITDP will also create synergies with the TNC working groups and other organizations wishing to join the project.
- 3.6 **Risks.** The main risk associated with Component 1 is that companies may not wish to participate in the pilot initiatives or project-related events. *Consideration:* Prior conversations with multiple TNCs have confirmed their interest in the initiatives. *Mitigation:* Component 3 is designed to generate positive communication impacts that will be seen by the companies as positive and beneficial to their image.
- 3.7 The main government-related risk is that the authorities may not participate in the planning and development of pilot initiatives for Component 2, and/or may issue ineffective public policies that may be captured by actors that control large market shares, benefiting a limited number of TNCs and hindering development of a competitive market. *Consideration:* ITDP has met informally with key individuals on transition teams of various incoming administrations, who have expressed interest in participating in the pilot initiatives. *Mitigation:* from the outset of the project, ITDP will seek to engage authorities with whom they have worked on various initiatives.

#### IV. INSTRUMENT AND PROPOSED BUDGET

- 4.1 The total cost of the project is US\$1,570,000. Of that amount, US\$785,000 (50%) will be contributed by IDB Lab in nonreimbursable technical-cooperation funding, and the remaining US\$785,000 (50%) will be contributed by the Institute for Transportation and Development Policy (ITDP).
- 4.2 Retroactive recognition of counterpart funding. Up to US\$150,000 in counterpart funding may be recognized, running on the project eligibility date of 12 October 2018.

| Project budget in US\$                                                                             | IDB Lab            | Counterpart        | TOTAL                |
|----------------------------------------------------------------------------------------------------|--------------------|--------------------|----------------------|
| Component I: Pilot initiatives for the public-private ecosystem to address transportation problems | US\$190,610        | US\$173,910        | US\$364,520          |
| Component II: Private-sector pilot initiatives to address transportation problems                  | US\$205,600        | US\$134,670        | US\$340,270          |
| Component III: Data generation, best practices, and communication                                  | US\$299,100        | US\$392,719        | US\$691,819          |
| Coordination, administration, evaluation, and audit                                                | US\$89,690         | US\$83,701         | US\$173,391          |
| <b>Total budget</b>                                                                                | <b>US\$785,000</b> | <b>US\$785,000</b> | <b>US\$1,570,000</b> |

#### V. PROJECT PARTNERS AND IMPLEMENTATION STRUCTURE

##### A. Project partners

- 5.1 The Institute for Transportation and Development Policy (ITDP) is an international nongovernmental organization founded in 1985, with experience in Mexico dating back to 2006, to promote safe, sustainable transportation in cities. ITDP has offices in Mexico, Kenya, Brazil, China, Europe, India, Indonesia, and the United States. It

has more than 80 staff supplemented by expert consultants including architects, urban planners, transportation specialists, and experts from other disciplines.

- 5.2 ITDP is well positioned to promote pilot projects with TNCs, authorities, and other private-sector partners. Between 2016 and 2018, it has supported pilot initiatives such as those described in the report, “Movilidad Inteligente para la Ciudad de México: Beneficios de una Estrategia de Gestión de la Información” [Smart Transportation for Mexico City: Benefits of an Information Management Strategy], which led to a change in strategy for fine-tuning the Ecobici system and to the use of Internet of Things technologies for public transportation operations and governance. Synergies have been created in both cases among multiple actors to enhance urban transportation services.
- 5.3 ITDP also has extensive experience in promoting regulatory and public policy changes to enhance transportation in cities and create environments conducive to innovation in urban transportation and development. Examples include introducing smart parking meters in Mexico City and Guadalajara and changing Mexico City’s technical standards for parking lots as a result of the “Menos Cajones Más Ciudad” project. Furthermore, the changes in Guadalajara’s urban development regulations related to the ITDP project, “Implementation of Transportation-oriented Development Policies,” has led to the emergence of affordable-housing projects on public land in areas well served by public transportation and in close proximity to places of employment, with arrangements that were unthinkable before the regulatory changes.
- 5.4 A key precedent for this proposal is the “Smart Transportation: Buses and the Internet of Things” initiative carried out in 2018 by ITDP Mexico. This pilot project involved the installation of GPS sensors on two public transportation routes to explore the potential benefits for users, operators, and authorities of a strategy for monitoring public transportation routes. The pilot project was structured as a treatment-and-control test, which made it possible to isolate the impact of a driver alert system on improving driving behavior. The results were encouraging, such as substantial fuel savings and fewer traffic violations. These results were presented on numerous occasions to the Mexico City authorities, who requested technical assistance on a strategy for digitalizing and integrating the public transportation system. In early 2019, the Mexico City government announced the installation of GPS devices on the city’s 32,000-plus mass transit vehicles, including on partially regulated routes and routes operated under concession. This project explored the work route that would be scaled up in this project with IDB Lab and the IDB Transport Division on the basis of an exercise to generate empirical evidence, which subsequently is used to promote regulatory and public policy changes.

## **B. Structure and implementation mechanism**

- 5.5 ITDP will establish a project execution unit (PEU) and the necessary structure to execute project activities and manage resources. The PEU’s organizational chart is included in the project technical files. ITDP will also deliver six-monthly status reports on the project. The PEU’s structure will consist of ITDP personnel and consultants engaged specifically for this purpose, including a project lead manager and an administrative coordinator. The PEU will be governed by operating regulations to be submitted to IDB Lab for approval as a condition for the first disbursement. The operating regulations will include a section on generating and

disseminating data on pilot initiatives, and on how the information will be generated to prepare the status reports.

- 5.6 The PEU will be housed at the offices of ITDP Mexico and will be responsible for day-to-day project execution activities to meet the project objectives. It will meet regularly to review progress against the project timetable and make any necessary adjustments. The PEU will also be responsible for consolidating and storing all project-related information, as well as following the administrative procedures established by IDB Lab and ITDP. It will also carry out all planning related to meetings with project-related actors, events, and communication materials.

## **VI. FULFILLMENT OF MILESTONES AND SPECIAL FIDUCIARY ARRANGEMENTS**

- 6.1 **Results-based disbursement and fiduciary arrangements.** The executing agency will agree to IDB Lab's standard arrangements related to results-based disbursement, procurement, and financial management as specified in the technical files. Project disbursements will be contingent on verification of the achievement of milestones, in accordance with the means of verification agreed upon by the project execution unit (PEU) and IDB Lab. Achievement of milestones does not relieve the executing agency from responsibility for meeting the project objectives the logical framework indicators.
- 6.2 Under the risk- and performance-based project management modality, disbursement amounts will be determined by the project's estimated liquidity needs for a period of up to six months. These needs will be agreed upon between IDB Lab and the executing agency, reflecting the activities and costs programmed in the annual planning exercise. The first disbursement will be contingent on the fulfillment of conditions precedent, and subsequent disbursements will be contingent on fulfillment of the following two conditions: (i) IDB Lab verifies that the milestones have been met, as agreed in the annual planning exercise; and (ii) the executing agency has provided supporting documentation for at least 80% of the cumulative advances of funds.
- 6.3 **Procurement.** For the procurement of goods and consulting services, the executing agency will follow the IDB's procurement policies (documents GN-2349-9 and GN-2350-9), in accordance with market practices for the private or commercial sector that are acceptable to the Bank.

## **VII. INTELLECTUAL PROPERTY**

- 7.1 **Intellectual property.** The Bank will retain intellectual property rights over the products developed and studies conducted as part of the project, and will grant ITDP a free, nonexclusive license for noncommercial use of these products and studies in Mexico. This will ensure maximum dissemination of the project's lessons learned in Mexico and in Latin America and the Caribbean.