



SANTANA – Service and Data Network Port of Hamburg

Information about SANTANA project
Digital test fields in ports funded by
Federal Ministry for Digital and Transport



DAKOSY

Funded by:



Federal Ministry
for Digital
and Transport



**Digitale
Testfelder
in Häfen**

on the basis of a decision
by the German Bundestag



DOCK ELBE 17

1. Project Partners

Project partners

Joint project partners:



DAKOSY

Associated partners:



Supporting partner:



Hamburg Port Authority (HPA)

Core activities :

- Water-and landside infrastructure
- Safety and ease of shipping
- Port rail facilities
- Property management
- Public authority tasks within the port as well as port management services



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HPA – Facts and figures



Approx. 800 calls by vessels from a length of 330m and/or a beam of 45m



Approx. 43km of quay walls



About 280 berths for seagoing vessels



Germany's third largest inland port



Roughly 120 bridges



More than 200 freight trains move over 5,500 wagons every day



Europe's third largest seaport

Total cargo throughput from over 126 million tonnes



Flotte GmbH
Approx. 50 ships



Inland Vessel movements about 11,000



Europe's largest port rail hub about 300km of rail tracks



Over 170 railway undertakings



About 7,000ha of port area



Cruise Gate Hamburg
3 cruise terminals

More than 140 km of public roads



Some 1,800 employees



Last updated in 2021

DAKOSY

Datenkommunikationssystem AG

Core activities:

- PCS (Port Community System) for sea- and airports
- System provider for
 - Customs software
 - Supply Chain Management
 - Haulage software
 - Intermodal software
- Data center operator



DAKOSY – Facts and figures



Founded by
Hamburger Seehafenverkehrswirtschaft in 1982
(Port transport economics)



Employees

- Hamburg (> 200)
- Bremen with CargoSoft (> 80)



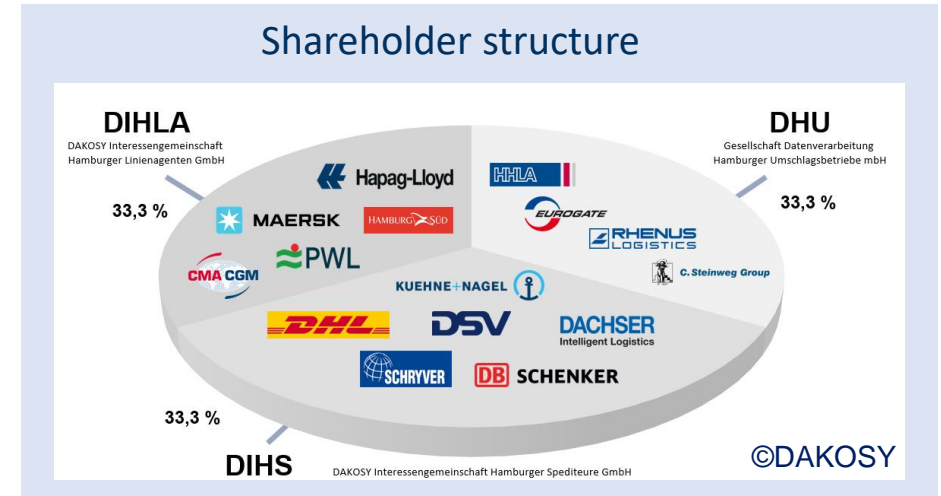
Own data centres at two locations in Germany
with 24/7 operation and support



Communication volume of more than 1.4 billion messages per month



Network of 3,000 customers – shippers, consignees, haulers, customs declarants, intermodal service providers (rail, truck and barge), container terminals and depots, brokers and carriers, airlines and handling agents as well as customs, water police and other authorities



Contact persons



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Project Directorate SANTANA



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Project Directorate SANTANA



Benjamin Sarpong
Product and Business Manager, HPA
Project Management Office (PMO)

A blue and white wheelchair accessibility sign is mounted on a blue signpost. The sign features a white silhouette of a person in a wheelchair on a blue background. The signpost is positioned in front of a blurred background of autumn foliage in shades of yellow, green, and brown. A dark grey semi-transparent banner is overlaid at the bottom of the image, containing the section header text.

2. Basic Information about SANTANA

SANTANA – Service and Data Network Port of Hamburg

The „Network of Networks“ as an Ecosystem for Data Sharing and Data Services in the Port of Hamburg



Project goal:

Efficiency improvement through enhanced connectivity between logistic and port infrastructure



Added value for the port:

Synergies in process control through linking private-sector logistics and public-sector infrastructure and traffic management



Project duration:

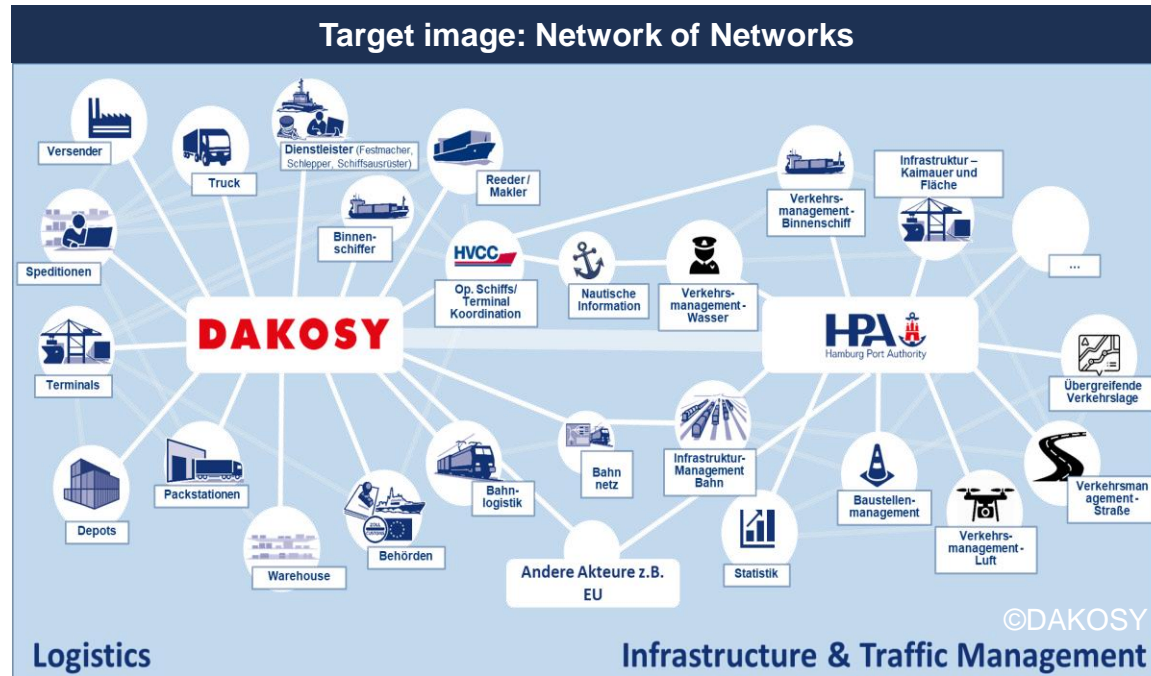
01.01.2022 – 30.06.2024
(30 months)



Project budget:

Total budget: ca. 15 M. €
HPA: ca. 13 M. € / DAKOSY ca. 1.7 M. €
80% Funding quote

Superior objective



Establishment of a „Network of Networks“ between the private sector logistics network and the public traffic and infrastructure management network with the aim of further optimizing process control along the supply and transport chains in the port of Hamburg.

Further project objectives



1. Open architecture model as a test field for data sharing in the port



2. Increasing the interoperability of existing data domains

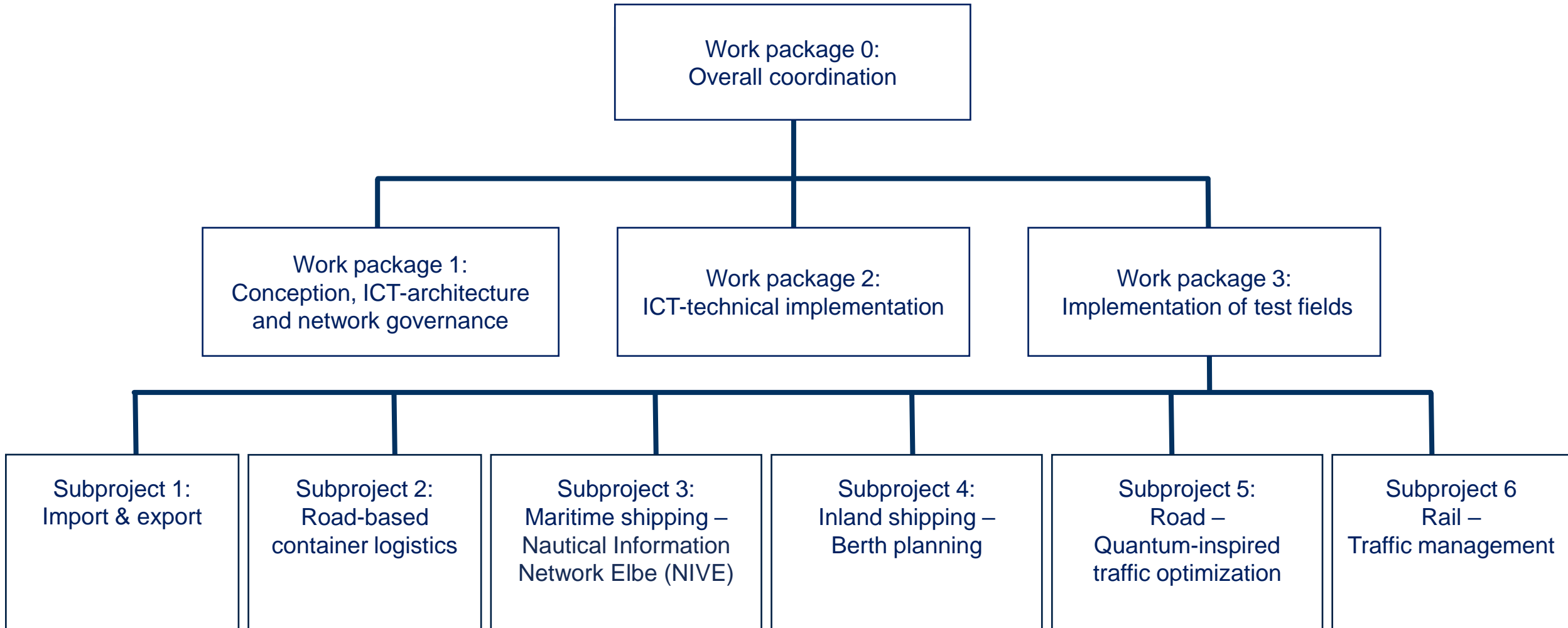


3. Increasing the data basis for intermodal real-time evaluation and control



4. Development of several data services

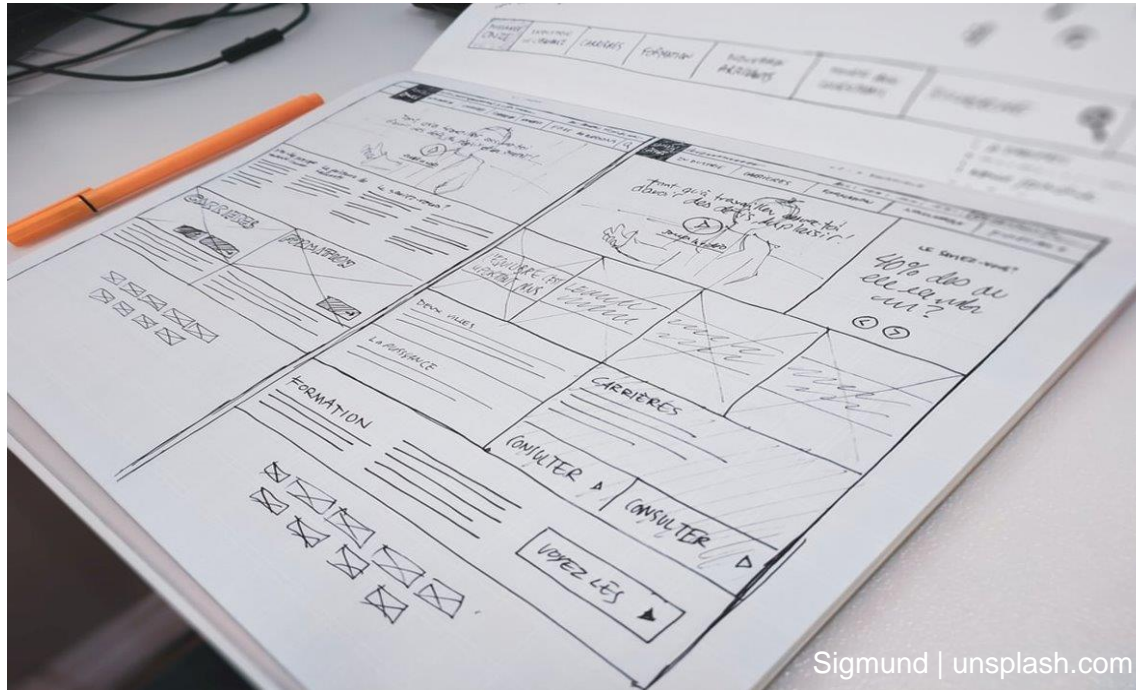
Overview of the work packages and digitalization measures





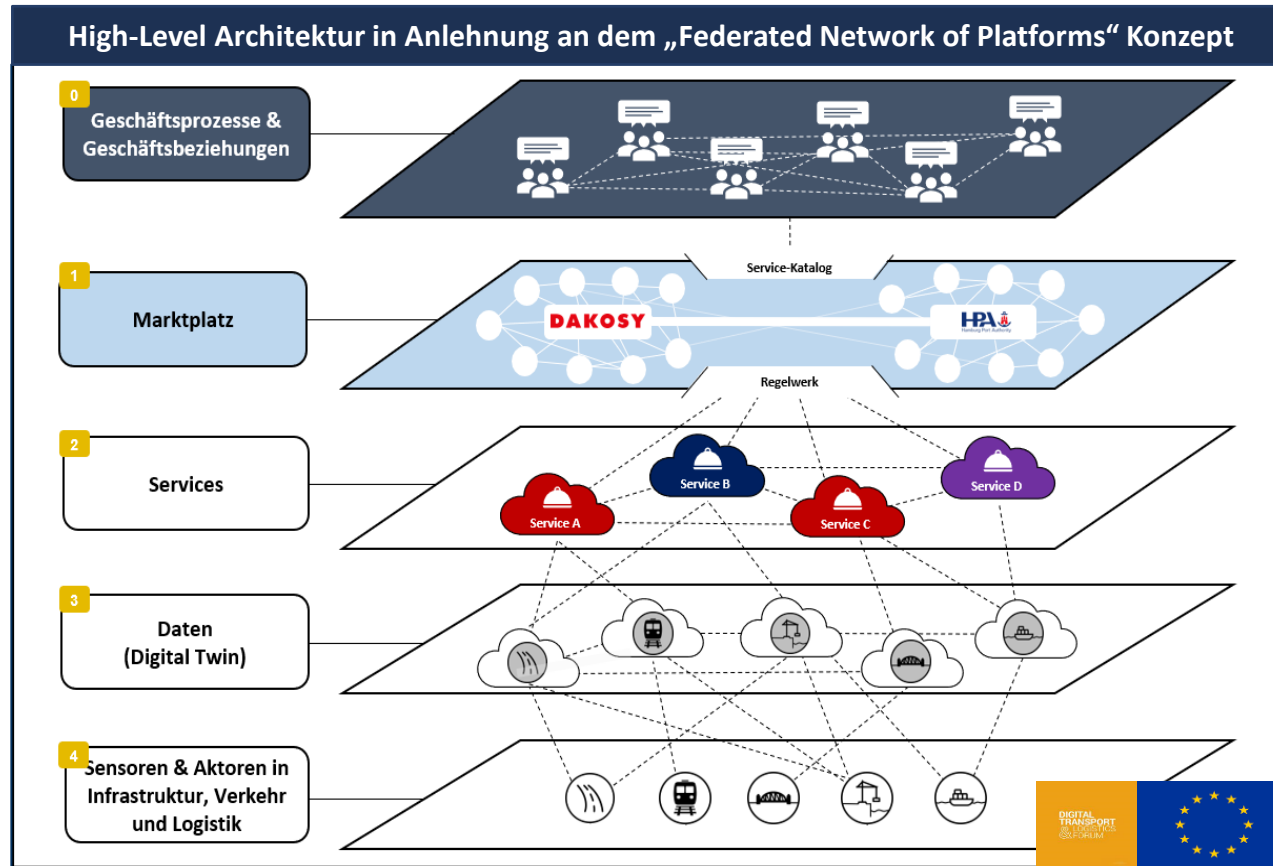
3. SANTANA Digitalization Measures

WP0 – Overall coordination and program management



- Overall administrative and technical coordination of the operation by the Project Management Office (PMO)
- PMO as first point of contact for inquiries regarding the overall SANTANA project

WP1 – Conception, ICT-architecture and network governance



- A test field architecture is designed along the levels of data collection, processing*, preparation, and delivery
- Data is further developed into services starting from level 4 and provided to port stakeholders on the common marketplace
- EU Digital Transport & Logistics Forum (DTLF) EU as conceptual origin: Federated Network of Platforms

*Anonymized and aggregated

WP2 – ICT-technical implementation



- Provision of a technical platform as a marketplace for data products
- Linking of different services and data products
- Provision of ICT-Security services



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WP3 – Subproject 1: Import and export

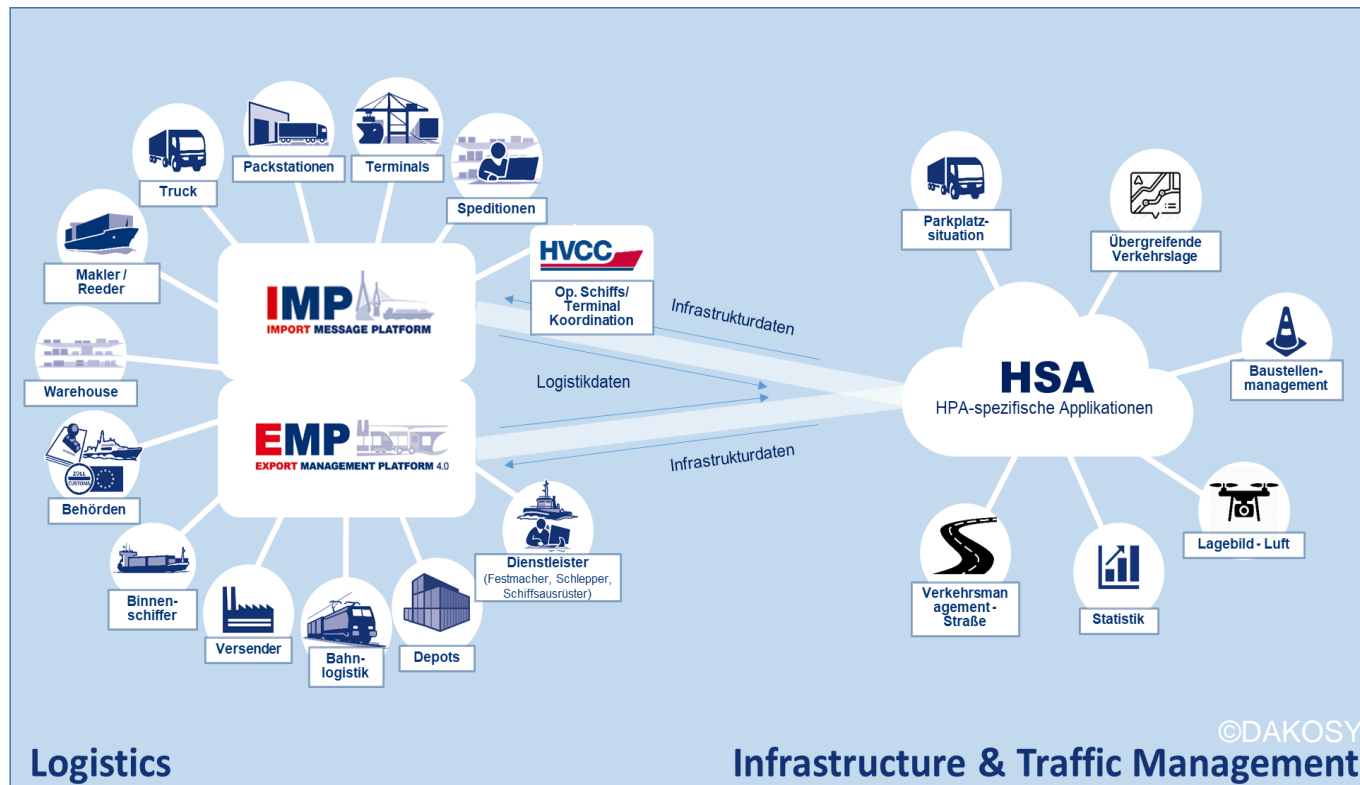
Objectives:

- The logistics sector's database on planned and current transport processes - import and export - is to be improved. To this end, data and "missing links" will be identified and a digitalized exchange with the infrastructure sector will be advanced.

Added Value:

- An optimized database boosts efficiency
- Transparency not only for the logistics sector but also for the infrastructure sector improves the planning foundations
- Efficiency and transparency are important competitive factors for the port as a unit

WP3 – Subproject 1: Import & export



- Integration of **infrastructure and port-traffic data** into the import and export management platforms
- **Provision of logistics sector planning data as well as updates and status data** to the traffic and infrastructure sector



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WP3 – Subproject 2: Road-based container logistics

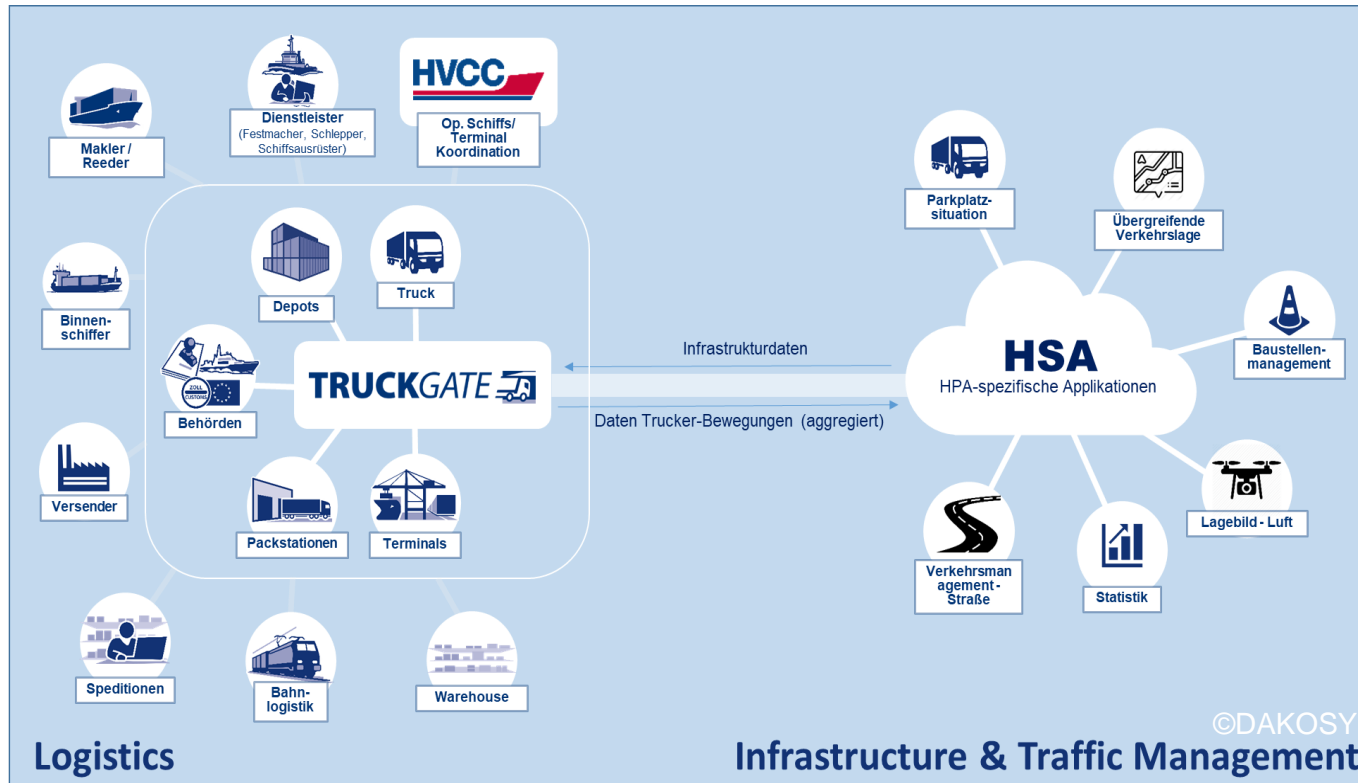
Objectives:

- The existing network for the transport mode road with hubs (terminals) in the port is to be expanded, so that further points of contact (authorities, parking lots) for the transport modality become more predictable
- Establishment of data sharing with the traffic management sector for targeted measures of the public sector.

Added Value:

- Improved route planning through e.g., slot booking at hubs (terminals, depots, parking lots, etc.) and targeted measures (traffic light and lift bridge control) reduce traffic and CO₂ emissions
- The port can perform in terms of efficiency, transparency and predictability

WP3 – Subproject 2: Road-based container logistics



- Obtain information from the infrastructure sector regarding construction sites, traffic information in the port, parking situation
- Provision of **plan data** and actual information on truck movements, i.e. on the **usage of specific sectors of the infrastructure** for an active traffic management
- **Optimization of the tour planning** of the transport companies and status updates



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WP3 – Subproject 3: Maritime shipping – Nautical Information Network Elbe (NIVE)

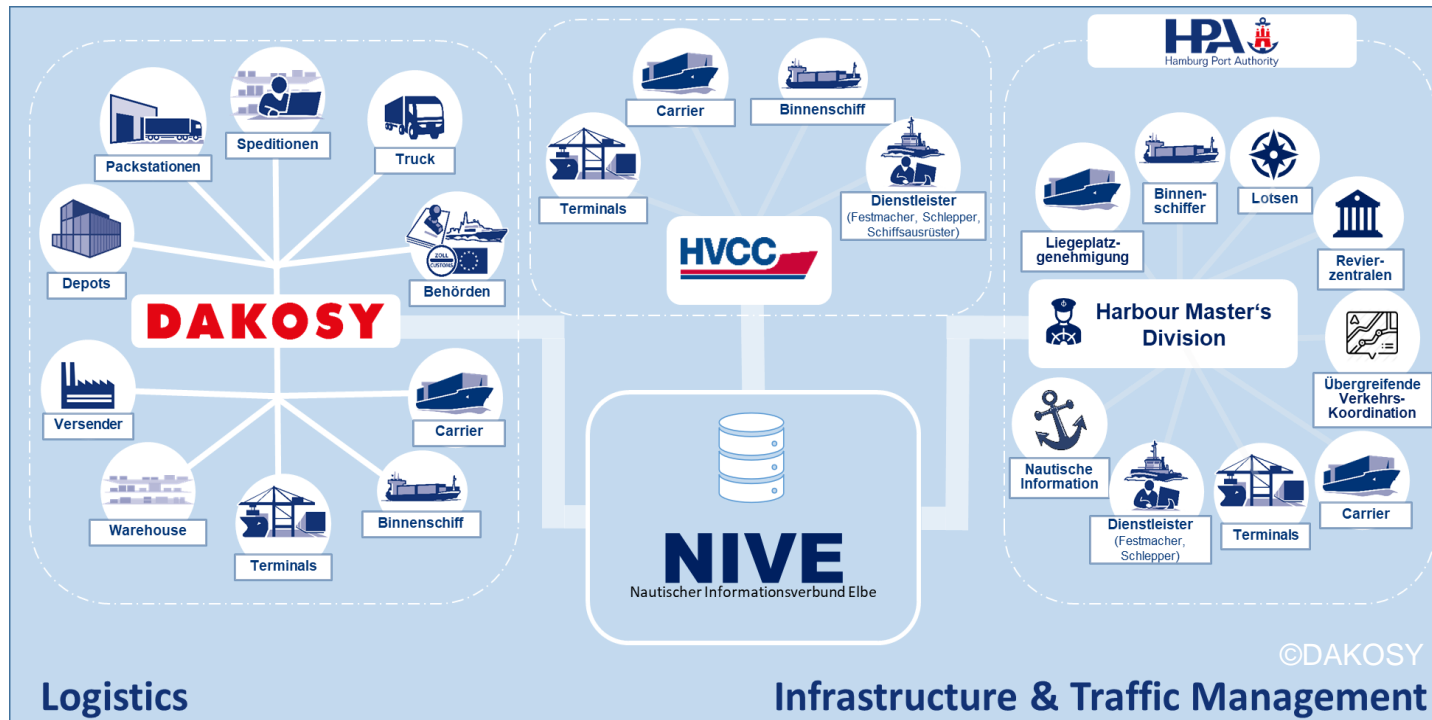
Objectives:

- Development of an information platform for the sharing of data between port stakeholders
- Creating a holistic situation overview of the inflow and outflow control of maritime vessels

Added Value:

- Ensuring just-in-time arrivals and departures of seagoing vessels
- Reduced emissions of pollutants from ships through adapted speeds

WP3 – Subproject 3: Maritime shipping – Nautical Information Network Elbe (NIVE)



- Access to all information **relevant from planning to execution aggregated** for authorized stakeholders, according to their role
- Online berth registration
- Realization of a central **technical data platform for ship arrivals (NIVE)**



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WP3 – Subproject 4: Inland shipping – Berth planning

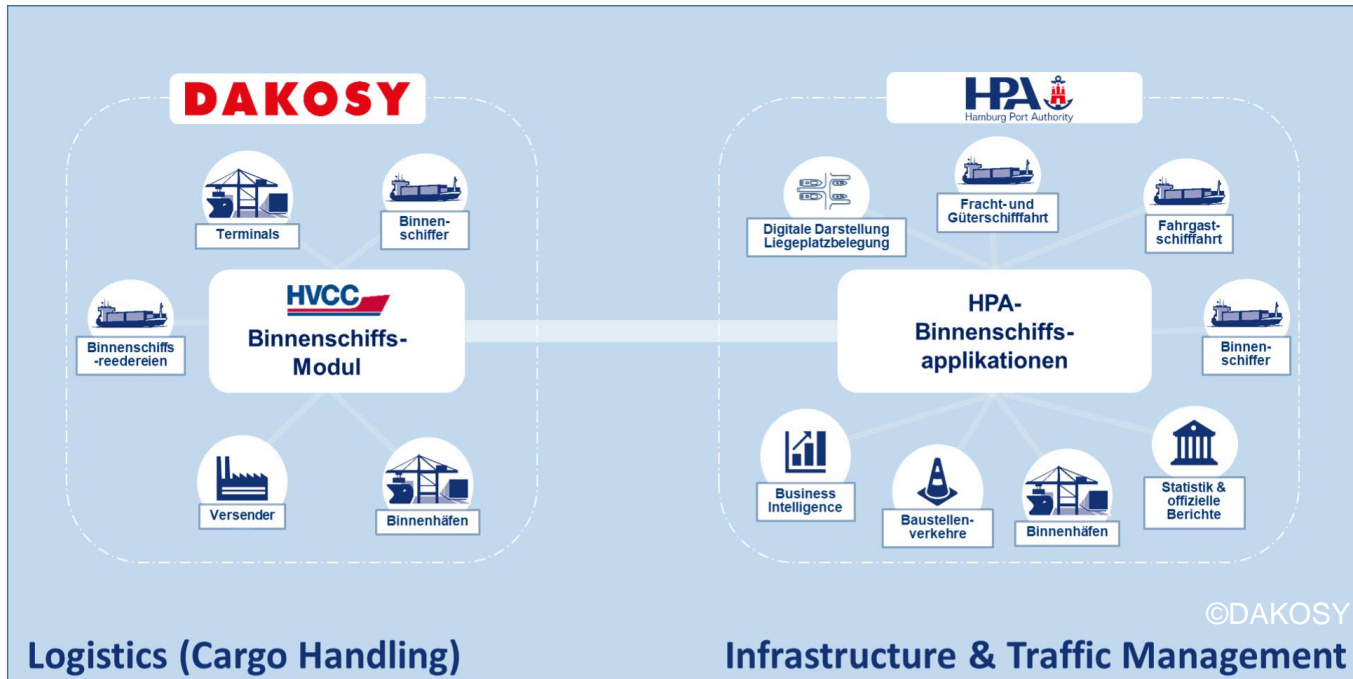
Objectives:

- Development of BI-applications for inland vessel data on cargo handling and traffic
- Increased radar coverage through compact systems
- Development of an evaluation tool for the display of berth utilization

Added Value:

- Obtaining data for strategic infrastructure planning
- Reduction of avoidable traffic movements (parking search traffic)

WP3 – Subproject 4: Inland shipping – Berth planning



- **Digital display** of the availability status of the **waiting berths** operated by the HPA for inland vessels
- **HPA application with interface** to HVCC inland vessel application



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WP3 – Subproject 5: Road – Quantum-inspired traffic optimization

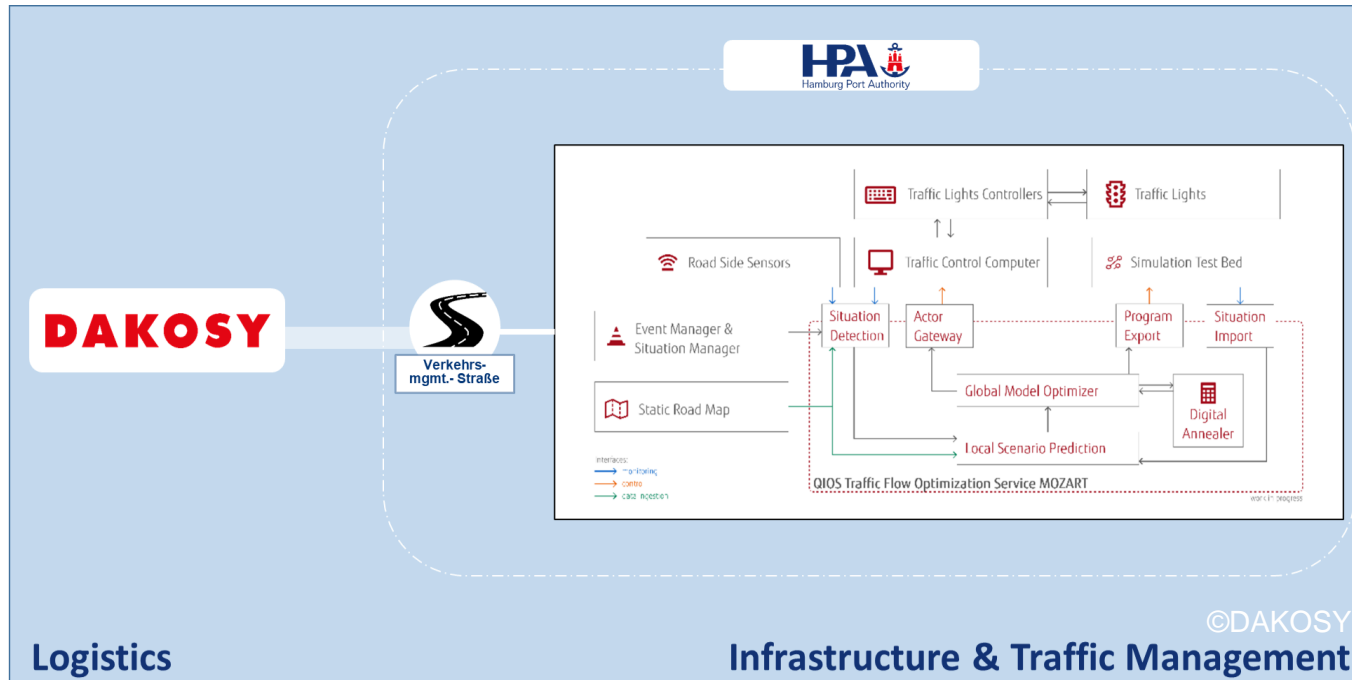
Objectives:

- Increase capacity of existing network
- Reduce emissions
- Create transparency through an enhanced data basis for planning and management measures

Added Value:

- Reduction of waiting times in port traffic
- Provision of a real-time traffic situation
- Increasing the plannability in port logistics

WP3 – Subproject 5: Road – Quantum-inspired traffic optimization



- Interplay of quantum-inspired "digital annealer" technology, a connected port traffic model and adapted road traffic technology
- Overall network consideration and **network-wide coordinated traffic light control** to steady traffic flow in the port



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WP3 – Subproject 6: Rail – Traffic management

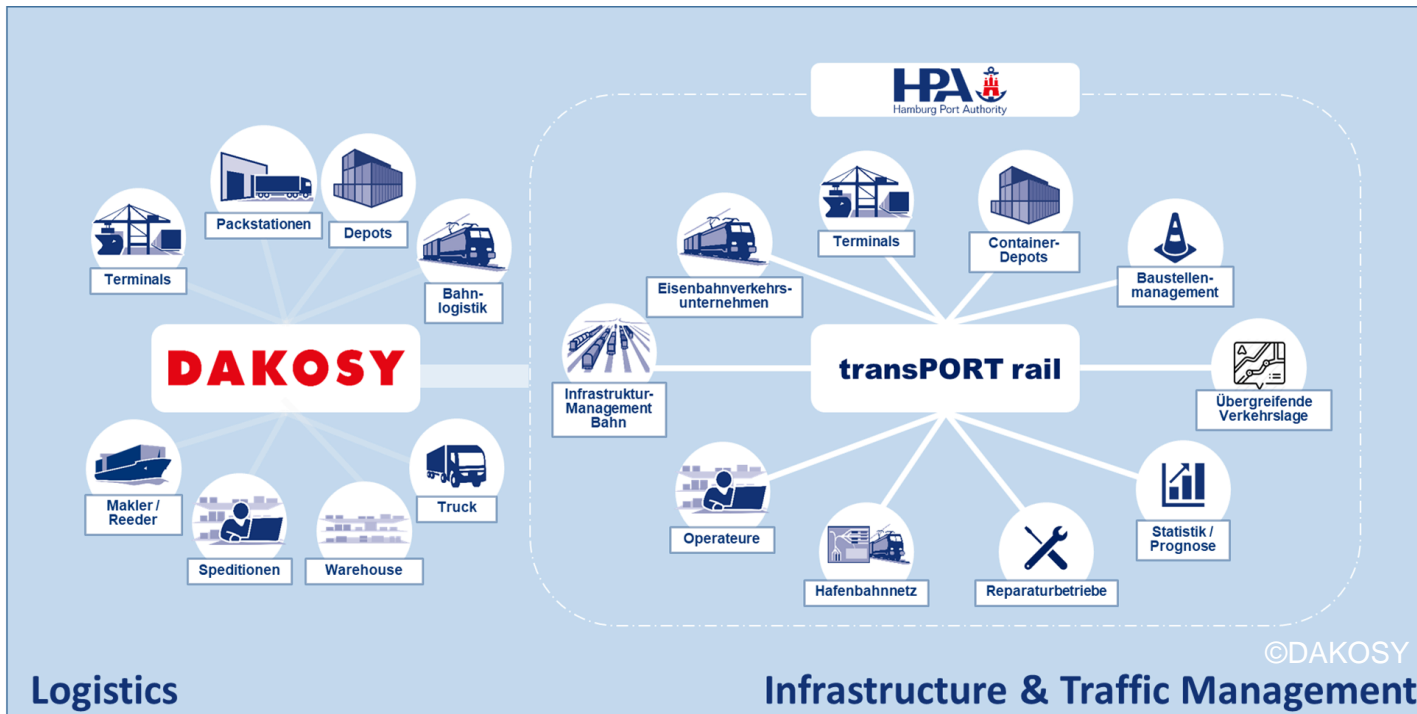
Objectives:

- Optimization of resource utilization in rail freight transport
- Reduction of production costs for infrastructure managers
- Provision of an interruption-free rail traffic management system

Added Value:

- Uninterrupted maintenance while retaining all functional properties
- Use of a safety-compliant and future-proof system

WP3 – Subproject 6: Rail – Traffic management



- Further development of the **rail traffic management system**
- By using a **flexible service architecture**, the sharing of data and functions with other port systems is facilitated and the use of highly available ICT services and business functionalities is enabled.

THANK YOU

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