

a magazine devoted to policy and finance

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# Indian Infrastructure

VOLUME 21 • NO. 9 • APRIL 2019

Sector Focus

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# Putting Transit to the Test

Why standardization is essential to India's next-gen urban mass-transit ecosystem



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**Angaj Bhandari**  
Country Manager of India and  
South Asia

Urban mobility is making great advancements in India. Rising consumer demands and government initiatives have driven the creation of more innovative, secure mobility services and, most recently the creation of the National Common Mobility Card (NCMC) program.

Conceived by the Ministry of Housing and Urban Affairs at the Government of India, its aim is to offer our growing urban populations a seamless, multimodal travel card solution while complementing ongoing payments infrastructure migration to EMV<sup>®</sup>\*

The vision is simple: "One Nation, One Card". A consumer product that functions across in-store retail payments, transit, and eCommerce transactions, with scope to encompass healthcare payments, toll services and loyalty schemes. The reality, however, is far more complex.

India's traditional urban mobility ecosystem is facing a number of new pressures because of the convergence between payments, transit ticketing and mobility services. Consumer demand for new services is high, but juggling new stakeholders, technologies and standards from the unfamiliar payments world is creating a real technical complexities.

For public transport operators and authorities (PTOs and PTAs) to succeed, **standardization and greater technical support will be essential to harmonizing these ecosystems**. But first, let's take a closer look at the complexities of these converging ecosystems and the challenges for NCMC stakeholders.

## The transit-payments balancing act

EMV Chip specifications sit at the heart of the NCMC solution. These global payment industry specifications describe the requirements for **interoperability between chip-based applications and payment acceptance terminals**. Managed by industry body EMVCo, the specifications were originally designed for retail payments but are increasingly being used for transit ticketing.

However, the transit world has its own requirements that mean a simple extension of the payments world's EMV model isn't feasible -

not to mention India's own unique market requirements!

- ❖ **Need for speed:** To meet the speedy transaction times demanded by the transit world, authentication needs to be under 500 milliseconds. As a result, utilizing EMV's contactless specifications is essential.
- ❖ **PIN pain-points:** While the PIN-code offers secure customer authentication in the payment world, operators need to put smarter risk and fraud management in place to ensure contactless remains commercially successful across its network.
- ❖ **Standby service:** Unlike the traditional retail world, mass transit doesn't have the time or staff on the ground to manage terminals and readers. Terminal infrastructure therefore needs to be 'always on' to keep throughput high.
- ❖ **Ensuring connectivity:** A strong, consistent and speedy internet connection is not always possible. As such, an offline authentication solution is key and, as part of fraud management, can be complemented by adding stored value to cards.
- ❖ **A fare game:** EMV is based on the proviso that transaction costs are known beforehand. While implementations such as TfL's in London utilize a flat fare to overcome this, India's distance-based price model makes this challenging. Smarter fare reconciliation at the end of the day is therefore needed to encompass different travel distances and zones.

## Steps to standardization: key considerations for PTOs and PTAs

These considerations have been central to the definition of the scheme. But without any overarching standardization, delivering interoperable and successful deployments has proved challenging.

**This is why a standardized deployment approach, managed by an independent testing entity, expert in defining test cases and its automation is vital.** This is already helping urban mobility players overcome the immediate challenges of integrating new solutions, as well as ensuring long-term success.

But what key considerations do PTOs and PTAs need to be making, and what value can championing this approach offer?

❖ **Defining your requirements:** First and foremost, PTOs and PTAs will need to define the requirements of their system to ensure resources and efforts are aligned with local needs.

This could be reviewing what new form factors are accepted or what payment scenarios need to be included. Even before launching an RFP, expert technical support is invaluable in ensuring systems deliver the necessary functionality and operate seamlessly in your system. A technical deep-dive right from the start also prohibits the need to make costly and frustrating service updates post-launch.

❖ **Getting to grips with the payments world:** EMV standards are a brilliant foundation for interoperability and security from the payment world, but the path to compliance and final certification is complex.

For PTOs and PTAs, understanding the requirements of EMV testing and certification is one hurdle, but other requirements such as those set by domestic and global schemes also need consideration. Save time and navigate unexpected delays by letting a compliance expert take the lead.

❖ **Striking the balance:** Consolidating payments and urban mobility requirements during integration is a difficult and politically nuanced.

With numerous stakeholders in the mix - which specifications need to be considered, and by whom? While banks will take care of EMV compliance for Levels 1, 2 and 3, no process is in place for testing offline transit transaction settlements, for example.

**Standardization efforts will be crucial in bringing harmony to these stakeholders**, ensuring interoperability and bringing about clearly defined working processes and areas of responsibility. Moreover, defining standard test processes can enable a third party to become a central point of liability.

❖ **Quality assurance:** Selecting the technology to be implemented for migration projects is vital, but so too is championing quality throughout testing, integration and long-term operational efficiency of any new system. Expert guidance can help navigate any unwanted complexities or service limitations ahead of going live, ensuring operational soundness ahead of launch.

Quality assurance also confirms solutions are reusable. To realize the full benefits of the NCMC scheme, a neutral partner can help you determine your efforts are uniform, universal and interoperable. This saves money and other challenges further down the road when integrating with new partners or technologies. It also creates a liability shift and a central point of



contact between all stakeholders.

❖ **Test, improve, integrate:** Approaching a project with both global expertise and local experience, a third-party is also far more likely to spot potential issues improvements during the test and development process. Plus, when bound to defined testing processes, recommendations will always be fair and unbiased.

Testing experts can also help enable automated test tools and processes. Long term, these will be vital in maintaining operational excellence and will deliver real efficiencies when upgrading software or integrating new technologies.

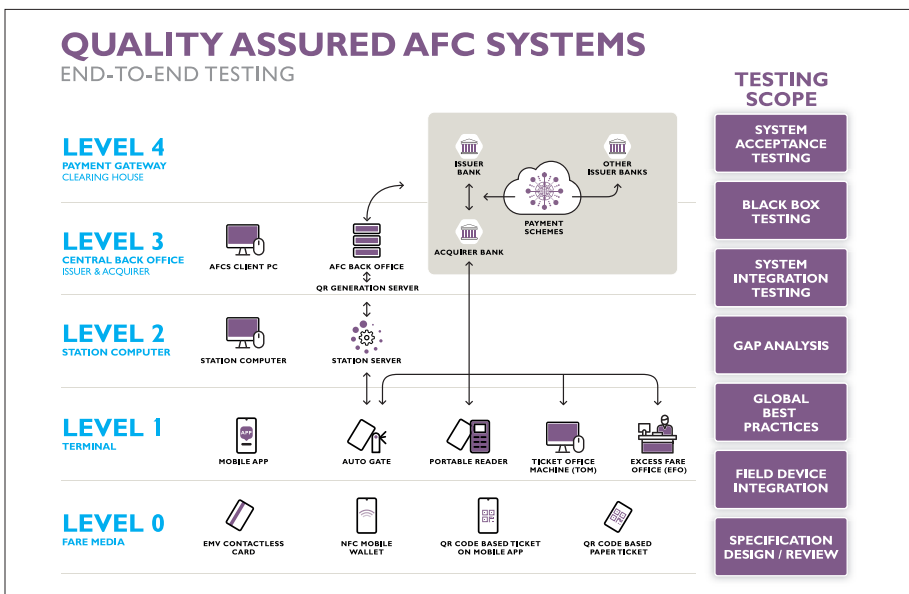
With so many co-existing partners and requirements to consider, a single partner able to support testing across the entire system - front to back end, hardware and software - is invaluable.

**Next steps to standardization**

The convergence of mass transit, payments and mobility services is exciting but complex. For all stakeholders to meet the gaps of testing expertise in their fields, an independent, neutral partner is crucial.

FIME India has supported Indian innovation for over 15 years and understands the challenges this market faces on the path to digital transformation. It has extensive experience in the EMV space, working actively with global and regional payment schemes including India's RuPay scheme. Combined with its in-depth knowledge of the transit ticketing world, FIME is perfectly placed to support the market's evolution and development.

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