Digital Transportation

For Improved Safety, Mobility, and Efficiency

Kyle Connor

Transportation Business Development Manager

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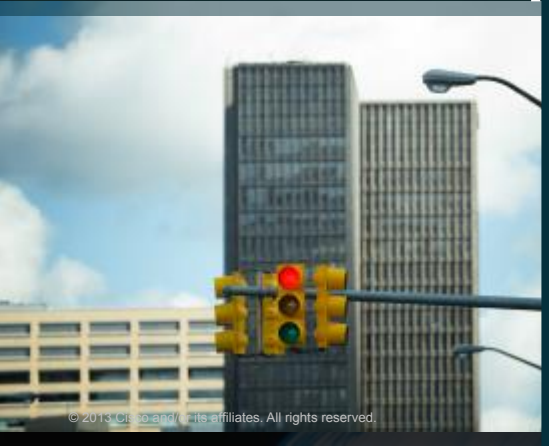
Why Going “Digital” is Important For Transportation Now



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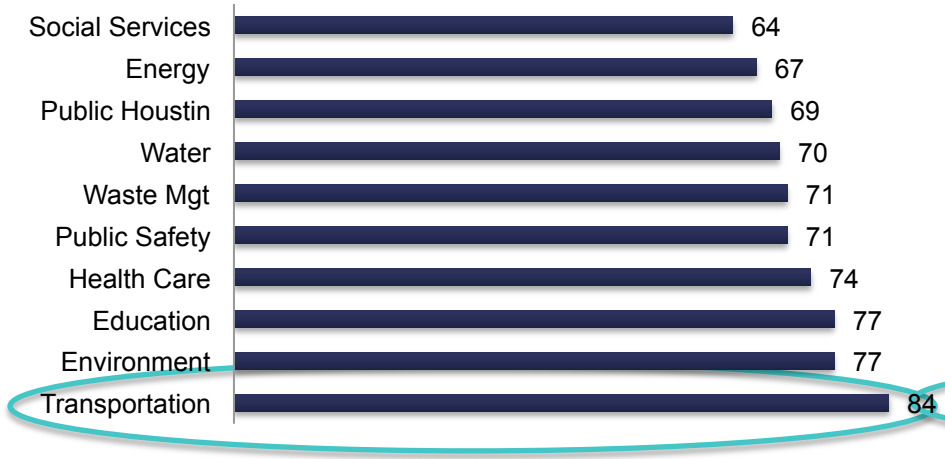
Transportation: The Top Priority for Cities

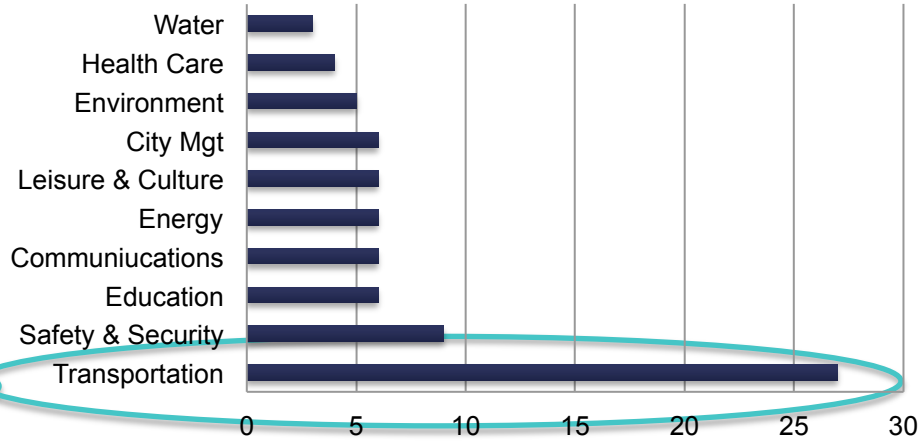
Need for investment over the next 5-10 years by infrastructure area

Infrastructure area most important in attracting economic investment

Needing Investment



Attracks Economic Investment



Survey of public & private sector stakeholders across world's top 25 cities

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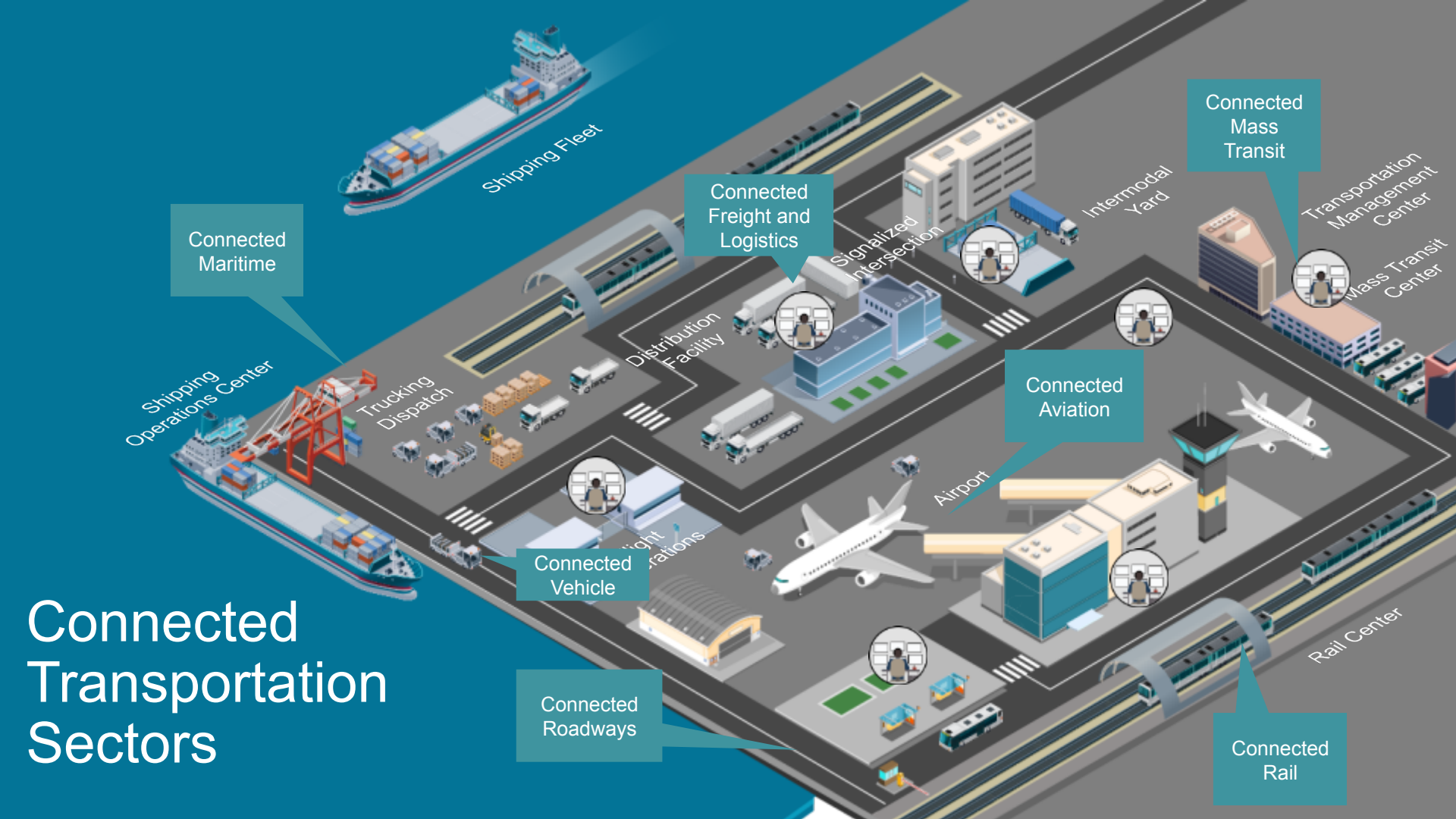

Connected Transportation Sectors
Connected Maritime
Shipping Fleet
Shipping Operations Center
Trucking Dispatch
Connected Freight and Logistics
Distribution Facility
Signalized Intersection
Intermodal Yard
Connected Mass Transit
Transportation Management Center
Mass Transit Center
Connected Aviation
Airport
Connected Vehicle
Connected Roadways
Rail Center
Connected Rail

BLUE MARLIN

Connected Maritime
Business Outcomes Summary

Operational Efficiency

Asset Tracking
Improved Throughput

Safety/Security

Physical and Cyber Security
for passengers and cargo

Converging safety, data,
video and wireless

Lower TCO

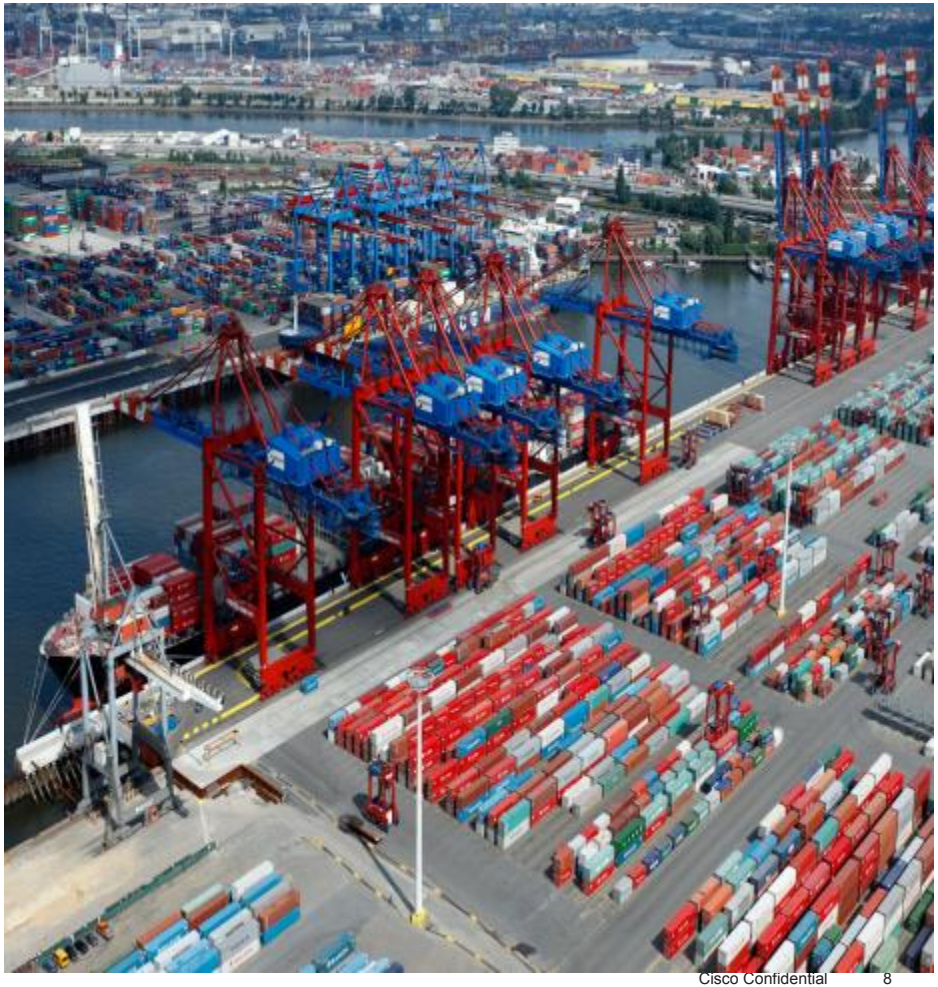
Case Study: Hamburg Port Authority (HPA)

PORT OF THE FUTURE

SmartPORT Hamburg
IT and Research

Port of Hamburg

- One of the largest ports in Europe
  Over 140 million tons total turnover per year
- Biggest railway port in Europe
  200 freight trains with 5000 wagons per day
- 1900 employees
- 10000 ships per year
- Connected to 900 harbors in 174 countries around the globe
- Strong growth in cruise ship tourism



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VISION: Connectivity from ELBE 1 to Hamburg Harbor

6 hour journey

- RFID Container Tracking
- Wifi/Wired Internet for Passengers/Crews
- Facility Reservations
- Safety Measures for Hazardous Materials
- Improved Pre-Arrangement
- Traffic Management (Road, Rail, Water)
- Converged Network (Operational, IT, Safety/ Security, etc)
- Two-Way voice communications

HPA Hamburg Port Authority

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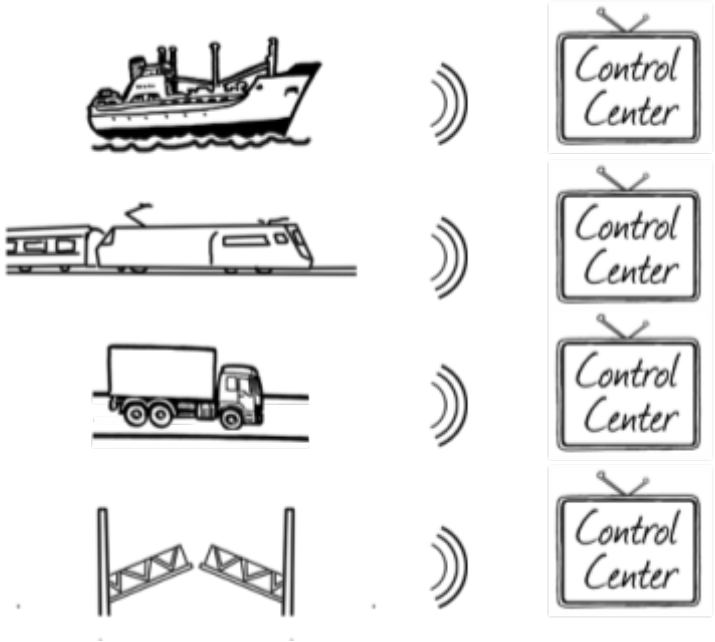
Traffic Management: Legacy Issue

- 4 isolated control centers for
  - River
  - Railways
  - Roads
  - movable infrastructure
- About 300 traffic sensors
- 270 km of fiber optics
- First Hot Spots (WiFi)



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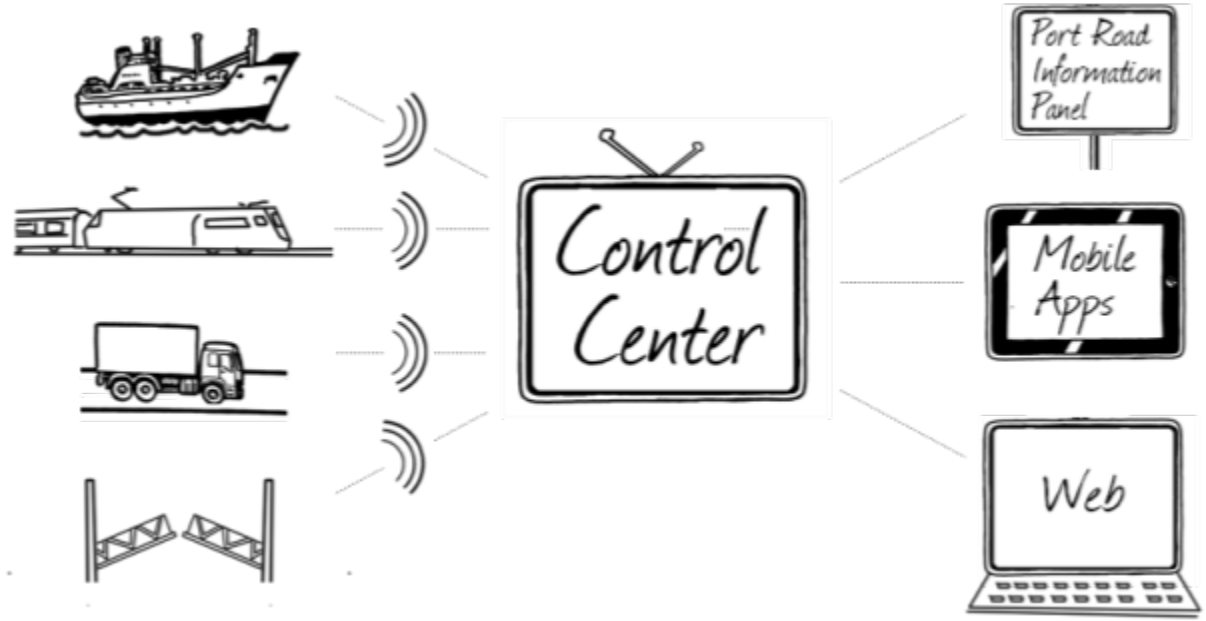
Traffic Management: Deployed Port Traffic Center



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Traffic Management: Internet of Things

Integration: Traffic and Infrastructure Management

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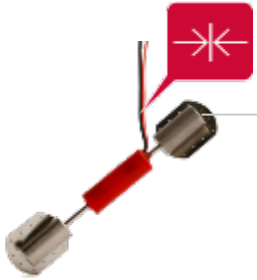
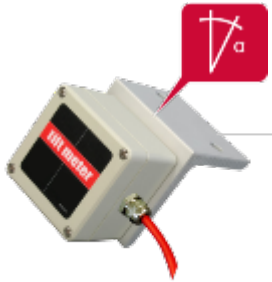
ENVIRONMENT & STRUCTURAL MONITORING



Structural: strain gauges

Measuring the strain and stress on structural steel members.



Structural: tiltmeters

Settlements and relative displacements, tilt of piers and abutments.

Structural: accelerometers

Vibration and dynamic responses due to seismic, wind and traffic loads.

Environment: air quality

Pollution level: NO, NO2, SO2, CO and PM10.

Environment: weather

Rainfall, relative humidity, air temperature, wind speed/direction.

SENSORS FOR ALL APPLICATIONS

WORLD SENSING

Play
Video

Summary

- Improved safety and security
- Greater operational efficiencies
- Enhanced passenger experience
- Converged networks (30% reduction)
- Reduces traffic congestion 15%
- Better asset/vehicle management
- Server Virtualization (240 to 48)
- Regulatory compliance

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