

Digitalization

The Future of Maritime

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“Study the past if you would define the future”

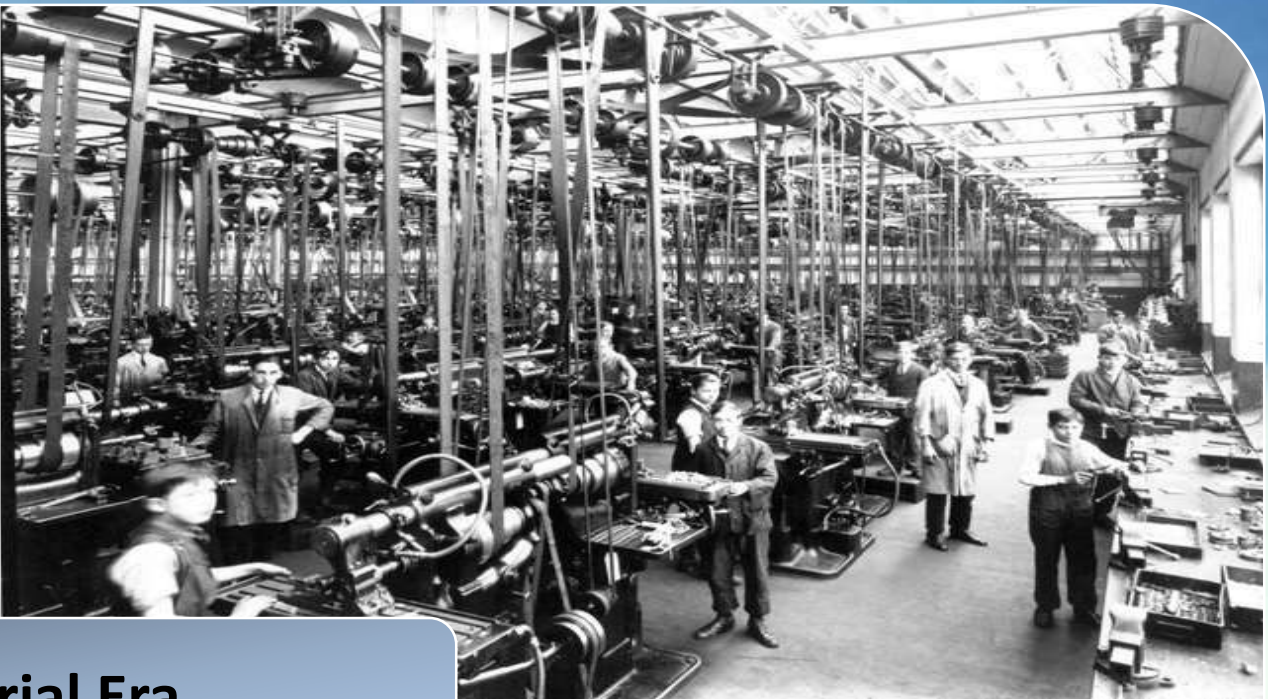
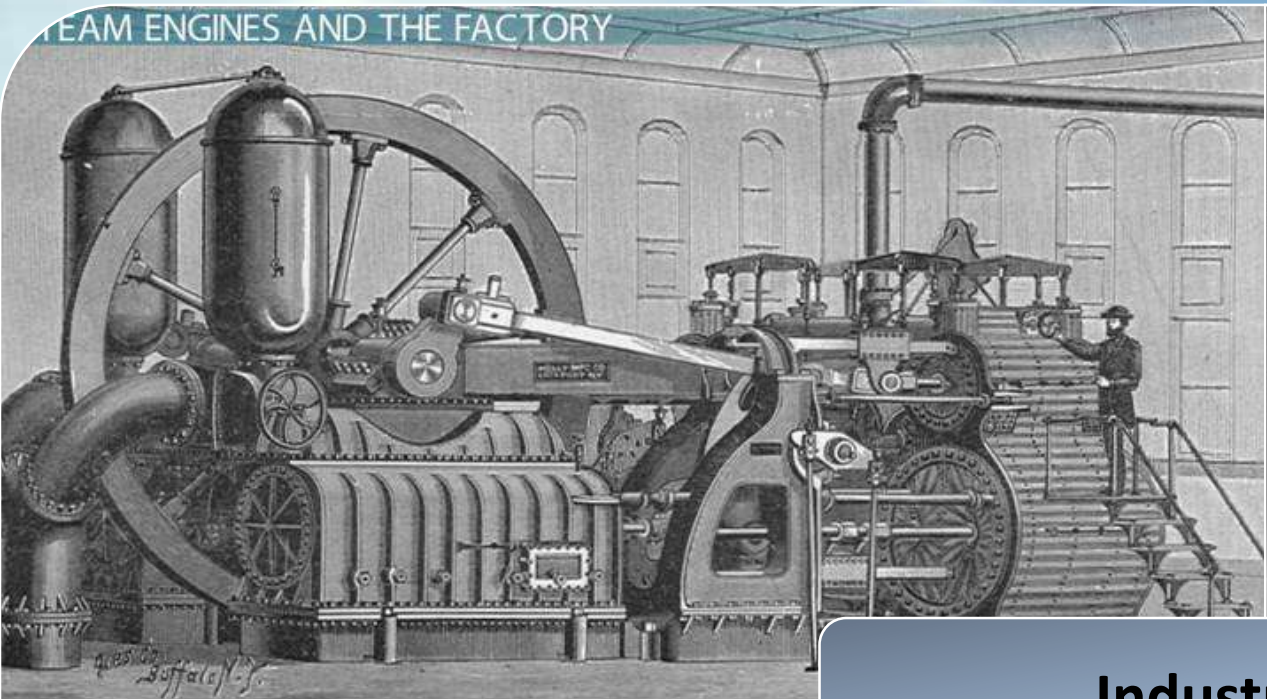
Confucius



Agricultural Era



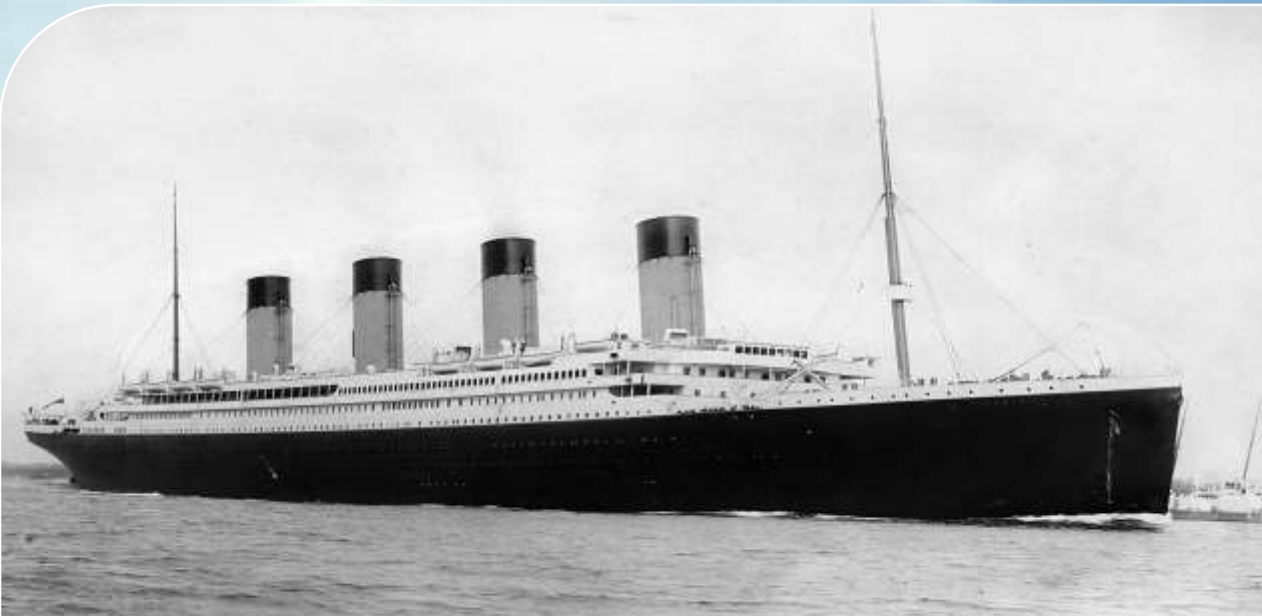
STEAM ENGINES AND THE FACTORY



Industrial Era



ENGINE CONSTRUCTION ROOM AND APPARATUS FOR TESTING HYDRAULIC CYLINDERS.

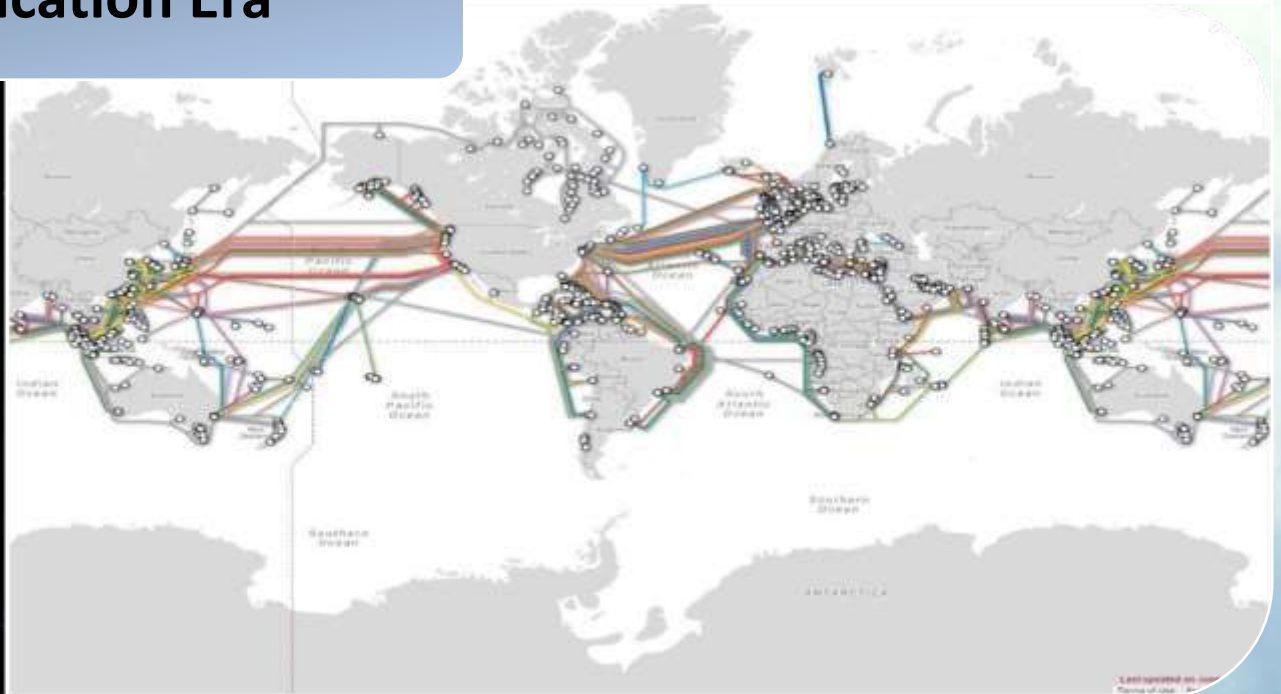


Transportation Era





Communication Era





Service Era



A bright sun in a blue sky with white clouds and lens flare effects.

What is Next?



Digitalization Era



One Minute of Internet in 2020





Digitalization Tools

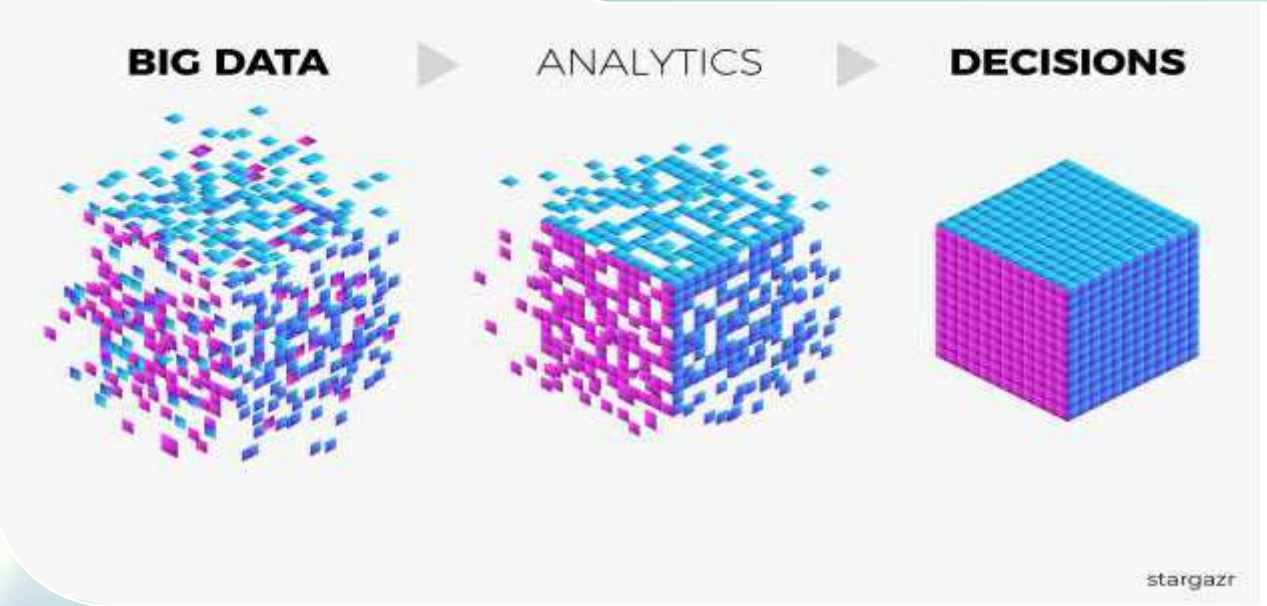


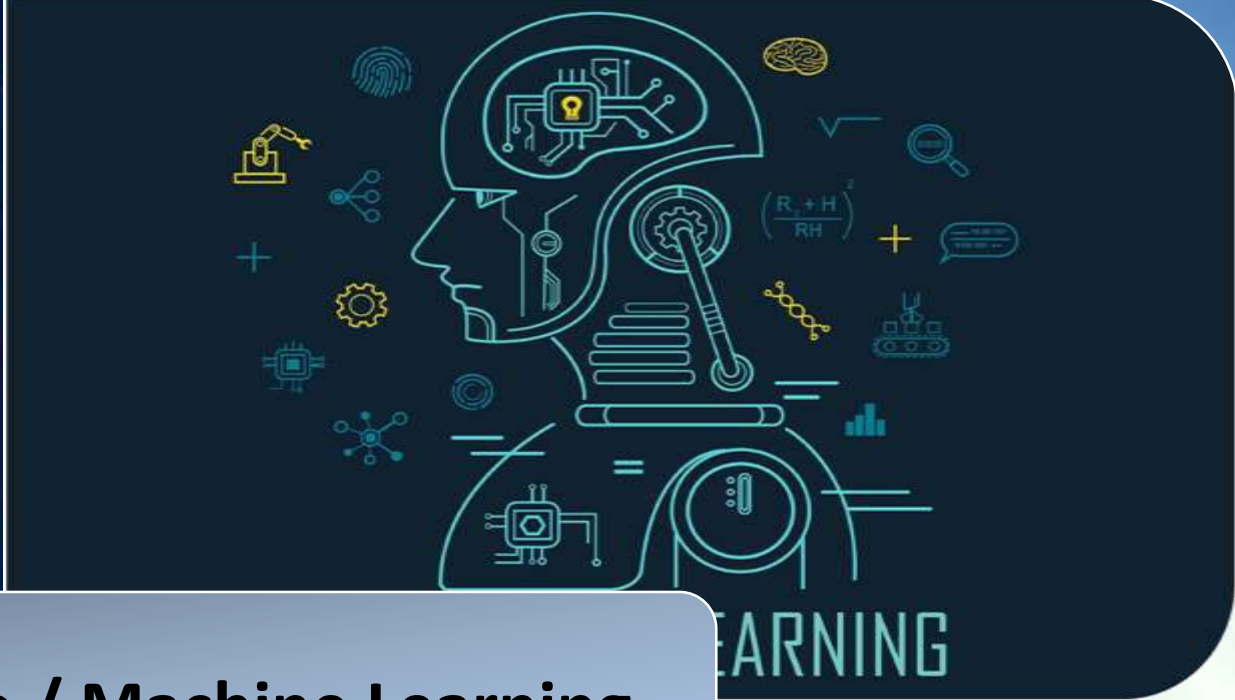
Internet of Things (IoT)





Big Data, Data Science and Data Analytics





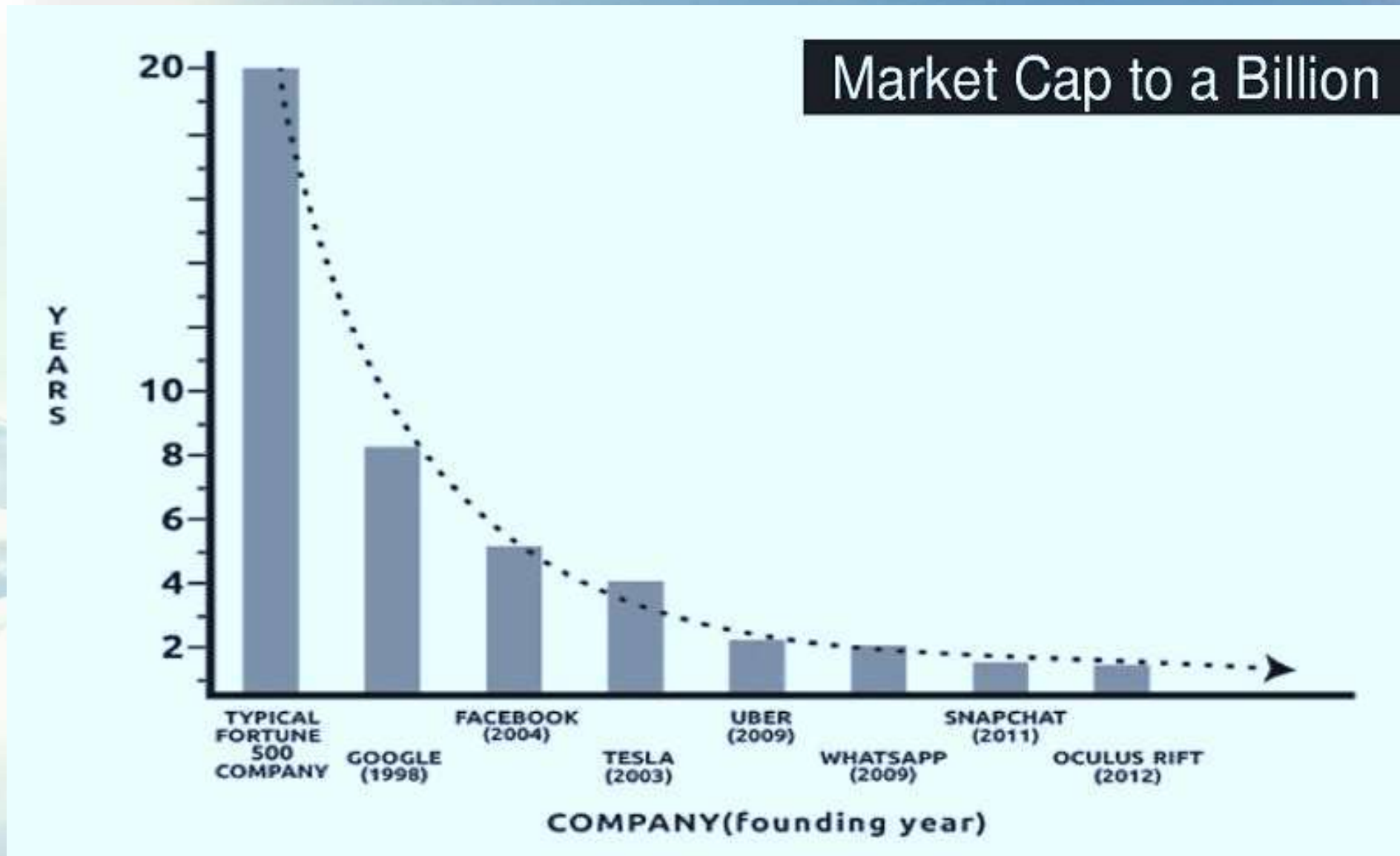
Artificial Intelligence / Machine Learning





Business Impact

Time to 1st Billion \$



Business Model

- Depend on **number** of customers that depend on **reachability** of the service.
- Example: Uber has 75M user, if average revenue per user 150\$/year.

Total revenue is 11.25 B\$



Hamburg Smart Port Project



Hamburg Port

Overview

- The Port of Hamburg is the third largest port in Europe and ranked 18 worldwide in 2020
- Manages over 7,200 hectares of physical infrastructure
- 1,900 employees
- 10,000 ships per year and manages 140 million tons cargo per year
- Connected to 900 harbours in 174 countries around the globe
- Strong growth in cruise ship tourism

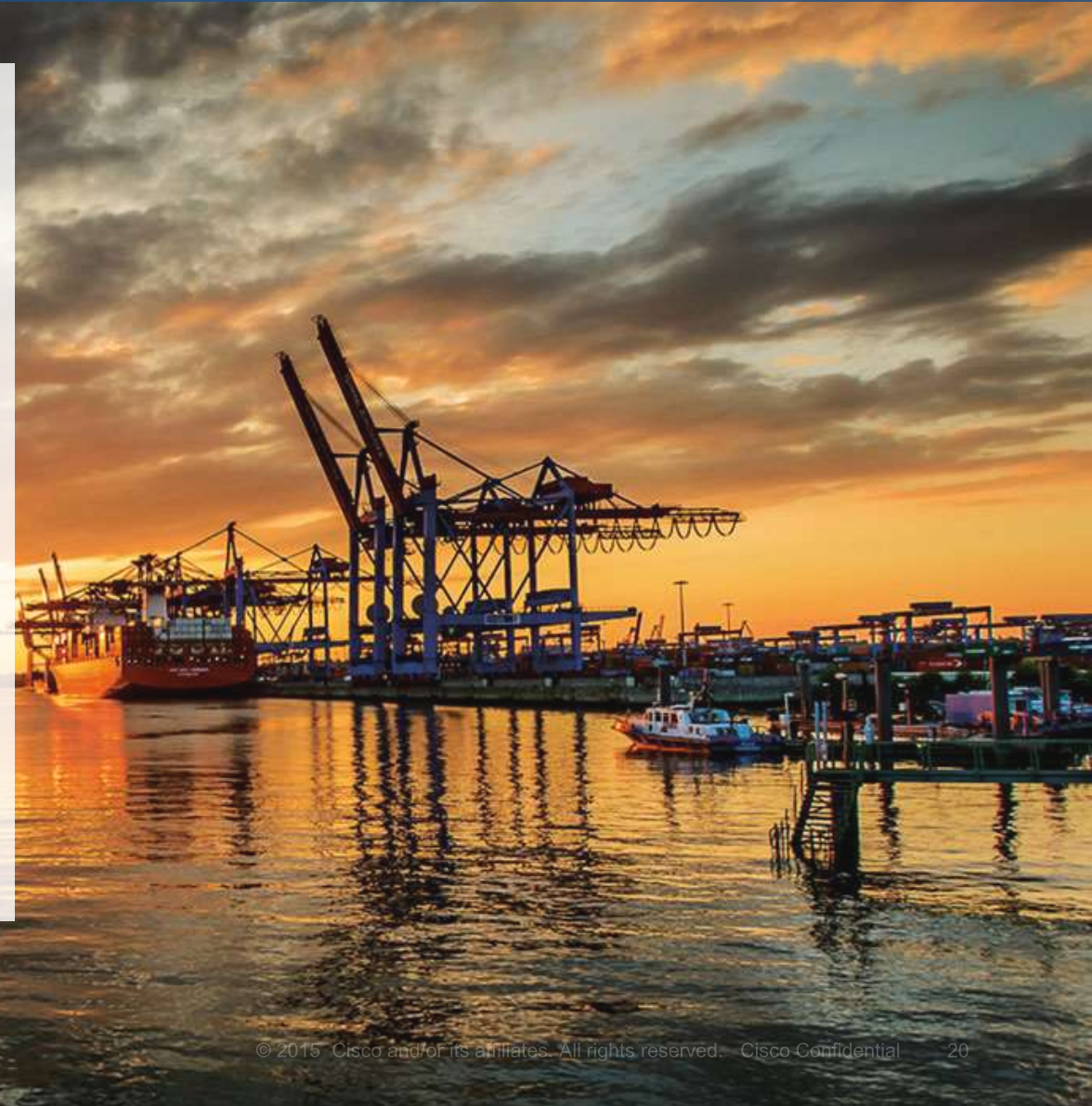
Key Challenges

- The ports inability to expand geographically
- Increasing transport demands from Hamburg hub
- The need to efficiently utilize capacity
- The need to increasingly connect people, processes, data and things to drive efficiency

Hamburg Port overview – smartROAD

A demonstration of the technological capabilities for improving port management

- **Traffic Management:** To help monitor road traffic. Automated incident detection allowing coordination other authorities as required.
- **Structural Sensors:** Provide real time data on moveable infrastructure such as the Kattwyk Hub-Bridge.
- **Environmental Sensors** deliver environmental data to improve analysis of the environmental situation.
- **Smart Sensors** enhance the safety of pedestrians and cyclists in the port using 'Follow me lighting'.
- **Analytics & Prediction** information from the pilot project enabling Hamburg Port Authority (HPA) to deliver an improved quality of life, work and natural environment in the port.

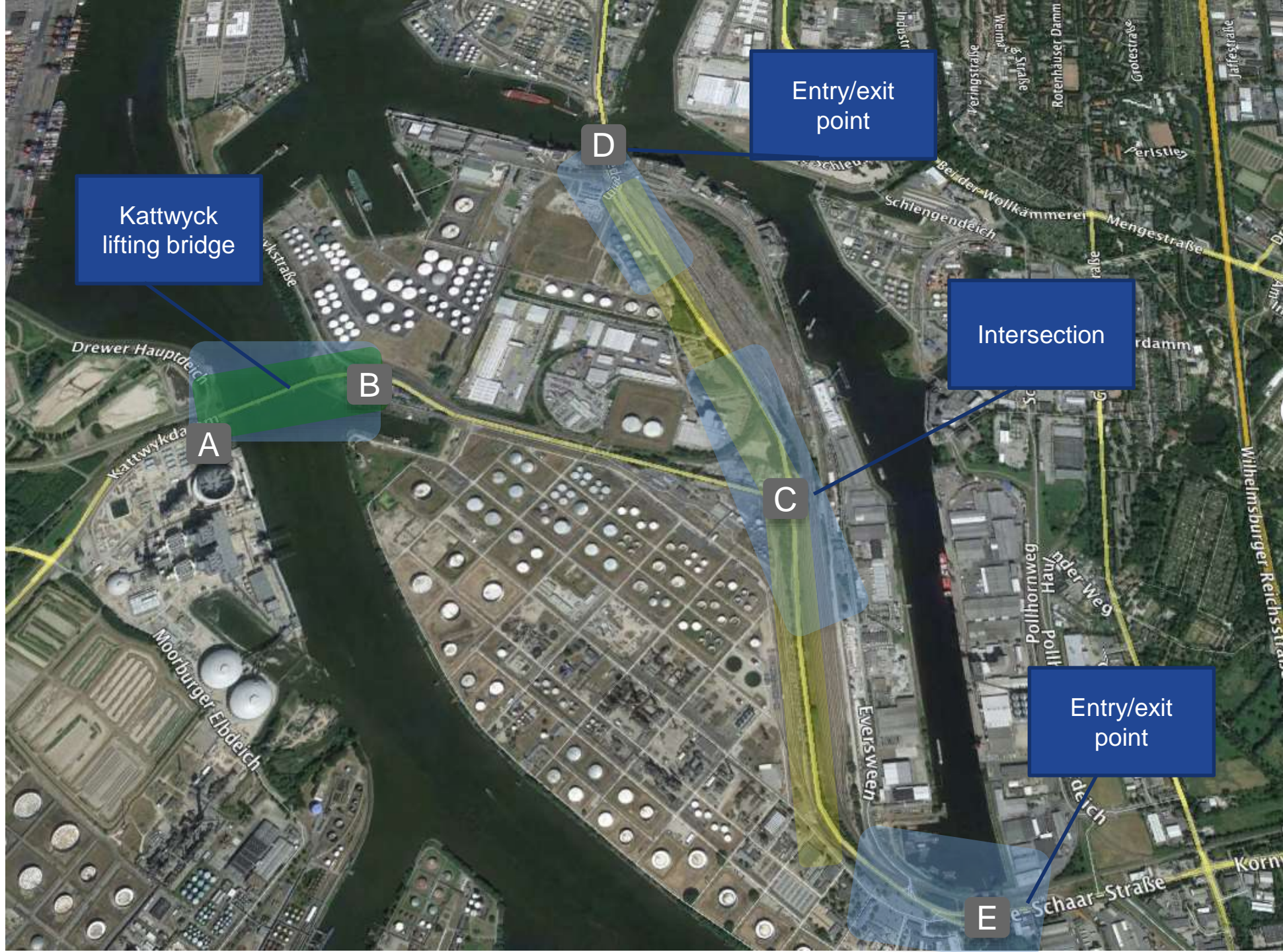


Hamburg Port Water Environment Control

A demonstration of the technological capabilities for improving port environment control

- **Environmental Sensors** deliver environmental data inside each part of the port. Under water sensors connected to the cameras so if a pollution is found the sensors tell the cameras of this block and the cameras photo the leak of the ship and even send the fine to the ship without any human interfere.





Smart Road Location



Traffic et Incident Monitoring/Detection/Wifi



Environment Structure Sensing



Smart Lighting



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ENVIRONMENT & STRUCTURAL MONITORING

IT'S NOT ANY MORE

THE BIG AGAINST THE SMALL



THE FAST AGAINST THE SLOW



Thank you