



Information Hub





INFORMATION HUB PROVIDES AN INTEGRATED, CONSISTENT, DETAILED DIGITAL VIEW OF THE OVERALL MOBILITY SYSTEM


DISTINCTIVE FEATURES:


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Based on modern and innovative technologies to collect huge amounts of data and information coming from different sources, organizing it coherently according to a common data model, based on international standards and market best practices.
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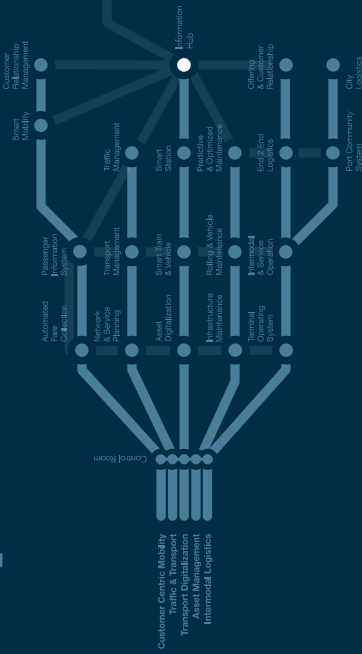
Provides a digital representation of the whole mobility system, on different information domains and time dimensions. It is the basis of the entire platform and allows the sharing of a coherent master-vision between the different products.
- 

Natively multi-modal, multi-operator and multi-culture, in order to meet the different needs of the market, also in an international context.
- 

Built on top of an event-oriented architecture, by means of stream processing technologies, to process data in real-time and provide the results to all interested parties.
- 

Modular design to meet the needs of any mobility ecosystem, from the simplest to the most complex, supporting the monitoring and supervision requirements of individual transport operators, service aggregators and governance authorities, in addition to infrastructure and asset managers.
- 

Monitoring tools and graphical data presentation widgets, reusable in other applications and products (e.g. Control Room).



LET'S_MOOVA_ ON_TOGETHER.



INFORMATION_ HUB

ONE_INFORMATION HUB_TO RULE _THEM ALL

MOBILITY DIGITAL SKIN

The Information Hub provides a "digital window" for the observation and awareness of the physical events that constitute the fundamental nature of transport, providing monitoring capabilities for assets, people, goods, services and operations, to obtain an integrated, timely and progressively detailed view of the entire transport system. This digital view of the transport process is made available through both standard APIs and powerful, professional graphic tools, providing the foundation for an effective exploitation of data and collaboration.

MOBILITY ECOSYSTEM

Provides an enabling platform to organizations and authorities who have interest in encouraging and promoting the development of transport and mobility services ecosystems, both at a local level or at a national/international level. It favors interoperability between different transport operators, integrating the contribution of each of them in a multi-service, multi-modal and multi-company context to offer complex services that best meet customer needs.

KNOWLEDGE TO DECIDE

Allows to perform complex data analysis in real time, to calculate the status and forecast of the main transport dimensions and service performance, analysing behaviors, detecting anomalous conditions, generating alarm signals and making all the relevant information available to operators, to support decisions and significantly improve responsiveness and effectiveness dealing with unexpected accidental events. Advanced decision support analytics are crucial both for the development and provisioning of offered services and for performing governance actions on the mobility ecosystem, facilitating the identification of systematic measures to improve services and optimize production.

MULTI-SERVICE, MULTI-MODAL, MULTI-OPERATOR DIGITAL MOBILITY

● MONITORING & REPORTING TOOLS

Monitoring and reporting tools tailored for the needs of different types of users: operators, management, and stakeholders.

● STATUS EVALUATION & FORECAST

Processing and synthesis of information, to ensure a "unique digital representation of the service", integrating past, present and future into an information continuum.

● COMMON DATA MODEL

Acquisition, correlation and storage of information consistently according to a common data model based on international standards.

● SLA & OLA EVALUATION

Performance indicators and quality targets relating to the service and operating procedures that contribute to its production.

● DECISION SUPPORT ANALYTICS

Advanced analytics, aimed at obtaining new information from the acquired data, to support the decisions necessary to intervene in the face of accidental or planned disturbance events.



MOBILITY
AUTHORITY



TRANSPORT
OPERATOR



LOGISTICS
OPERATOR



MOBILITY
INTEGRATOR



USER
MANAGER



CONTROL
ROOM



EXTERNAL DATA
PROVIDER



IoT & FIELD DATA
PROVIDER



SERVICE



OPERATIONS



PEOPLE

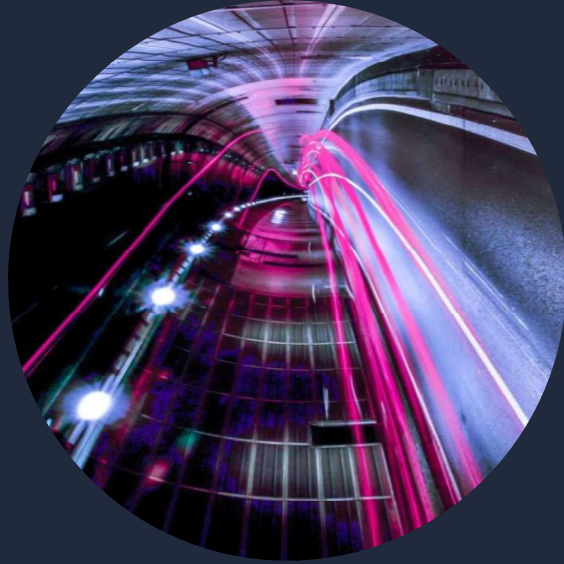


FREIGHT









ASSETS

Smart train and vehicle



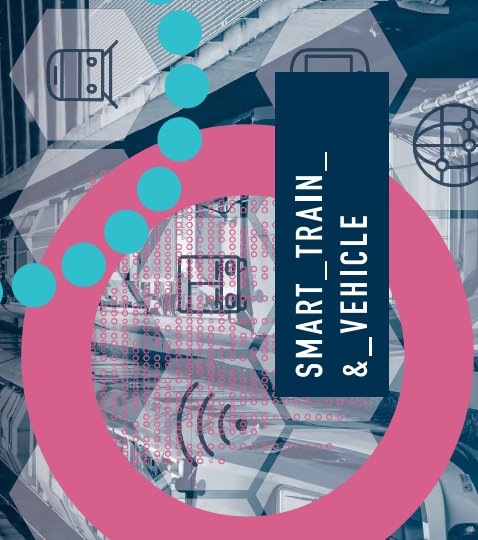
TURNKEY SOLUTION: IN-HOUSE SYSTEM DESIGN, SOFTWARE AND HARDWARE DEVELOPMENT, MANUFACTURING, PROJECT MANAGEMENT, SYSTEM START-UP, TECHNICAL ASSISTANCE & MAINTENANCE

DISTINCTIVE FEATURES:


-  Localisation & Geofencing
Travel Tracking.
-  People counting, remote CCTV, crew console, ancillary services, data gateway
V2I on-board ticketing, auto check-in, seat reservation and occupancy.
-  Automatic and on-demand real-time audio & video information, infomobility web portal.
-  Devices registry, tele-diagnostics, configuration and change management, maintenance.
-  Multi-media web Portal, Internet on board, digital signage video, information on personal devices.
-  These capabilities are natively integrated with other platform products for an integrated management of all the dimensions of mobility services production.



FOR_DIGITAL

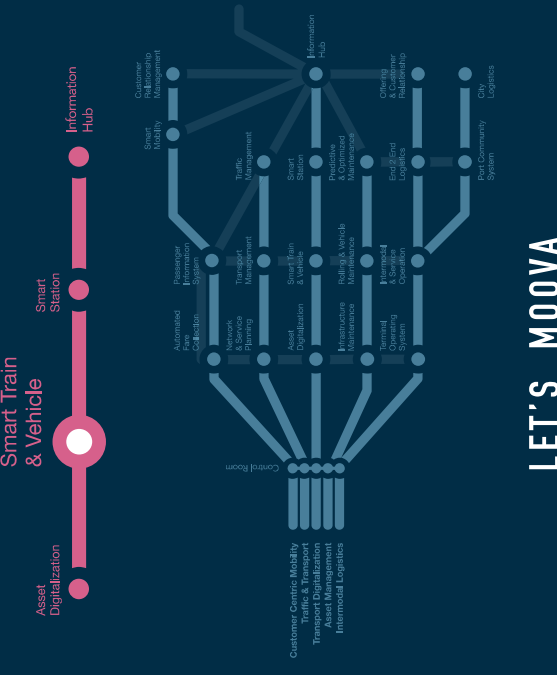


**SMART_TRAIN
&_VEHICLE**



MOOVA
ABSOLUTE MOBILITY

**Smart Train
& Vehicle**



LET'S_MOOVA_
ON_TOGETHER.

**SMART MOBILITY STARTS
_ WITH ON BOARD CUTTING
EDGE TECHNOLOGIES _
PARTS OF THE INNOVATIVE
PLATFORM _**

MODULAR SOLUTIONS

Single product or an entire solution. Addition of plug and play products, services and functions in order to respond to the customer's needs.

TAILORED SOLUTIONS

Easy Hardware and Software customizations to enrich the specific solution and adding value to the core assets, with minimized impacts and time-to-market.

A COMPLETE SET OF SERVICES

Products, systems, solutions, operating and systems management services, PaaS, SaaS, after-sales service and maintenance.

EQUIPMENT & PLANTS

Complete revamping projects including plant components.

EXPERTISE

An installed base of more than 30,000 devices and 15 years of service provision.

**COMPLETE,
HIGH-QUALITY,
HARDWARE & SOFTWARE
PLATFORM COMPONENTS
FOR ON-BOARD DIGITAL
SERVICES**

SERVER & PIS CONTROLLER

Configured with a wide range of SW functions and capabilities to be used as: Multimedia Web Server, Streaming Server, Crew Web Portal, Diagnostic Concentrator, PIS Controlling and AVM-AVL capabilities.

VIDEO

Internal and external TFT-LCD monitors.

CCTV

IP Cameras and NVR Server. On-board recording with on screen viewing and loopback function. Remote management either live or delayed. GDPR compliance and relevant safety standards.

ON-BOARD TECHNOLOGIES

The product is based on the integration between the ground systems and the state-of-the-art on-board technologies like on-board multimedia displays for Passenger Information Systems (PIS), digital and analogue audio equipment for Passenger Announcements (PA), video surveillance (CCTV), passenger counting (APC), seat reservation (ISR) and seat occupancy (SOD) for Operations and Wi-Fi solutions for Infotainment.

AUDIO

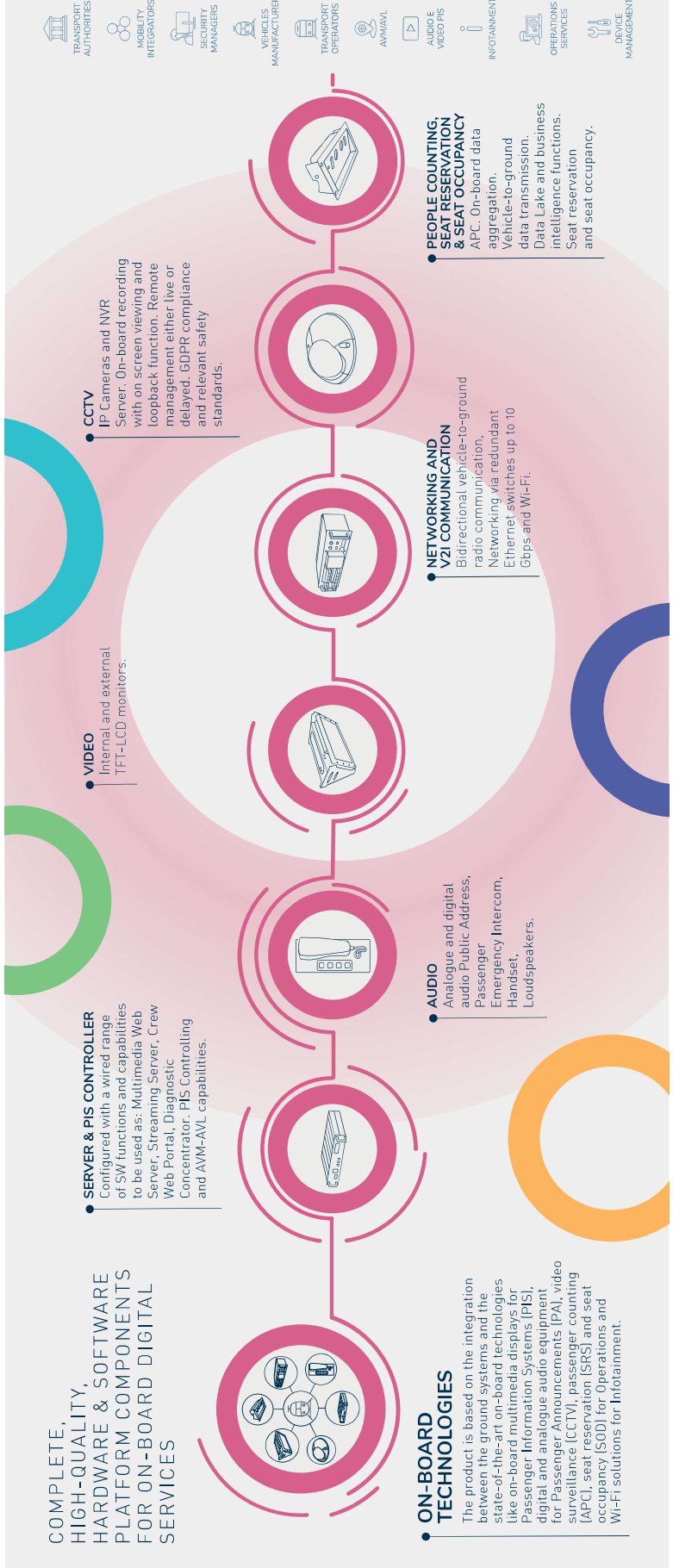
Analogue and digital audio Public Address, Passenger Emergency Intercom, Handset, Loudspeakers.

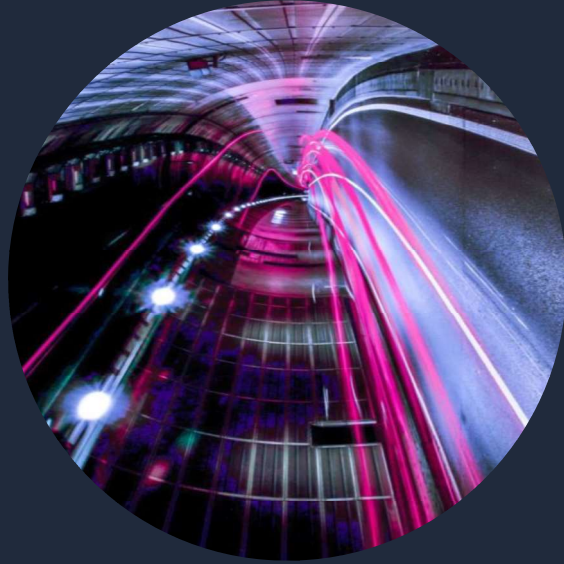
NETWORKING AND V2I COMMUNICATION

Bidirectional vehicle-to-ground radio communication, Networking via redundant Ethernet switches up to 10 Gbps and Wi-Fi.

PEOPLE COUNTING, SEAT RESERVATION & SEAT OCCUPANCY

APC. On-board data aggregation, Vehicle-to-ground data transmission, Data Lake and business intelligence functions, Seat reservation and seat occupancy.





NSP

NETWORK AND SERVICE PLANNING ENABLES MULTIMODAL PLANNING OF TRANSPORT NETWORKS, TIMETABLE AND MOBILITY SERVICES

DISTINCTIVE FEATURES:



Multimodal Planning, with the same functionalities it is possible to manage all mobility services and connecting them to provide a seamless transport supply.



Separated service and operational point of view: the authorities work on the requirements of the service (defining routes, frequencies, average speeds, seats offered etc.) and the operating structures plan the journeys to perform the requested services.



Multi-network: multiple networks, managed or controlled by Transport Operators, Mobility Authorities and Infrastructure Managers, in a single integrated view.



Enable single journeys, sets of journeys or composite services generation through the definition of patterns, headways, passing and stop times and other features.



FOR_TRANSPORT

LET'S_MOOVA_ON_TOGETHER.

DIGITAL, SERVICE-ORIENTED, MULTI-MODAL, NETWORK AND SERVICE PLANNING

A_MULTIMODAL_AND INTEGRATED NEW VISION_TO MANAGE_NETWORK _AND SERVICE_PLANNING

INTEGRATED NETWORKS, TIMETABLE AND MOBILITY SERVICES

Designed as a multimodal and multi-company solution for network planning and timetable for mobility services (rail, bus, metro, ferry etc.). Based on the integration of different planning modules, it allows operators and authorities to plan and consult networks and mobility services.

MULTIMODAL TRANSPORTATION PLANNING

Focused on the connections between mobility services, it provides operators and authorities a comprehensive tool to plan and check the integration between different transport supplies. Flexible configuration of the Interchange Areas for the modal shift among the journeys. The solution meets the needs of the simple and complex mobility ecosystems.

A UNIQUE TOOL FOR PLANNING

An integrated and planning system which avoids rework and low added value activities and enables the dynamic planning of a multimodal offer with a single tool. A complete set of documented and access-protected APIs layer facilitates the integration of existing and third-part applications even through the import and export of data.

- **TRANSPORT NETWORK**
Defines the Transport and Infrastructure Networks, Lines, Routes, Points, Tracks and related features along with the Interchange Areas where the modal shift takes place, Tariff Zones and Points of Interest.



TRANSPORT NETWORK

- **TIMETABLING**
Defines the Timetables through the creation of journeys starting from Mobility Services; timetabling for railways also includes infrastructure capacity planning. Being flexible and easy to update, it includes an integrated view of the resources available vehicles, crews, and infrastructure).



- **MOBILITY SERVICE**
Defines Mobility Services as the requirement for Planning through the definition of routes, stops, frequencies and calendar. It allows the planning of Single-Mode Services as well as composite Services enabling Modal Integration.



INFRASTRUCTURE NETWORK

- **CREW SCHEDULING**
Defines the crews scheduling according to the service and vehicles requirements and the assignment of personnel to journeys. Integrated view of the other resources: vehicles and timetable.



- **VEHICLE SCHEDULING**
Defines the fleet scheduling according to the service requirements and the assignment of vehicles to journeys. Integrated view of the other resources: crews and timetable.



TIMETABLE



VEHICLES



CREWS



TRANSPORT SERVICES




LINE
& ROUTES


Transport Management




TRANSPORT MANAGEMENT: ALL TRANSPORT COMPONENTS IN ONE SUITE

DISTINCTIVE FEATURES:

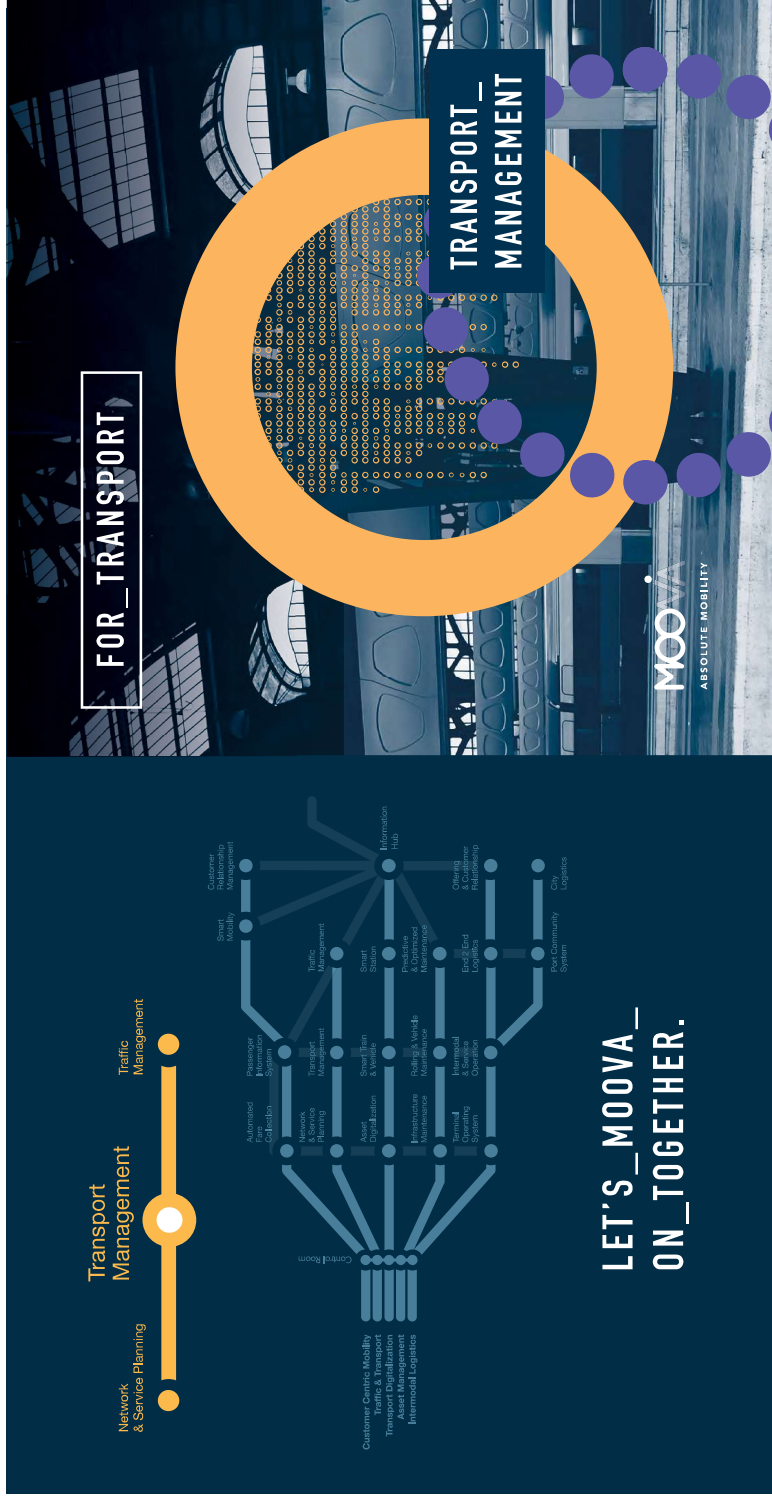
 **Multi-modal & Multi-company:** dedicated to all transport actors, local and long distance transport operators, single or multimodal. Designed for different centralized or distributed operating models (e.g. onboard, in plant).

 **Service & Operation:** monitoring and support of all operations necessary and preparatory to the normal execution of the journeys according to the scheduled times.

 **Multi-services & Multi-resources:** integrated management of different transport services and necessary resources (fleet, crew, infrastructure).

 **Prevent & Control:** rules, algorithms and tools that highlight conflict situations, actual and potential disruptions and facilitate decisions through the proposal of the necessary actions (e.g. reprogramming of operations).

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FOR_TRANSPORT

TRANSPORT MANAGEMENT

MOOVI
ABSOLUTE MOBILITY

LET'S_MOOVA_ON_TOGETHER.

Transport Management

Network & Service Planning | Traffic Management

Customer Centre Mobility | Network Planning | Traffic Management | Information Hub

Asset Management | Operational Management | End-Of-Trip Logistics | Customer Relationship

Intermodal Logistics | Fleet Management | Fleet Management | Fleet Management

Control Room

Customer Relationship | Fleet Management | Fleet Management | Fleet Management

Operational Management | End-Of-Trip Logistics | Customer Relationship

VIEW_AND_ACT_IMMEDIATELY

INTEGRATED MANAGEMENT

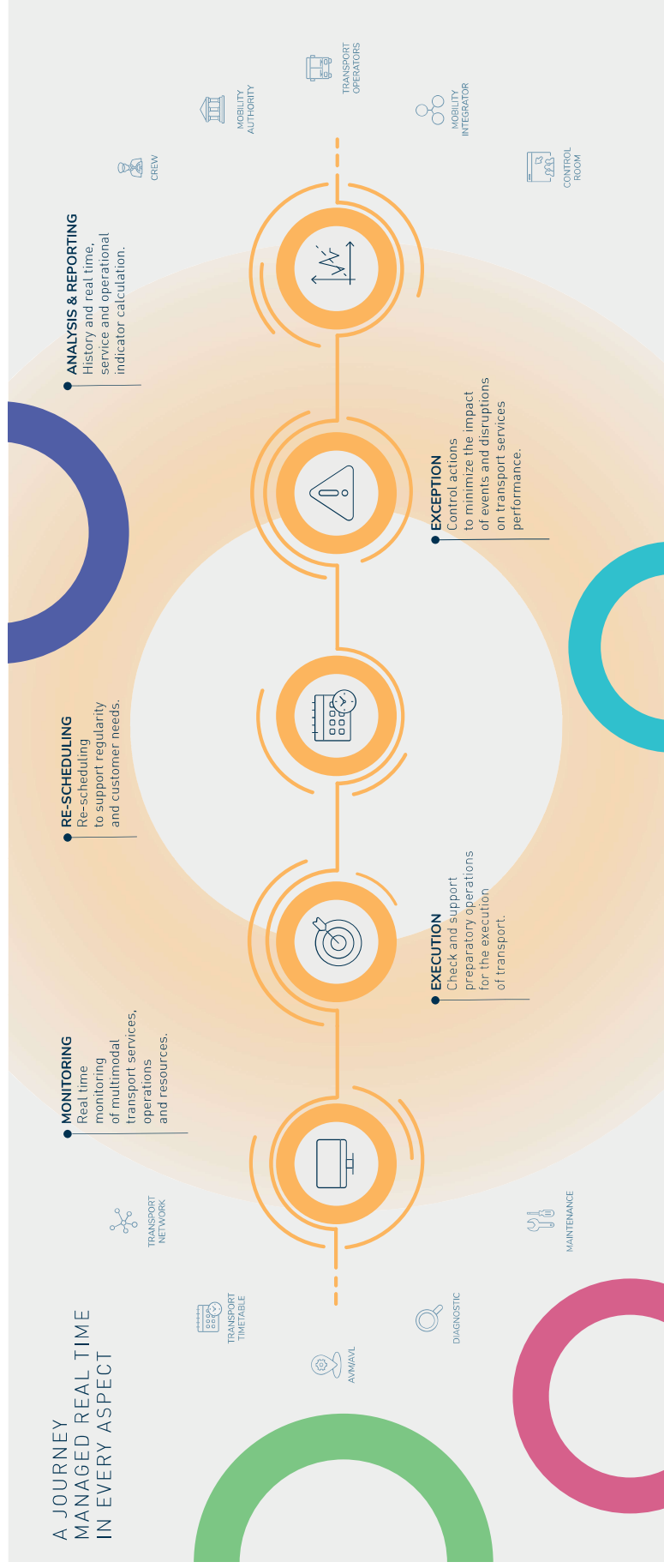
Assisted execution of necessary operations for transport to make production processes more efficient and effective. A unique environment for different services and transport modalities. A single integrated tool to manage in real time all transport resources, such as vehicles, crews and infrastructures access.

TIMELY ACTIONS

Immediate identification of control actions and quickly reprogramming of journey and resources. Business rules, algorithms and specialized graphical tools enable everything need.

CONNECTIONS FOCUS

Immediate evidence of potential critical connection issues, allowing the operator's actions to reduce travelers' discomfort and create new connections or update planned connections.





AFC

AUTOMATED FARE COLLECTION FITS ALL TRANSPORT CONTEXTS THANKS TO ITS MODULAR SYSTEM

DISTINCTIVE FEATURES:

-  Meets the needs of the major stakeholders: transport operators, a consortium of operators or a metro mobility authority.
-  MaaS Ready! Aimed at addressing the e-ticketing needs of Mobility as a Service system.
-  Classic ticket based and a flexible account based for digital ticketing all in one solution: EMV, Best Fare, HCE, QR, Contactless Smart Card, Blockchain.
-  Independent of hardware used on new or existing peripheral devices.
-  Simple and flexible configuration of access conditions and fares combining multiple parameters. Ability to create bundles of fares and commercial products.
-  Integrated by design with MOOVA peripheral status monitoring, transport network configuration and multimodal travel planner modules.



FOR PEOPLE



AUTOMATED_FARE COLLECTION





LET'S MOOVA ON TOGETHER.

DIGITAL, MULTI-MODAL, MULTI-OPERATOR, MULTI-CHANNEL TICKETING



TRANSPORT NETWORK



TRANSPORT SERVICES



EXTERNAL USER APPLICATION



OTHER AFC SYSTEMS



VIRTUAL/PHYSICAL MEDIA



PERIPHERAL DEVICES STATUS

A_SEAMLESS_MOBILITY STARTS_WITH_TICKETING _MANAGEMENT

FLEXIBLE FARE DEFINITION

Designed to manage the main fare models currently adopted at national and international level. Flexible configuration of transport products fare and access rules. Price definition adaptable to different commercial policies that can be differentiated according to the used media, distribution channels or customer profiles.

PRODUCT BUNDLES

Bundles of multi-operator transport services with a set of complementary services related to parking, cultural venues, exhibitions and other leisure activities with associated specific prices and access rules.

OPEN AND EXTENSIBLE

A comprehensive set of documented and access protected APIs layer facilitates the integration of existing and third-party applications and enables the establishment of an ecosystem of companies delivering integrated services.

BACKOFFICE

Defines the catalogue of the products with their prices and access rules. It defines the transport network and services. It manages the media inventory and traces their assignment to points of sale. It also configures rules for revenues and fees distribution.

SALES SERVICES

Record and elaborate sales, validation and control activities. They monitor the life cycle of each media and their status. They manage historical data to create reports and compute operational KPIs.

CHANNEL INTERFACE

Open Standard and Open Protocol Interface is used to integrate distribution channels, company systems or third-party software.



CRM



INSPECTION CHANNEL



VALIDATION CHANNEL



SALES CHANNEL



PAYMENT GATEWAY



API/AVL



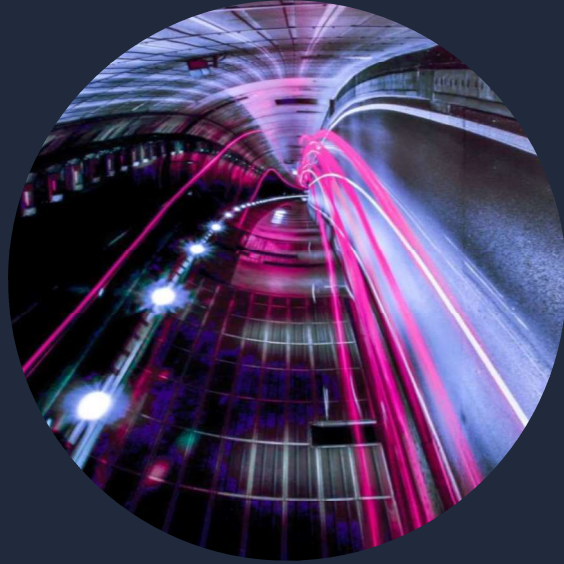
CLEARING

Computes the distribution of revenue between operators and allocates fees to the sales network in an integrated multi-operator transport system.



ACCOUNT BASED

Calculates the fare and where possible applies the best fare to registered or anonymous customers by using the historical trips made in a specific period. The best fare is calculated by combining one or more products in accordance with the defined fare rules.



PIS

PASSENGER INFORMATION SYSTEM : A UNIQUE SPECIALIZED ENVIRONMENT TO INFORM THE PASSENGER

DISTINCTIVE FEATURES:



Natively Multimodal,
Multi-channel and
Multi-cultural in order to
meet all different adoption
needs.



Unified and proactive tool for
controlling and managing
mobility for operators and
Control Rooms. Specific features
for managing informations in service
disruption conditions.



Schedule configuration for
content, channels, formats,
rules and timing of
dissemination.



Highly interconnected with the
transport services management in
order to automatically distribute
in real time the information
through the various channels.



Supports the passenger's door
to door experience for the entire
journey through a complete set
of services for personal digital
channels.



Device independent and easily
adaptable to different field
configurations and to several
types of equipment, also
already present.

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LET'S_MOOVA_ ON_TOGETHER.

FOR PEOPLE

PASSENGER INFORMATION SYSTEM

MOOVA
ABSOLUTE MOBILITY

MULTI-MODAL, MULTI-OPERATOR, MULTI-CHANNEL PASSENGER INFORMATION SYSTEM



TRANSPORT
NETWORK



TRANSPORT
SERVICES



CRM



ON BOARD
SYSTEM



FIELD
SYSTEM



DEVICE
MANAGEMENT

● **CONTENT**
Manages the main types of contents to be used in the delivery phase.

● **DELIVERY CONTROL**
Verifies delivery and touchpoints status. Monitors journeys and changes that may require produced automatically or the preparation of specific messages in case of Disruption.

● **PERSONAL DELIVERY**
Supports the customer throughout the travel experience, enabling travel planning, agenda preparation and traveler assistance during the itinerary.



● **CONFIGURATION MANAGEMENT**
Defines the time sequence and the rules for the delivery of individual content, which will be activated automatically in correspondence with service events or schedules.



● **PUBLIC DELIVERY**
Enables the automatic diffusion of audio, video, text and multimedia information through public channels on the ground and on board the vehicles in circulation.



● **ANALYSIS & REPORTING**
Provides indicators on the quality of the service supplied and allows the production of reports on the performance of the service supplied.



VIDEO



MOBILE



TOTEM



AUDIO



WEB



SMART
OBJECT

MOST RELIABLE INFORMATION _ ON THE MOST SUITABLE CHANNEL _ AT THE MOST APPROPRIATE MOMENT

It guarantees a unified view of the governance of the entire process, starting from configuration up to reporting. The information provided on the channels is monitored and managed from a single control point.

SEAMLESS CUSTOMER EXPERIENCE
Provides a uniform customer experience by ensuring consistent, complete and timely information in different delivery modes and channels.

UNIQUE, COMPLETE AND SPECIFIC INFORMATION
Gets ready a dedicated information base, built in an automatic and reliable way, starting with the service information.

FULL MANAGEMENT
Offers advanced control, customization and management tools to travellers communication even in disrupted service conditions.

FULL CONFIGURABILITY
Allows the configurability of the delivery in terms of content, channels, formats, rules and timing through playlists dedicated to the different touchpoints available.


OPEN CHANNEL INTERFACE
Open Standard and Open Protocol Interface to integrate distribution channels application, company systems or third-party software.





Control Room


CONTROL ROOM: COMPLEXITY BECOMES EASY

DISTINCTIVE FEATURES:

- 

Integrated View to monitor the entire mobility system status: the service performance and all elements of operation (journeys, stations and stops, operation activity, plants and vehicles, etc.).
- 

Unique environment to collect and to notify events, to manage situations, to define actions and to track their execution to minimize the impact of disturbances on the quality of the mobility services.
- 

One-door-shop for the centralized integration of vertical management capabilities offered by the other MOOVA platform products and related to transport, circulation, security, logistics, resources, facilities and infomobility.
- 

Integration with the MOOVA Information Hub to share past and real-time information and specialised algorithms to calculate the service status, forecast data and performance indicators.

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Control Room

LET'S_MOOVA_ ON_TOGETHER.



CONTROL ROOM

MOOVA ABSOLUTE MOBILITY

AT THE HEART OF A MOBILITY ECOSYSTEM

The Control Room is at the heart of the mobility platform, combining multiple applications to supervise all services, processes and assets while managing exceptions, disruptions and emergencies.

ADVANCED & SMART TOOLS

To monitor the transport system status, to track events and to analyze timely the impact of unexpected situations.

ACTIVITY ASSISTANT

To support users in the decisional and executional process, by integrating vertical resolution actions into a single management environment, according to precise intervention strategies aimed at minimizing recovery times.

FLEXIBILITY

By configuring the workspace and multiple work area, each operator can set up his own workstation according to his job and the needs of the moment.

ADAPTABLE ENVIRONMENT

Ideal for both simple and complex Operating Rooms, single or distributed, equipped with multi-monitor workstations, videowalls, multithouch tables and mobile devices.

A SINGLE POINT OF ACCESS FOR REAL TIME MONITORING AND EVENTS HANDLING



SECURITY



PASSENGERS
INFORMATION



LOGISTICS



MAINTENANCE



SERVICE

WORK AREA MANAGER

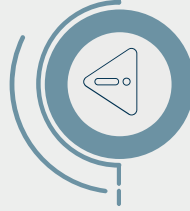
Easy and flexible customization of the user interface to configure favourite tools and layouts.

EVENTS MANAGER

Reception, classification and notification to operators about events originating from other users and external systems.

ACTIVITY MANAGER

Customized tasks list to help the users put in place the better solution to manage unexpected and critical cases.



SITUATION IMPACT

Analytical Tool that calculates direct transportation and performance impacts of any events with consequences on the mobility services.



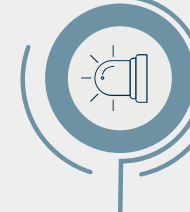
DIGITAL FOLDER

A digital archive to collect and share documentation related to exceptions and disruptions.



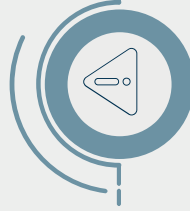
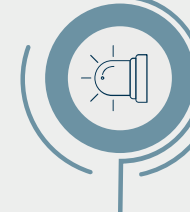
INTEGRATED MONITORING TOOLS

Single point of access to the Monitoring tools of the other Products of the MOOVA Platform.



COLLABORATION

Integrated collaboration tools to facilitate communication and information sharing among users.



MOBILITY
AUTHORITY



TRANSPORT
OPERATORS



MOBILITY
INTEGRATOR



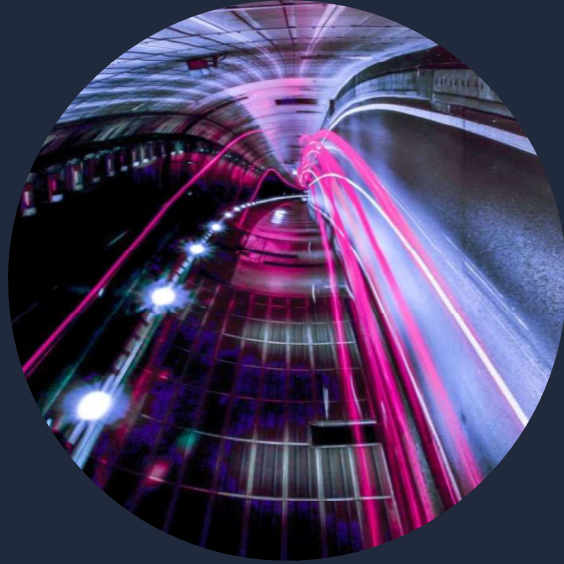
ASSET
MANAGER



EXTERNAL DATA
PROVIDER

MOOVA Platform Vertical Products – Transport & Traffic Management, Information Hub, ITS...

Smart Station



SMART STATION IS AN IOT SUITE TO MANAGE TERMINAL HUBS, FOCUSED ON SECURITY, DEVICE MANAGEMENT, REMOTE CONTROL, VIDEO MANAGEMENT, POWER MANAGEMENT, SAFETY AND MORE

DISTINCTIVE FEATURES

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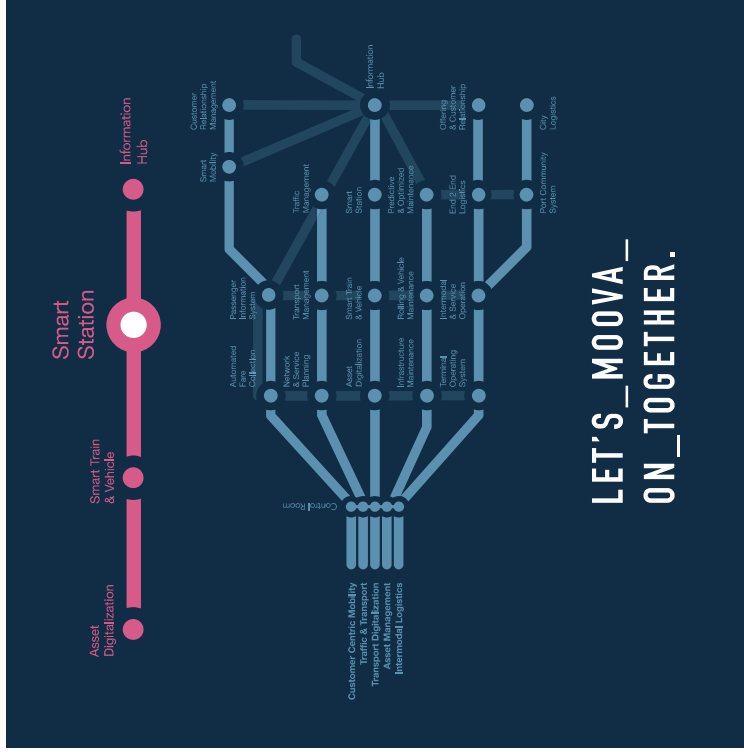
The service is managed effectively with IoT and operational intelligence, correlating information and using advanced algorithms.
- 

Available for each deployment scenario, cloud (public or private), on premise, distributed, centralized, mixed scenarios depending on client's needs.
- 

Designed for Infrastructure Managers, Building Managers and Transport Operators, it provides integrated tools for Terminal Hubs (Airports, Stations, Stops, Interchange Points) to manage equipment and security.
- 

A flexible structure by design, it can gradually increase the number of plants and the complexity of the services managed.
- 

Every aspect of Smart Equipment Management is covered from plant to energy management, from event to security management.



LET'S_MOOVA_ ON_TOGETHER.



A UNIQUE _MODULAR_ SUITE _FOR TERMINAL HUBS

EXTENDED AND EXTENSIBLE

Covering a wide range of plants and a native capacity to develop devices that can be connected according to client's needs.

MODULAR AND INTEGRATED

Integrates all the functionalities in a unique modular suite, adaptable to every single need.

INTEGRATED IOT EDGE

Internally built IoT Edge dedicated to remotely manage no digital ready plants equipments.

REMOTE DIAGNOSTIC

Monitor and control plants from remote control room without need of local supervision. Advanced diagnostics for preventive maintenance. Devices can be engaged and software updated with a centralized console.

ANALYZED DATA

Integrates data analysis by video streams with data from security systems.

COST AND REVENUE MANAGEMENT

Rationalizes energy consumption, adds value to system diagnostics, monitors the activation of services.

COMPLEXITY MANAGEMENT & SCALABILITY

• VMS

Management of an unlimited number of cameras, real-time visualization and recording, simultaneous managements of real-time video streams and video recordings, selection of video cameras directly from planimetric representations system, exporting of encrypted video streams and GDPR compliant.

• VIDEO ANALYSIS

Identification of restricted areas, people counting algorithms, facial recognition, abandoned luggage management, People flow and distance control, crowd control and heat map. Object detection, classification and metadata.

• PLANT MONITORING & CONTROL

Monitors and controls all plant equipment like elevators, escalators, gates, lighting systems, air conditioning, electrical panels, etc. It analyzes consume of water, gas and electricity.



OPERATION SERVICES



TRANSPORT SERVICES



PASSENGERS INFORMATION SYSTEM



TRANSPORT NETWORK



TERMINAL HUB MANAGER



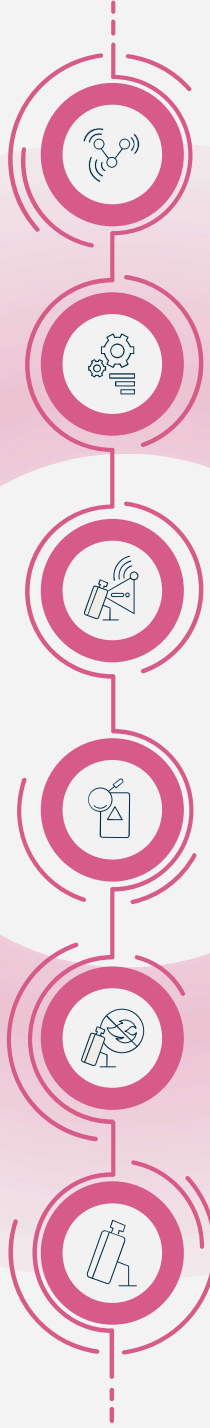
SAFETY SYSTEM



DEVICE MANAGEMENT



INFRASTRUCTURE MANAGER



• PSIM

(Physical Security Information Management) Integrates events from different security devices and video analysis algorithms and connects them thus facilitating safety and security processes.

• DATA CORRELATION

Correlation of events from different sources (video cameras, sensors, etc.). Automatic alarms detection, alerts, event management and reporting.

• PLANT EDGE EQUIPMENT

This equipment allows you to monitor and control remote devices that are not digitally prepared. The modularity of the possible connections and the customize of software on board allows the interface with multiple devices with minimal impact. Maximum flexibility for the implementation of specific control algorithms on board.