

Whitepaper

# Driving Future Transport:

NEC Mobility Platform





Understanding challenges  
facing the transport industry

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# Safe, reliable and sustainable transport networks

Countries around the world are facing growing problems with transport. In addition to urbanization, population growth and traffic congestion, governments are increasingly seeking to adopt new technologies and zero-emissions vehicles in order to secure safe, reliable and sustainable transport networks.



# Understanding challenges facing the transport industry -2

Public transport is in a state of change. Burdened with staff shortages and increasingly constrained budgets, operators must improve efficiency through use of better data and systems integration and increasingly support drivers and staff, who are increasingly required to be more flexible and responsive to changing needs.

Following the coronavirus pandemic, customers must be lured back by addressing safety concerns and making public transport an appealing, safe and reliable option. This can be supported through the implementation of accurate and personalized real-time information systems, mobile apps and flexible ticketing solutions.

Operators are also facing the challenge of moving towards zero-emissions operations. Electric buses, for instance, entail new ways of managing fleets including better real-time data on fleet performance and charge management.

Finally, there's increased awareness of the need to make public transport equitable and accessible for all passengers.



## Key transport challenges



Amid staff shortages, operators are being forced to find ways to support their drivers in their day to day tasks, easily and quickly onboard new staff, all while facing increased financial constraints that require the operators to do more with constrained operating budget



Customers must be lured back through better security, service reliability and flexible ticketing



Moving to zero-emissions electric buses requires a new approach to fleet management



Transport systems must be made accessible to all passengers

# The key trends shaping the future of transport

01

**Customer focus:** More than ever, transport providers are focusing on customers to promote the use of public transport, emphasizing comfort, safety and security.

02

**Mobility as a Service (MaaS)** integrates different transport services into a single service accessible on demand. This is about offering a customer-centered approach to public transport, providing personalized travel planning services and unified payment systems.

03

**Autonomous or driverless buses** are expected to revolutionize public transport. They promise increased safety and efficiency, although there are still significant regulatory, technological, and societal hurdles.

04

**Regulatory and Funding Challenges:** Public transport operators and authorities face ongoing challenges related to regulatory changes and securing adequate funding, especially in the context of increasing demands for sustainable and socially equitable transport solutions.

05

**Smart technologies** including IoT, AI and big data analytics are reshaping the industry. These tools can help optimize routes, reduce wait times, and improve overall operational efficiency.

06

**Integration of Active Transport Modes:** Incorporating biking and walking paths with traditional public transport options is becoming more common. This trend not only promotes healthier lifestyles but also addresses last-mile connectivity issues.

07

**Demand-Responsive Transport (DRT):** DRT systems are emerging, especially in areas with lower demand, offering more flexible routes and schedules based on real-time passenger requests.

08

A larger trend is the continued expansion of **public-private partnerships (PPPs)** needed to fund and manage bigger and increasingly complex public transport systems. Expertise, risks and investments can be shared.



NEC Mobility Platform:  
One interface for all services

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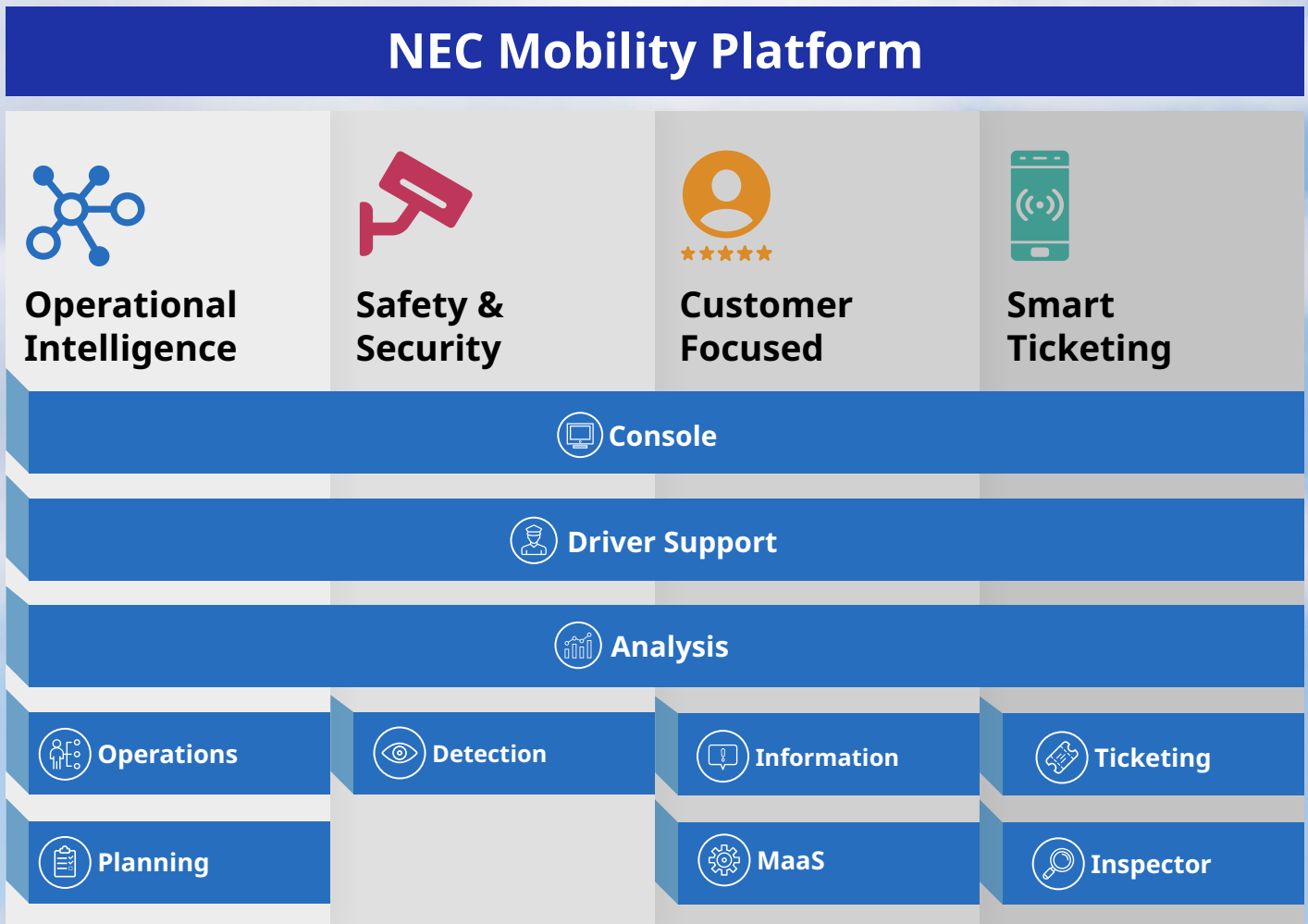
# NEC Mobility Platform



- ◆ A flexible powerful platform that enables only the components you need to manage your fleet
- ◆ A single platform to access all services
- ◆ An API-centric design allows the platform to be integrated into a range of existing or legacy customer systems
- ◆ Analytics and visualization tools as part of the platform let you gain better insights into businesses



# NEC Mobility Platform: One interface for all services -2



The NEC Mobility Platform gives you a rich, well integrated suite of services to run your transport systems. Because it's a cloud-based platform, you can choose only the components that your fleet needs. Its modular and API-driven approach provides a suite of components that work together seamlessly. You can use this single platform to access all NEC-managed services. The common look and feel promotes ease of use and operational efficiency. Drivers, meanwhile, can control all applications, from vehicle communications to passenger information, through a single onboard interface.

With a common launching point for all services through **Console**, you have a single dashboard that gives you a view of all of your operations and a quick launching point to jump into any service. While the API-centric design of the Mobility Platform allows integration into a range of legacy or new customer systems. **Analysis**, analytics and visualization tool lets you gain better insights into business operational needs.

# The four focus areas for NEC's Transport Service Development



## Operational Intelligence

solutions through a suite of services aimed at providing

solutions for transport operators including scheduling, planning and daily operations.

For instance, the Operational Control Center solution includes driver support functions such as navigation and headway management support, advanced driver assist and coaching services, driver and fleet communications and a swathe of other services. Through its comprehensive Transport Management System, NEC offers one of the most accurate ETA (Estimated Time of Arrival) algorithms available worldwide for real-time passenger information to improve customer experience throughout the journey.



## Safety and Security

services via solutions for monitoring of vehicles using video surveillance with

AI support for incident management, bus lane incursions with integration to the Operations Control Center to provide headquarters with real-time insights into incidents. The Advanced Driver Assistance Systems, Driver Performance Systems, and AI driven image processing systems cover everything from unexpected lane departures to potentially harmful behavior, all to ensure a safe, predictable journey.



## Customer-focused

solutions focus on passenger

★★★★★ applications and onboard and street-side services that provide accurate and real-time information and travel options for passengers.

These include services to support of people with differing abilities and the ability to send virtual hail signals to drivers. Our Journey Planner app, available on Android, iOS and the web, can be tailored by customers to suit their needs. The user-friendly app provides customers with clear and consistent information when they need it.



## Smart Ticketing

solutions that allow for a variety of payment options including cEMV, ABT (Account-based

Ticketing) and single-journey tickets through mobile devices, credit/debit cards, physical media and other forms. Our Ticketing solution has six key features: ease of use, rapid uptake, future proof, aggregation of services, clearing house functionality, and AI fraud-reduction engine.

[Learn more about NEC's Smart Transport Services](#)

# Services to address your mobility challenges



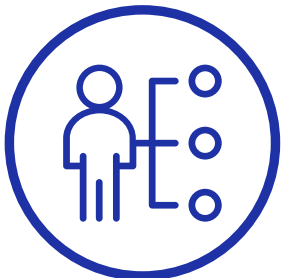
## Console

Console is the operational heart of the NEC Mobility Platform. Console is the interface through which operator and authority staff access NEC Mobility services. It provides a single launching point for all operational services, leveraging a common user and role management service.



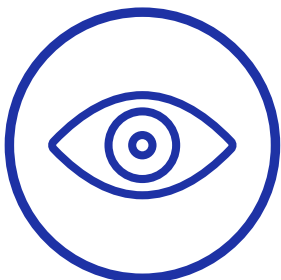
## Analysis

NEC's Transport Specific Data Analytics and Reporting Platform stores up to 10 years of data sourced from the other NEC Mobility Services. Operators and authorities can better understand their business through a core suite of reports and visualizations highlighting important trends in the operational system.



## Operations

Operations provides the operational tools for transport operators to manage their fleets on a daily basis, including options for driver communications, headway management, vehicle monitoring and incident management, with configurable workflows available for many services.



## Detection

NEC's solutions for video surveillance harness AI to automatically detect issues such as potholes and graffiti. It is designed to automate repetitive tasks and reduce staff workloads, improving safety and operations.



## Planning

Planning is NEC's solution to support the transition to zero-emission operations. Planning centers on bus fleet planning, scheduling and timetable optimization, with packages available for EV fleet management including integrations to charge management services.



# Services to address your mobility challenges -2



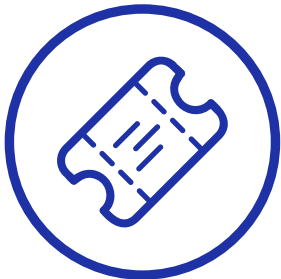
## Information

Information is NEC's suite of solutions and services for public transport passenger information, including public data feeds for real-time location and arrivals data, signage solutions at stops and platforms and in-vehicle and mobile applications. All designed with accessibility in mind.



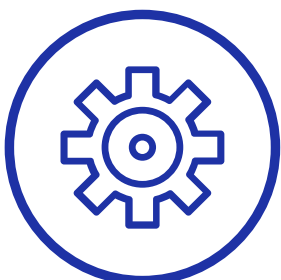
## Driver Support

Driver Support provides the solutions to assist operators in ensuring the delivery of safe, timely, and responsive services. The applications include shift management, navigation, driver coaching, communications and safety support.



## Ticketing

NEC's ticketing solution supports cEMV and account-based ticketing as well as other mobility services payments, single-journey and group QR ticketing and card-based ticketing.



## MaaS

NEC's Mobility as a Service Solution and mobile apps range from simple arrival-time notifications, journey planning and travel management to a complete MaaS app including ticketing and payments integration. All designed with accessibility in mind.



## Inspector

Inspector is NEC's Android app for operational staff that provides ticket inspection services, bus driver support services as well as communications services with an operator's OCC.

# What makes NEC different



With its unrivaled suite of powerful technologies, NEC has expertise in implementing transport solutions all over the world. More than 50 cities have installed NEC's solutions to date.

NEC strives to promote SDGs and is able to provide solutions with sustainability in mind.

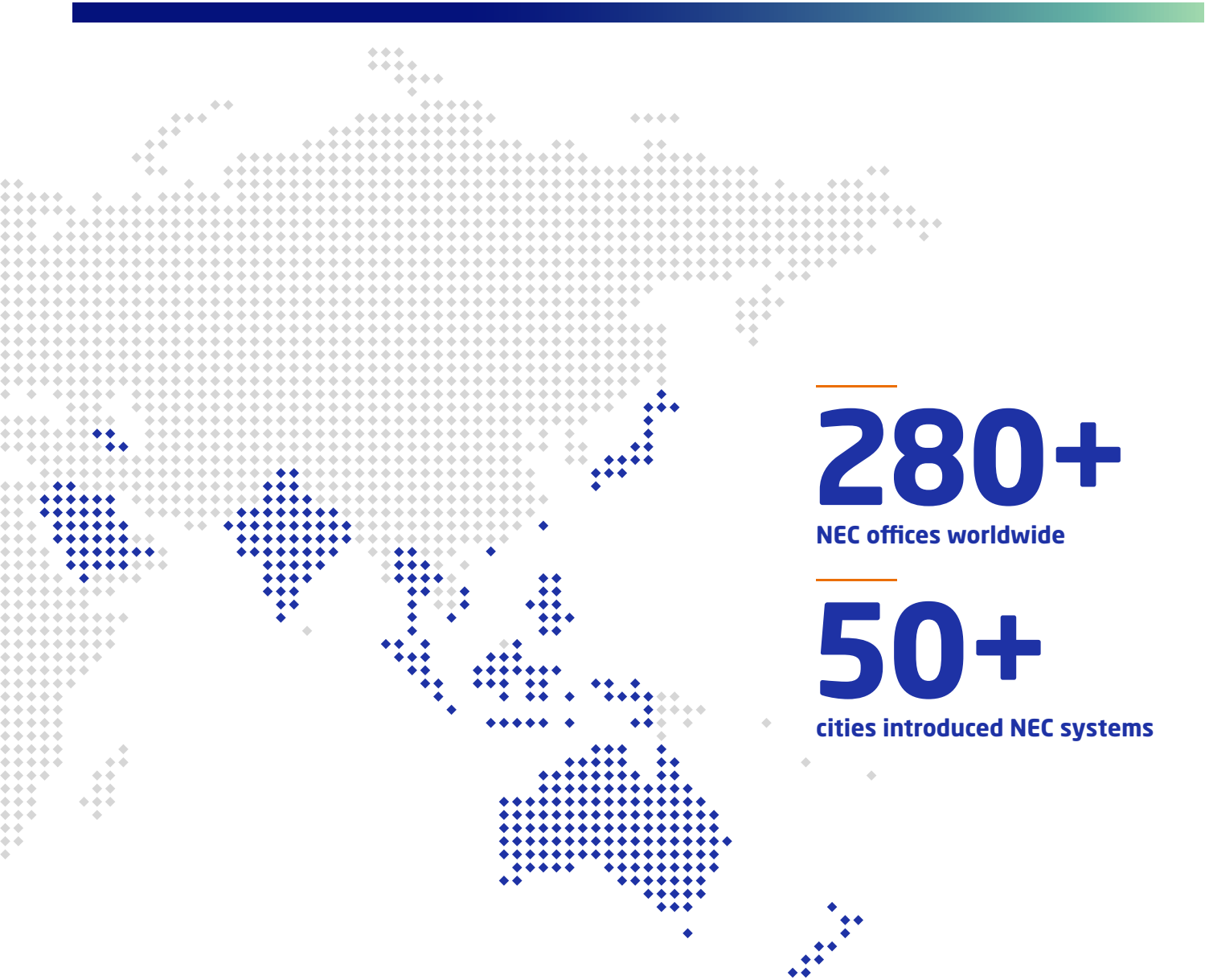
Partnering with NEC gives you access to the expertise of a global technology provider with over 120 years of experience including over 30 years in transport. Add to that the local support provided by NEC's in-country delivery and operations team who bring Japanese quality and reliability to your operation.

Our approach is to work closely with customers, allowing them to leverage our global expertise and the NEC Mobility Platform, and our partners are able to support to best suit the customer needs. Furthermore, NEC focuses on relationships with customers being a long term partnership using your needs to help shape our product roadmaps.

As a trusted partner, we uphold the principles of integrity, reliability, and excellence. NEC is committed to continual innovation to enhance mobility, connectivity and quality of life in communities around the world.

NEC is committed to sustainable business practices and continues to disclose climate-related risks and opportunities. In fiscal 2023, NEC's Scope 1 and Scope 2 emissions were down 45.1% from fiscal 2018. NEC has identified climate change risks and developed business solutions for decarbonization. To learn more, see [Climate Change: Environment](#).

# What makes NEC different -2



## Partnering with NEC

- ◆ 30 years' experience in transport, Japanese quality and reliability
- ◆ NEC brings industry-leading technology solutions and a long track record of excellence
- ◆ NEC leverages the strengths of being a global tech provider, a global partner network along with over 200 offices around the world to bring global solutions that are supported locally
- ◆ NEC upholds the principles of integrity, reliability, and excellence



# Real-world NEC transport solutions



## Canterbury, New Zealand

NEC partnered with the Christchurch City Council and Environment Canterbury, the council for the Canterbury region of New Zealand, to replace a radio-based solution on a fleet of 251 buses with a GPS-based real time information system. Passengers can use their smartphones to see when buses will arrive, reducing wait times. The NEC system features machine learning that can accommodate the impact of traffic at busy times of the day when predicting arrival times.

“This timeliness of information gathering is crucial to be able to monitor and manage where and when we need to alter or make improvements to the network or timetable.”

– Jeremy Dickson, Environment Canterbury Manager of Public Transport Business Services and Improvement

# Real-world NEC transport solutions -2



## Doha, Qatar

As the capital of Qatar, Doha is rapidly emerging as a venue for major sports events including the biggest football event in the world. NEC India teamed up with Mowasalat, the country's largest bus operator, to upgrade buses carrying spectators to stadium events for seamless, efficient transport during the tournament.

An Intelligent Transportation Management Solution (ITMS) was installed in 3,000 buses, including 800 E buses, ferrying millions of football fans to Qatar's eight stadiums. At peak usage, about 88,000 passengers rode on 2,700 buses in a single day.

NEC provided Intelligent Transport Management System including hardware and software, and EV charging infrastructure was also integrated with the solution. The result was twofold: an integrated, comprehensive view of fleet operations for Mowasalat and a smoother, more efficient experience for passengers, with less waiting time before and after football matches.



# Real-world NEC transport solutions -3

## Ahmedabad, India

India's Ahmedabad is a rapidly growing city of 8 million where a manually operated, often erratic bus transit infrastructure had to move 800,000 passengers a day. Smart City Ahmedabad Development Limited (SCADL) partnered with NEC to introduce a seamless, safe and reliable Intelligent Transport Management System that harnesses IoT and big data to build a smart bus system that is easy to plan, merge and grow, also resulting in sizeable savings for SCADL.

"The one-touch ticketing with no human interface is easy for commuters to use, and we gain precious information on ridership, proper running of services, fleet management, optimum bus allocations to popular and less popular routes, and more."

- Rakesh Shankar, CEO of SCADL





# NEC at a glance

NEC is a leader in the integration of IT and network technologies, and fosters the social values of safety, security, fairness and efficiency. NEC's aim is to promote a more sustainable world where everyone has the chance to reach their full potential.

The Nippon Electric Company, Limited (NEC) was founded in 1899. With more than 120 years of history, NEC has nurtured world-class technologies and the capabilities to implement those technologies. As one of the world's leading a global technology provider, NEC has been providing transport and smart city solutions for over 30 years.



Global

# No.1

Technological Capabilities



Face recognition  
\*1



Fingerprint recognition  
\*2



Iris recognition  
\*2

Revenue \*4

# 24.69

billion dollars

Number of patents \*5

# 42,000

Approx.



# A LIST

Inclusion in the CDP Climate Change, Water Security and Supplier Engagement A List



Number of employees \*5

# 119,000

Approx.



\*1 Ranked 1st multiple times in benchmark testing held by the U.S. National Institute of Standards and Technology (NIST)

\*2 Ranked 1st in benchmark testing sponsored by the NIST

Note: NIST testing results do not constitute an endorsement by the U.S. government of any particular system, product, service, or company.

\*4 Actual results for the fiscal year ended March 31, 2023

\*5 As of March 31, 2023

\Orchestrating a brighter world

**NEC**

[For more information, visit the NEC official page](#)

