

Toolkit from the  
US-ASEAN Smart Cities Mobility Program

**STAKEHOLDER ALIGNMENT AND INSTITUTIONAL  
STRUCTURE FOR OPEN LOOP PAYMENT**

**INSIGHTS FROM JAKARTA AND LOS ANGELES**



FAKULTAS TEKNIK  
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## INTRODUCTION

Many transit agencies worldwide are transitioning to open-loop payment, which enables riders to use multiple fare payment options beyond the traditional fare card or token issued by a transit operator. These options can include payment via prepaid transit cards, a contactless bank card, or through digital wallet payment options on a smartphone. While implementing open-loop payment systems is undoubtedly a technological hurdle for many agencies, requiring both new software to process payments and upgraded hardware at fare gates and on vehicles, it also presents uniquely complex institutional and community challenges due to the number of stakeholders and decision makers involved at every stage of the transition. This toolkit provides a roadmap for implementing open-loop payment systems with a focus on the soft infrastructure of institutions and governance essential to ensuring a coordinated and scalable program. This toolkit is intended for transit agencies, operators, and government agencies considering upgrades to their legacy payment systems.

This toolkit is the result of the Smart Mobility Program, a U.S. Department of Transportation (USDOT)-led initiative under the U.S.-ASEAN Smart Cities Partnership. This program engaged experts from four peer-to-peer pairings representing eight cities in the U.S. and Southeast Asia (see Box 1). The University Partnership Program, led by the METRANS Transportation Consortium at the University of Southern California, provided research support through a collaboration with universities in each participating ASEAN country. This toolkit summarizes outcomes from the pairing representing

### Box 1. What is the [U.S. - ASEAN Smart Mobility Program](#)?

This program addresses the transportation priorities of participating ASEAN smart cities by identifying innovative solutions to urban transportation challenges. The primary participants are local and regional transportation planner and policymakers from eight cities across the U.S. and Southeast Asia working on projects of mutual interest. The program focuses on how effective policy setting, good planning practices, the judicious use of technology, and targeted engagement with the private sector can increase mobility and improve transportation network operations. Participating cities include:

- Johor Bahru, Malaysia and Portland, Oregon
- Phuket, Thailand and Las Vegas, Nevada
- Phnom Penh, Cambodia and Boston, Massachusetts
- Jakarta, Indonesia and Los Angeles, California

The University Partnership Program (UPP) was formed to assist the city pairs with field research to support policy objective. The UPP is led by the METRANS Transportation Consortium at the University of Southern California and brings together four Southeast Asian Universities to lead research projects:

- Chulalongkorn University
- Institute of Technology of Cambodia
- Universitas Indonesia
- Univerisity Teknologi Malaysia

Jakarta, Indonesia and Los Angeles, California. Participating agencies included:

**Jakarta Smart City (JSC):** JSC was launched in 2016 to act as an innovation lab and to facilitate engagement between citizens and the Jakarta Provincial Government. They are pursuing smart city initiatives across seven elements: environment, economy, people, mobility, governance, living, and branding.

**Jaklingko:** Jaklingko is responsible for integrating payment systems and physical connectivity across public transportation operators in Jakarta. In recent years, they have launched an app and a payment card that enable account-based ticketing across bus rapid transit (BRT), commuter rail, light rail, and local microtransit providers.

**Los Angeles County Metropolitan Transportation Authority:** Also known as LA Metro, the agency provides transit across Los Angeles County. LA Metro serves residents with a comprehensive service network of standard and rapid buses, heavy and light rail, and on-demand vans. Additionally, Metro provides funding to support paratransit services, individual municipal bus services, commuter rail, and intercity rail in Southern California.

**Los Angeles Department of Transportation:** A branch of the government of the City of Los Angeles, LADOT manages transportation planning, builds transportation projects, and operates the streets within Los Angeles. LADOT also manages 52 different services on behalf of the region, including parking management and permits for e-scooters and dockless bikes.

Los Angeles and Jakarta are important political, economic, and cultural nodes at

the center of sprawling urban regions (with populations exceeding 15 million). Both cities have a complex network of transit operators, governmental entities, and private or civil society organizations that contribute to public transportation operations and regulation in their regions. Transit operators in each city are working to implement new payment options across the agencies that serve their respective regions. This toolkit is based on an analysis of global best practices, focus groups with diverse stakeholders in Jakarta, and discussions among representatives from each city. It aims to navigate the complex interactions among stakeholders and how to engage these groups toward shared goals.

### **What you will learn from this toolkit**

This toolkit documents the process that Jakarta and Los Angeles went through to identify and engage with stakeholders during the open-loop system planning and implementation process. The roadmap proceeds in four steps, breaking down the process into stages. Research on existing systems and from the focus groups complements each of the following steps:

- **Step 1:** Understanding where you are and where you want to go
- **Step 2:** Defining and mapping your stakeholders
- **Step 3:** Identifying stakeholder motivations and needs
- **Step 4:** Strategies for ongoing stakeholder communication and engagement



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## **IMPLEMENTING OPEN-LOOP PAYMENT SYSTEMS: DEFINING THE PROBLEM IN THE ASEAN CONTEXT**

The multiplication of payment options that has accompanied the advent of smartphones has enabled innovations in how transit operators handle fare payments. At the forefront of this evolution is the open-loop payment (OLP) system. In contrast to a closed-loop payment system tied to agency-specific cards or apps, OLP allows riders to pay with the bank cards or digital wallets they already use. By removing the need to obtain and load a dedicated transit card, OLP reduces friction and helps riders with limited financial flexibility avoid locking funds into a separate system. In addition to benefits to transit users, the technology undergirding OLP enables transit operators to standardize fares and track usage, and governments to offer targeted subsidies to users. OLP builds on radio frequency identification (RFID) contactless fare cards, which have become standard for many transit systems and, therefore, serve as an extension of the current systems rather than a replacement.

Open-loop payment (OLP) builds upon earlier interoperability efforts—such as the multi-agency cards used in Jakarta and Los Angeles—by eliminating the need for transit agencies to create, issue, and manage their own fare media. By allowing riders to use existing bank cards or digital wallets, OLP provides seamless travel across multiple systems and operators, making transit far more accessible to visitors and infrequent riders. It can also reduce operating costs by simplifying back-office processes, lowering cash-handling needs, and minimizing card production and distribution. Many Southeast Asian systems, including those in Bangkok, Singapore, and Ho Chi Minh City, are already adopting OLP. Transitioning requires upgrades to fare gates and readers, the modernization of back-end software, and partnerships with card networks, payment processors, and financial institutions. However, these investments position agencies for more flexible, resilient, and user-friendly fare systems.

## **METHODS FOR IDENTIFYING, UNDERSTANDING, AND ENGAGING STAKEHOLDERS**

Implementing OLP is as much an institutional challenge as a technical one. No transit agency can make the shift alone: adoption requires coordinated action among vendors supplying farebox hardware, software providers linking agency systems to payment processors, financial institutions, and the community members who will need to understand new payment options and how their benefits or concessions will be delivered. The following roadmap assumes that agencies will partner with third-party payment processors and, as in Jakarta's case, may rely

on a government-led coordinating body to manage system-wide integration. Because OLP technology is now relatively mature, the main barriers tend to be organizational—aligning responsibilities, clarifying incentives, and managing communication across institutions. The four steps below are designed to help agencies navigate these institutional hurdles and move from assessing readiness to building the stakeholder coalitions needed for a successful transition.

### **Step 1: Understanding where you are and where you want to go**

Even for transit agencies that have adopted contactless fare payments, OLP can be a significant investment due to the need for hardware and software upgrades. A first step is to assess the pros and cons of adopting OLP and to determine if it is a good fit at that time.

### *Why Open Loop?*

Before beginning a process to upgrade or modify fare payment systems, there should be clear understanding of the potential benefits of OLP within the context of the identified transit system. For some cities, OLP can help with progress toward a long-term, holistic vision of Mobility as a Service, also referred to as Complete Trips.<sup>1</sup> An open loop system eases friction during trips across multiple modes and multiple operators by allowing travelers to pay for any number of comprehensive transportation options through an existing payment option nearly everyone already carries in their pockets.

A critical requirement for a true OLP is the implementation of account-based ticketing (ABT). Account-based ticketing shifts the fare calculation and tracking from a dedicated



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<b>CATEGORY</b>	<b>PROS</b>	<b>CONS</b>
<b>User experience</b>	<ul style="list-style-type: none"> <li>• Removes the need to carry a dedicated card and reload stored value.</li> <li>• Easy for occasional users and visitors unfamiliar with the system.</li> <li>• Supports consistent fare capping and multimodal travel.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not eliminate barriers for people without a digital payment option (bank card or smartphone).</li> <li>• Transition might need education and fail-safe measures.</li> </ul>
<b>Operations &amp; Maintenance</b>	<ul style="list-style-type: none"> <li>• Reduces or eliminates costs of producing, distributing, and maintaining proprietary fare cards.</li> <li>• Decreases cash-handling and physical ticket retail networks.</li> <li>• Simplifies fare collection across multiple operators.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires backend redesign from card-centric to account-based architecture.</li> <li>• Operational risk management for EMV transactions (e.g., handling incomplete or unpaid taps).<sup>2</sup></li> <li>• Can require reliance on private third-party operators, which limits the transit operator's autonomy and may not meet privacy standards.</li> </ul>
<b>Technology &amp; Infrastructure</b>	<ul style="list-style-type: none"> <li>• Supports integration of emerging mobility services (micromobility, parking, tolls).</li> <li>• Enables real-time analytics and centralized fare policy management.</li> </ul>	<ul style="list-style-type: none"> <li>• Hardware upgrades needed for readers, validators, and gates to meet EMV certification standards.</li> <li>• System integration is complex and can impact legacy equipment.</li> </ul>
<b>Financial &amp; Contracting</b>	<ul style="list-style-type: none"> <li>• Potential long-term cost savings through reduced card issuance and simplified back-office processes.</li> <li>• Private-sector involvement (payment processors, acquirers) can distribute risks and responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Upfront capital cost for hardware, software, and certification.</li> <li>• New contracts with payment networks (Visa/Mastercard), acquirers, and payment service providers introduce new fee structures.</li> </ul>
<b>Institutional &amp; Governance</b>	<ul style="list-style-type: none"> <li>• Can drive greater regional integration across agencies via unified payment rules.</li> <li>• Facilitates transparent accounting and revenue allocation.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires multi-stakeholder governance model; can stretch institutional capacity.</li> <li>• Agencies may be hesitant to rely on external financial institutions for core fare operations.</li> </ul>
<b>Privacy</b>	<ul style="list-style-type: none"> <li>• No transit data stored on cards; reduces risk if a card is lost.</li> <li>• EMV tokenization provides strong financial-grade security.</li> <li>• Less exposure of sensitive data through card cloning or skimming.</li> </ul>	<ul style="list-style-type: none"> <li>• Centralizes detailed travel histories tied to tokenized accounts.</li> <li>• Involves more third parties (processors, banks) with access to data.</li> <li>• Requires strong data governance, minimization, and retention policies.</li> </ul>
<b>Expanding Ridership</b>	<ul style="list-style-type: none"> <li>• Reduces friction for unbanked riders if paired with complementary options (e.g., mobile wallets allowing cash loads).</li> <li>• Provides universal payment that promotes use by tourists and travelers</li> </ul>	<ul style="list-style-type: none"> <li>• OLP can widen the gap for unbanked or informal workers.</li> <li>• Requires careful policy design for concessions, discounts, and social benefits.</li> </ul>

Table 1. Overview of pros and cons of adopting OLP

transit card (or mobile equivalent), where funds are stored, to a backend processing that can accept any recognized payment medium. It is ABT that enables the use of bank cards for payment, interoperability, and operations such as automatic fare capping (e.g., limits on fares per day, week, or month). Table 1 summarizes the characteristics of OLP and tradeoffs across several areas.

### *Current State - Where are you now?*

Cities should ensure they have a clear understanding of their current systems and their limitations. For example, each organization should be able to document:

- Existing payment options and their respective benefits and challenges:
  - What works well with the current system and should not be changed?
  - What is not working or is not a current functionality and should be changed or added?
- Traveler types and payment methods
  - What percentage of travelers use different payment methods?
  - What can you learn about who is using what medium to pay their fares?
  - Who could be impacted by any changes to fare collection?
- Hardware Capabilities:
  - What are the age and capabilities of your current fareboxes?
  - Do fareboxes and gates need a simple upgrade or smaller component replacement or a complete replacement to enable open payments?
  - How do fareboxes on a bus, and their capabilities, differ from fare gates at a rail station?
- Software systems:
  - Do you have proprietary software?

- Can the software currently handle open loop or does it need a full overhaul?
- Staff capabilities:
  - Does your agency have the internal skills to complete undertake transition and maintain the software systems?
  - What would require outside contractors?
- Data:
  - What data does your system collect now?
  - What data do you anticipate needing in the future?
  - What are your data privacy and cybersecurity policies, practices, and architecture? Do they need updating?
- Community engagement:
  - What are your current practices?
  - Who (what groups or stakeholders) are you asking for feedback?
  - How often do you conduct stakeholder engagement activities?
  - How are you reaching your stakeholders? In-person, surveys, formalized advisory committees?

### *System Vision – what do you want your system to look like?*

A successful OLP transition begins with a clear vision of the fare system you want to create. At its core, OLP is designed to make



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transit easier to use by enabling passengers to pay with familiar contactless bank cards or mobile wallets and move seamlessly across modes and operators. But the technology can also advance broader strategic goals. Cities may use OLP to increase ridership, support network integration, streamline service connections, or improve service geographic reach. Defining these objectives upfront clarifies why OLP is being pursued and guides decisions about system architecture, institutional coordination, and stakeholder engagement. A well-articulated vision ensures that the new payment system is not just a technical upgrade but a tool for delivering a more connected, higher capacity, and user-centered transit network.

### *Service Population – who will your system serve?*

Cities should consider the various populations that their transit system currently serves or is intended to serve, along with their respective needs and challenges. Key groups to consider include commuters, tourists, event attendees, seniors, students, families, individuals with disabilities, and low-income riders. These populations will comprise different percentages of the overall ridership and have different abilities to adapt to a new system. This may inform how the transition is phased and the decision to retain a legacy closed-loop payment system under some circumstances.

### *Service Areas – where will your system serve them?*

Service areas are likely to change over time. The transition may begin as a pilot limited to one municipality or district, or one operator. The shorter-term implementation should inform a longer-term vision for rolling out a full-scale system. A limited release should

be assessed with scalability in mind. For example, if OLP is only available on the light rail system, what will be the requirements for connecting to the bus system?

### *Service Functionality – what will your system be able to do?*

One of the major benefits of account-based ticketing is the ability to automatically implement different discount programs:

- Fare capping (e.g., limits on total fare per day or month);
- Free or reduced-fare transfers;
- Subsidized fares

In addition to simplifying the user's experience with payments, OLP also significantly enhances data collection and analysis for various purposes. How data is to be used and collected will inform how the system is designed and should be considered closely in relation to the system's scale, which will directly inform the volume and types of data.

### *Service Governance – How will the system be governed?*

An OLP system introduces important data-governance challenges that must be addressed early in the design process. First, shifting to a centralized, account-based back office concentrates travel and payment-related data in a single environment, increasing the consequences of any security breach. Second, OLP requires connections to riders' payment credentials—typically through tokenized EMV data—which expands the number of third-party entities involved in handling sensitive information. These realities make a robust governance framework essential. Beyond technical privacy safeguards, agencies must determine who has access to



which data, under what conditions, and for what purposes. Clear rules for data sharing, retention, and permissible use should guide both internal practices and contracts with payment processors, banks, and technology vendors. Because agencies will vary in their internal policies and capabilities, integrating multiple operators into a unified OLP system will often require a higher-level coordinating body to establish consistent standards and ensure compliance across the network.

### *Concrete Goals and Key Performance Indicators (KPIs)*

After working through these questions, agencies and operators should set out specific, concrete goals with clear ‘wins’ that will help them reach that goal. Some potential goals for launching OLP could include:

- Updating fare payment validators and readers to enable open loop payments at every fare box in the entire system.
- Transitioning to a full account-based system to ease implementation of reduced fare programs.
- Implementing strategies specifically designed to engage unbanked and cash paying customers and working with community-based organizations to create

comprehensive financial education programs to help ensure uptake.

- Developing an API that enables transit ticket purchase within popular apps like Google Maps or Transit and enabling ticketing integration for events like sports games or concerts.
- Expanding the initial API for integration with other mobility services like bike-shares, ride hailing, etc.

Before a system has been launched, agencies should set key performance indicators (KPIs) to understand and measure success. Those KPIs could be open-loop payment adoption percent within a defined timeframe or other measures like transaction performance, accuracy, reliability, and latency when using a credit card.

### **Step 2: Defining and Mapping your Stakeholders**

Cities should take time to carefully consider all the groups and stakeholders that will be impacted by and involved in OLP implementation. In addition to transit operators, other common stakeholder groups are:

- **Community Partners:** Community-based

organizations can help agencies conduct critical outreach to key demographics and other interest groups who have stake or represent riders and their needs. These groups may not necessarily be official, organized communities; for instance, they may be online communities of transit enthusiasts or local weekend bikers.

- **Government entities:** The role of government in public transportation is likely to vary significantly from country to country. In the Southeast Asian context, the central government is more likely to be involved, especially in large-scale transit operations.
- **Financial Institutions:** When expanding the system to international users, financial technology companies like Visa, Master Card, Apple, and Google provide input in the form of standards (but may not be directly involved). Domestic banks and financial institutions are likely to provide more direct input and have stakes in the system design.
- **Technology and Mobility Companies:** Technology firms and mobility service providers, such as ride-sharing apps or bike-share programs, can be important partners when expanding services and payment systems to offer a seamless multimodal transportation experience.
- **Neighboring Cities:** In addition to coordinating metropolitan-scale services, it is crucial to involve municipalities that provide feeder transit services and that would be impacted by an update to open loop.
- **Cultural and Entertainment Venues:** Cultural institutions and entertainment venues, like museums, theaters, and concert halls are often interested in providing joint ticketing options and promotions that encourage public transit use to events, enhancing the cultural richness of the transit

experience and reducing the need for parking.

- **Academic Researchers:** Educational institutions, local or otherwise, can be critical partners to conduct research on behalf of an agency. They can help understand community sentiment or ridership opinions, find insights from transit ridership data, or discover best practices from other contexts or industries.

Identifying stakeholders is the first step toward mapping the relationships among the actors involved in implementing OLP. Because not all stakeholders participate in every phase, it can be helpful to create separate maps for different parts of the process. For example, one map might focus on system design and highlight the entities responsible for regulatory frameworks, payment processing, and data governance. A second map might focus on implementation, showing the actors involved in deploying hardware, leading outreach and education, and supporting pilot operations.

A stakeholder map is valuable because it clarifies roles, responsibilities, and potential coordination challenges early on. An effective map should show the hierarchy or authority structure among actors, the flow of information and decision-making, and any points where responsibilities overlap or could conflict. It should also identify key coordinating nodes—such as Indonesia’s Central Bank in the case of Jakarta—whose ability to set standards or convene stakeholders makes them essential to the overall process. The goal is to produce a visual or conceptual overview that helps agencies understand who must be engaged, when, and for what purpose as they advance OLP implementation. The research report provides a detailed mapping of stakeholders in Jakarta.

### **Step 3: Identifying Stakeholder Motivations and Concerns**

Once the stakeholder map is in place, the next step is to understand how key actors actually interact—what motivates them, what they worry about, and how they make decisions. Mapping reveals formal roles and authority, but it cannot uncover informal norms, unspoken priorities, or tensions that influence how an OLP system will take shape. Focus groups and semi-structured interviews help fill this gap by creating structured opportunities for stakeholders to explain their perspectives in their own words.

To conduct effective focus groups, agencies should invite participants who represent the main categories identified in the stakeholder map—for example, operators, regulators, and users or passenger-facing groups. For each group, participants should have the specialized knowledge and authority to explain their organization's position. Participants should be selected for their knowledge of institutional processes, operational challenges, and real-world constraints. Ideally, the same groups meet more than once to build trust, validate findings, and refine areas of disagreement or uncertainty. A simple three-stage structure works well:

#### ***Round 1: Separate group discussions.***

Meet with each stakeholder category independently to understand their vision for OLP, their interpretation of the system's purpose, and how they see it fitting within existing operations. These open-ended conversations help surface priorities, concerns, and expectations without pressure from other groups.

#### ***Round 2: Joint discussion.***

Bring the groups together to share what each has expressed in the first round. The goal is to identify where priorities align, where they diverge, and where coordination is most needed. This step often produces a shared diagram or summary that clarifies the relationships and issues that require collective agreement.

#### ***Round 3: Feedback and refinement.***

Share preliminary findings with all participants to confirm accuracy, fill information gaps, and validate interpretations. This step helps build consensus and ensures recommendations reflect the lived experiences of all parties.

Effective focus groups rely on strong relationships and transparent communication. Participants are more willing to share openly when the purpose of the exercise is clear, when they understand how the information will be used, and when their contribution is visibly shaping the process. Early sessions should emphasize listening and capturing unique viewpoints; once trust is established, the group can move more easily toward identifying shared directions and practical solutions for OLP implementation.

### **Step 4: Community and Stakeholder Engagement.**

A comprehensive engagement strategy should build on the previous two steps to identify the full range of stakeholders whose experiences and responsibilities will shape the success of OLP. Beyond riders, this includes transit operators, community-based organizations, disability and immigrant advocates, business districts, and labor groups. Each has distinct concerns, from front-line operational impacts

to how fare changes affect cash-reliant or low-income users. Involving government leaders in outreach efforts can be especially important to show involvement and investment in the transit system. Clarifying the objectives of engagement—whether to validate design assumptions, identify user pain points, or build political momentum—helps ensure that outreach is purposeful and aligned with the overall implementation plan.

Effective engagement also requires using a mix of formats that promotes wide ranging participation (see Box 2). Pop-up demonstrations at transit hubs, co-design sessions with targeted communities, surveys embedded into digital mobility tools, and operator-focused workshops can capture a wide spectrum of perspectives. Cities will usually have well established communication channels to leverage, such as established social media accounts.

Importantly, these engagement activities should be framed as part of the broader public education effort that will accompany the transition to OLP. Early communication and hands-on demonstrations help familiarize people with new payment options and reduce confusion or resistance closer to launch. Making early prototypes or pilot

## Box 2. Stakeholder Engagement in LA

In Los Angeles, the upcoming 2028 Summer Olympics and ensuring transportation associated with the games runs smoothly represents a significant motivation and goal for both LA Metro, LA DOT, and their many partners.

LADOT follows an engagement first model that requires authentic engagement at every stage of a project’s lifecycle. This can depend on the project and expected impact it may have. The department uses a variety of different strategies including hosting meetings, going to community events, working with community partners, or using social media and online engagement tools to reach the desired populations through multiple avenues. The department may offer childcare during events as a way to attract families and also provide translation services and offers information in multiple languages to reach Los Angeles’s linguistically diverse communities.



*Credit: Muhammad Pascal Fajrin, CC BY SA 4.0*

features visible allows people to understand what OLP will change and gives agencies the opportunity to demonstrate responsiveness through transparent reporting.

Finally, the engagement strategy should support alignment inside and across agencies while addressing public concerns about privacy, fees, digital access, and system reliability. Clear communication about how data will be protected, how existing fare options will be maintained or transitioned, and what riders can expect during rollout is essential for building trust. Engagement should be structured as an ongoing feedback loop—establishing standing advisory groups, continuous communication channels, and regular updates—so that input shapes decision-making not only before launch but throughout the evolution of the OLP system.

## **RESULTS FROM A CASE STUDY IN JAKARTA, INDONESIA**

Reflecting the two-pronged approach to OLP implementation — the need for institutional and technical innovations — the research based in Jakarta highlights priority areas for investments in transportation and payment infrastructure, and reforms to the institutional frameworks that guide the interactions between transit operators and payment systems. This section summarizes insights from key stakeholders derived from the three focus groups. Figure 1 provides a diagrammatic overview of some of the main interactions between operators, regulators, and users as an illustration of the relationship each group perceives as critical.

## **Metropolitan governance and institutional alignment**

The Jakarta case shows that institutional setup, rather than technological readiness, is the main factor shaping how Open Loop Payment (OLP) can develop. Although there has been notable progress in transport integration, such as automated fare collection (2018) and tariff integration (2022), the Greater Jakarta system remains structurally fragmented. Governance authority is split between national and provincial levels, each responsible for different services and operating over different geographic areas. While joint entities like PT MITJ and PT Jaklingko have improved coordination, their roles remain limited; Jaklingko’s function, in particular, focuses primarily on payment integration rather than complete operational alignment.

Focus group discussions highlighted the effects of this fragmentation. Operators pointed out that inconsistent regulations and overlapping authorities are major sources of planning uncertainty, especially since commuter rail, which carries most passengers, is under national oversight. Regulators also expressed worries that operators might prioritize profit over public service duties without clearer governance structures. Since metropolitan ridership extends well beyond Jakarta’s borders, expanding OLP requires coordination across levels, which has yet to be fully established.

## **Payment architecture and transition to Account-Based Ticketing**

Jakarta currently operates a stored-value smart card system that functions as a partial open-loop arrangement across major modes. However, a fully implemented

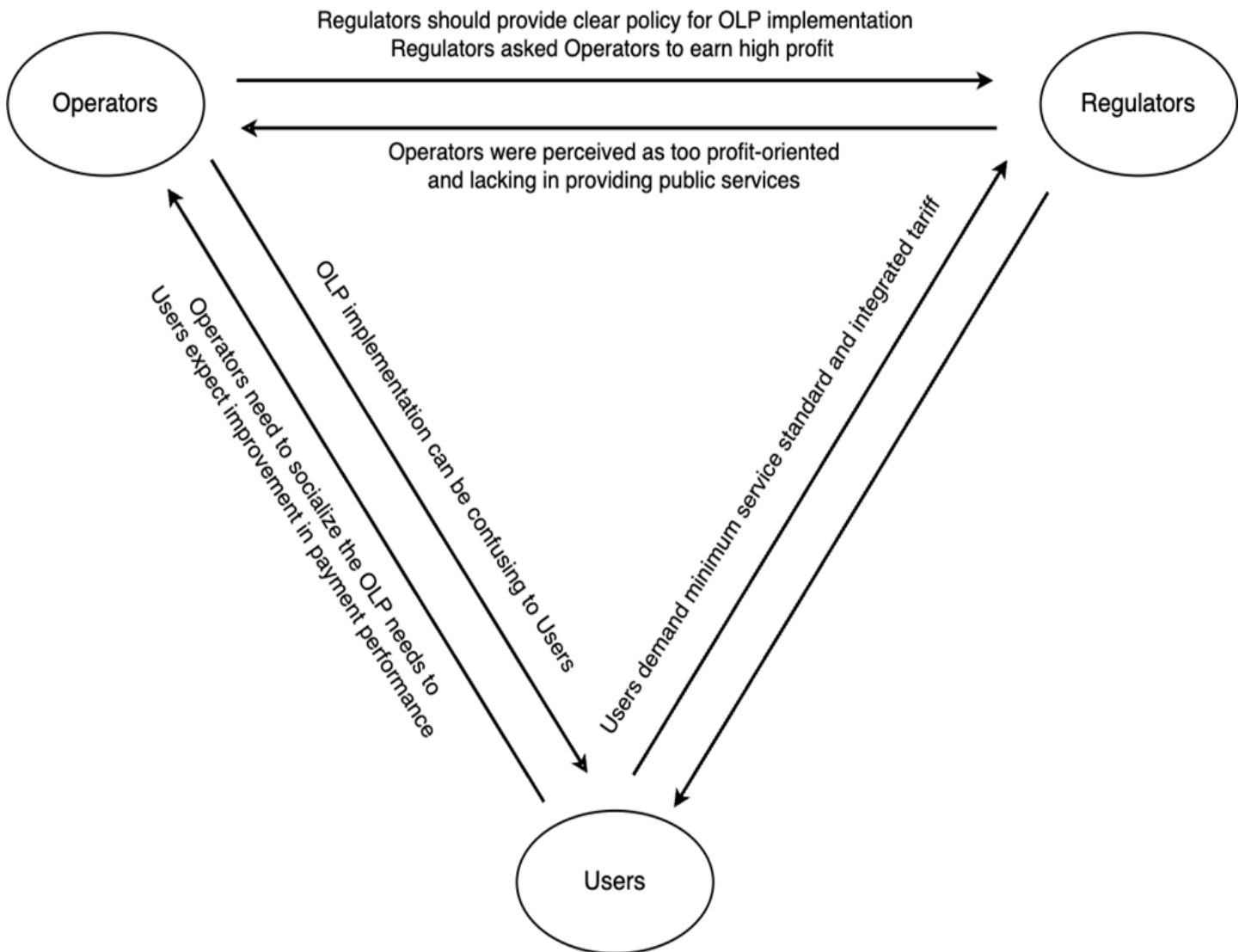


Figure 1. Stakeholder perception diagram illustrating the perspectives and concerns of operators, users, and regulator

account-based ticketing (ABT) layer is not yet in place. The central strategic question is therefore not whether to expand payment options, but which architectural pathway to prioritize: EMV-based open loop aligned with global banking standards, QRIS-based integration leveraging Indonesia's standardized QR ecosystem, or a transport-led ABT model with centralized fare calculation and account management.

Operators emphasized the operational efficiencies and data advantages of ABT, including best-fare calculation and the

potential for targeted subsidies, but raised concerns about the scale of required backend investments and transaction costs associated with EMV. They also expressed uncertainty stemming from the absence of clear regulatory guidance on interoperability and data standards. Regulators framed OLP as part of Indonesia's broader digital transformation and financial inclusion agenda, yet highlighted the need to balance innovation with oversight and data sovereignty considerations. The recent rollout of QRIS Tap-In/Tap-Out reflects movement toward expanding payment

acceptance, but focus group participants noted that payment-layer integration alone does not resolve underlying governance and fare integration challenges. The long-term architecture of Jakarta’s OLP system therefore remains an open strategic decision point.

### **Infrastructure standardization and backend modernization**

Transitioning from a card-centric system to full ABT requires relocating fare calculation logic from validators to centralized back-office systems capable of real-time processing, high transaction volumes, and secure data management. Stakeholders identified backend compatibility, interoperability standards, cybersecurity, and system resilience as critical technical gaps that must be addressed to support scalable OLP implementation.

Operators acknowledged the transformative potential of OLP to streamline operations and improve customer experience, but emphasized the significant capital investments required for validator upgrades, system integration, staff training, and cybersecurity safeguards. They also warned that poorly coordinated implementation could result in user confusion or payment errors, potentially undermining trust. From the user perspective, reliability and speed were prioritized over payment innovation itself; participants stressed that system performance—minimizing delays, failed taps, or billing discrepancies—would determine acceptance. Infrastructure readiness was therefore framed not only as a technical issue, but as a precondition for maintaining public confidence during the transition.

### **Improved ridership and data governance**

Stakeholder discussions revealed that

payment modernization carries distributive and governance implications beyond technical integration. Users generally support OLP for its convenience and flexibility, yet concerns persist regarding digital literacy, technology uptakes among the elderly and unbanked populations, and transparency in data management. Without integrated tariff structures and compensatory mechanisms, expanded digital payment systems risk reinforcing existing inequalities.

At the regulatory level, OLP is framed as part of Indonesia’s broader digital transformation and financial inclusion agenda. However, implementation raises questions concerning data sovereignty, cross-border data handling, and the concentration of trip and payment data within financial institutions if QR-based models dominate. The potential use of ABT for targeted subsidies introduces additional considerations regarding data protection and administrative capacity.

## **LESSONS LEARNED AND RECOMMENDATIONS**

From both LA and Jakarta, the following emerged as key lessons to consider and recommendations for cities considering implementing OLP.

- Stakeholder mapping and prioritization:
  - Create a stakeholder map (1–2 pages) listing those stakeholders by their importance to implementing open payments and interest in the topic.
  - Include categories such as national regulators, regional agencies, major operators, small/local operators, banks, rider groups, civil society, tourist bodies, accessibility advocates, tech vendors.
  - Create a prioritized engagement list and

“why they matter” for OLP decisions like policy, operations, finance, implementation to serve as the basis of your outreach.

- Clear selection protocol for inclusion as a focus group:
  - Not every group needs to be at every focus group discussion. Start by grouping stakeholders by common area – e.g., operators, regulators, community partners.
  - Define inclusion criteria per group (role, decision making authority, affected population representation, technical knowledge), target quotas (e.g., at least three transit operators, two civil society groups, one tourist organization), and recruitment channels (official invites, partner NGOs, open call for users) to ensure there is a well-balanced mix of viewpoints.
- Mix your methods
  - Have dedicated focus groups by role
  - Mix stakeholder groupings or types together as well to generate new overlaps and discussions.
  - Use open discussions, surveys, tabling at community events, etc. to help receive a broader type of answers from a broad number of people.
- Design focus groups for outcomes, not just discussion
  - Use structured agendas with clear outputs: prioritized problem lists, pilot criteria, risk register, and “owner” assignments. Include practical exercises like journey mapping, role play, or scenario prioritization.
  - Use neutral moderator, timeboxed activities, visual artifacts (journey maps, decision matrices), pre-read materials and simple primers on OLP and ABT.
- Broad recruitment from impacted communities

- Proactively recruit from communities of users who may experience the greatest change to their experience: the unbanked, elderly, non smartphone users, families, etc.
- Provide in person sessions, translation, transport stipends, or phone participation options. Run sessions at times or locations convenient to target groups.
- Communication and socialization strategy tied to engagement
  - Some audiences or groups will be more perceptive to messages than others. Map messages to audiences and channels. For instance, you could do in station demos for users who are scared or hesitant to use open payments; technical briefs for operators; or policy memos for regulators. Use early wins from pilots to create stories and FAQs that may be persuasive to the general public or specific groups. Provide clear, transparent data use statements.
  - Incorporate feedback loops and continuous engagement as part of your agency policy by setting regularly scheduled meetings, attending common community events (fairs, street festivals, holiday celebrations), or setting up regular focus groups or advisory councils.

# ENDNOTES

1 Mobility as a Service or Complete Trips, often abbreviated as MaaS, is the concept of creating a streamlined or unified transportation experience for travelers across multiple platforms, operators, and modes. [According to the MaaS Alliance](#), travelers should be able to plan, pay, and reserve transportation on a single application – for instance ride hailing to a subway station and then taking a bike share to the final destination. The scale of MaaS can be across a city, region, or even a national system. Overall, MaaS aims to provide more options for travel and make it easier to travel. MaaS has made the most progress in Europe and Asia, with some examples in the U.S. While most commonly called MaaS, in the U.S. it can be referred to as Complete Trips as well.

2 EMV refers to the standards set by Europay, Mastercard, and Visa. These standards apply to all smart-chip cards and while designed by the three companies, apply widely to bank card issuers. Recent statistics from [EMVCo](#) estimate that over 96% of card transactions globally relied on the EMV standard.