ASECAP DAYS
ISTANBUL 2023

Celebrating 50 YEARS OF Successful TOLL ROAD PROJECTS

INTEGRATING RESILIENCE INTO HIGHWAY ASSET MANAGEMENT: THE DATA-DRIVEN APPROACH OF AUTOSTRADE PER L'ITALIA

Emiliano Di Marino

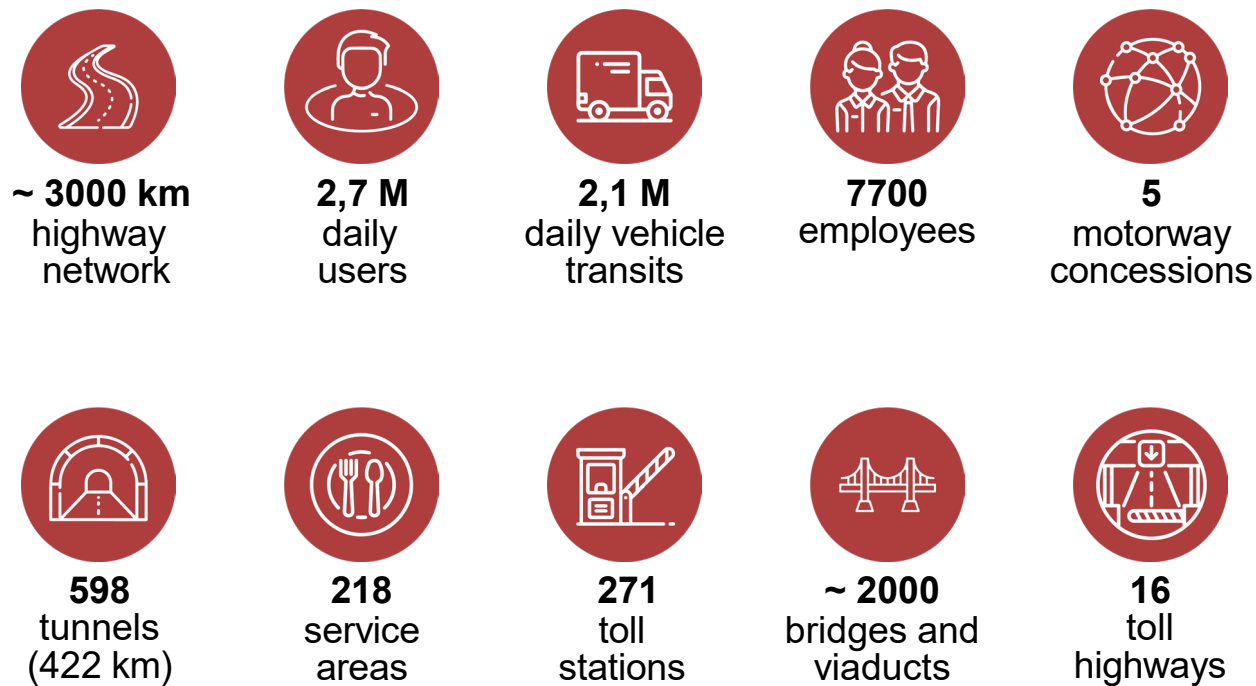emiliano.dimarino@autostrade.it

Autostrade per l'italia

Hosted by

ICA
YAVUZ SULTAN SELİM BRIDGE
AND
NORTHERN RING MOTORWAY

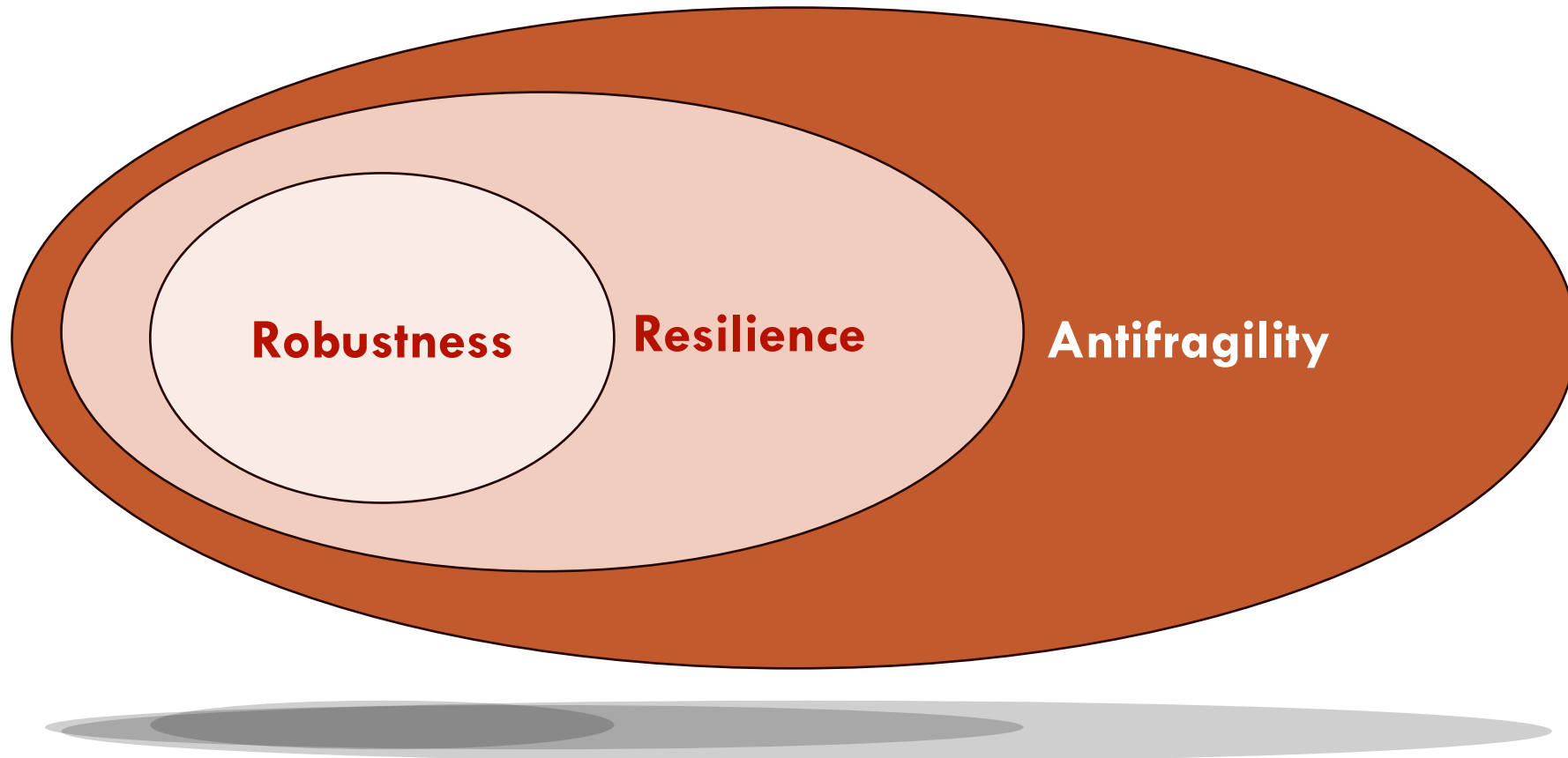# Autostrade per l'italia: the largest toll operator in EU

~ 3000 km highway network

2,7 M daily users

2,1 M daily vehicle transits

7700 employees

5 motorway concessions

598 tunnels (422 km)

218 service areas

271 toll stations

~ 2000 bridges and viaducts

16 toll highways

○ DDT (Operation centres)

★ DG (Headquarter)

Monte Bianco
Belluno
Brescia
Padova
Milano
Venezia
Torino
Bologna
Genova
Pisa
Firenze
Livorno
Ancona
Civitavecchia
Pescara
Roma
Bari
Napoli
Taranto

What is resilience?

In literature, there isn't a clear definition of resilience

Critical infrastructures must be inspected and maintained throughout their life cycle to ensure their **serviceability**.

Highway assets are **heterogeneous**: inspection and maintenance processes must be specifically designed for each of them. This implies the use of different technologies and tools.

Inspection/maintenance operations are carried out 24/7 and asset monitoring must be up and running constantly.
<u>Field service operators cannot interrupt their activities.</u>

Defining new strategies and improving processes from gathered data

Main Goals

Creation of a digital inventory and full digitization of inspection processes

Transparency and data control

Increased productivity and efficiency of inspection processes

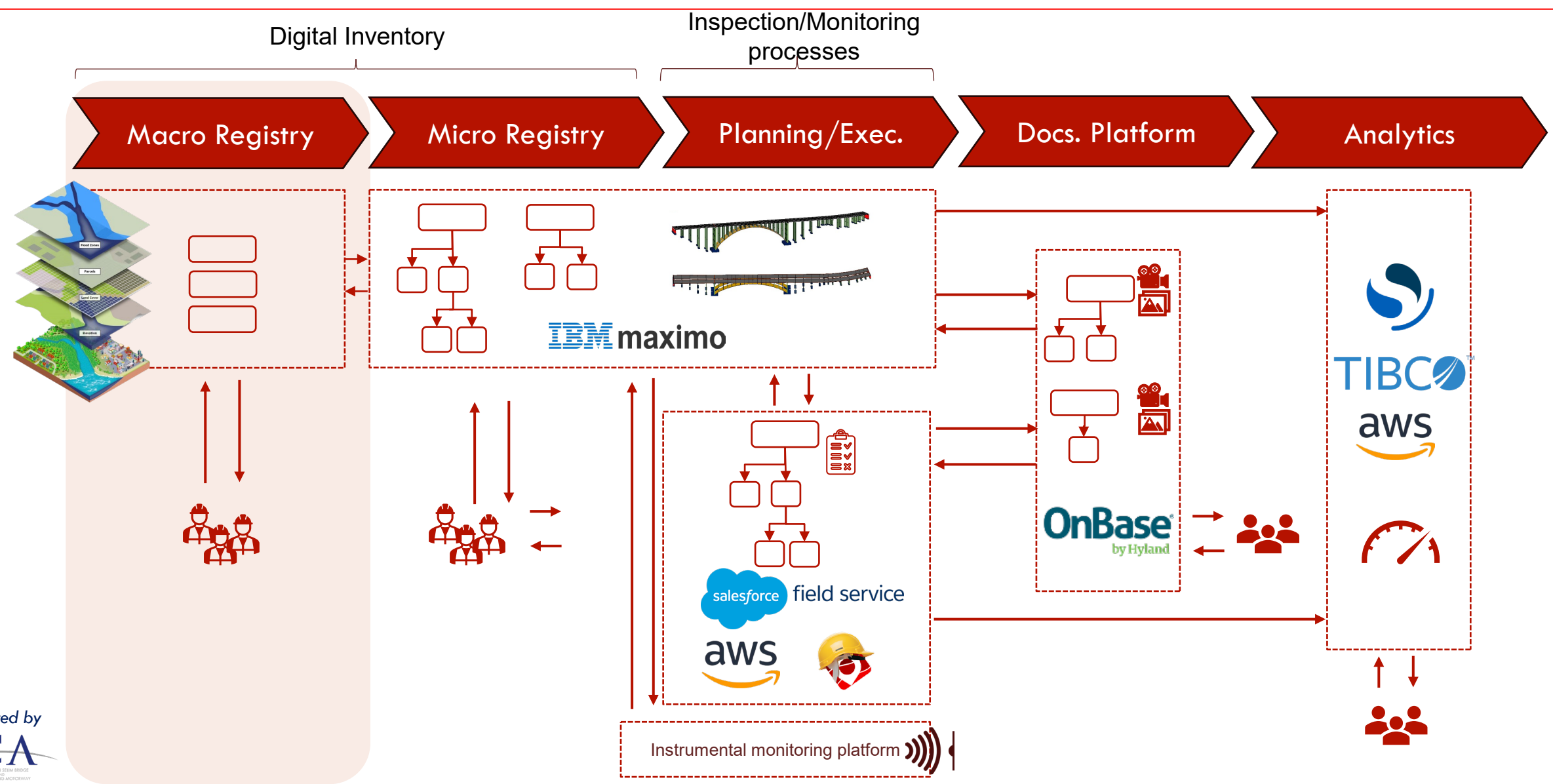Health monitoring of infrastructures

Modular and scalable platform

Analytics and reporting on assets and defects
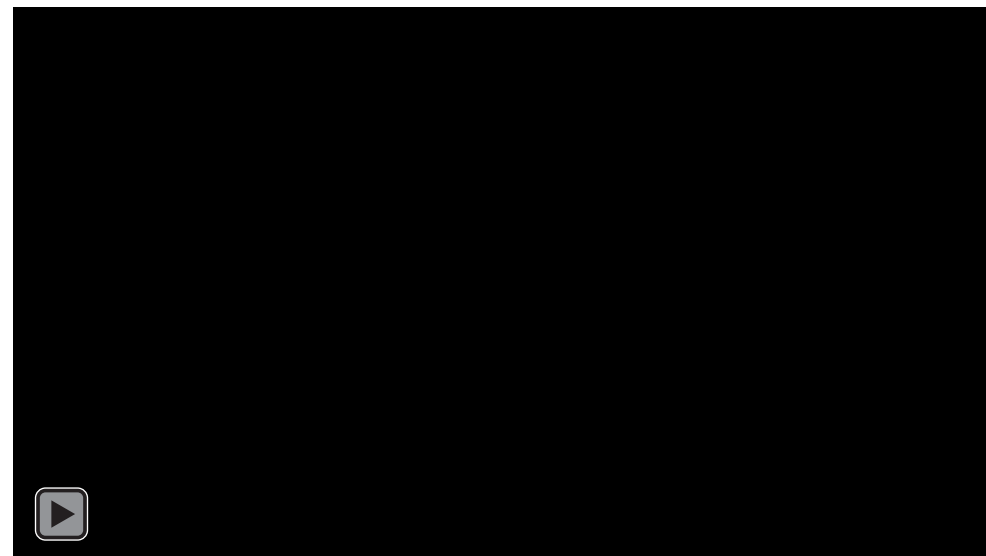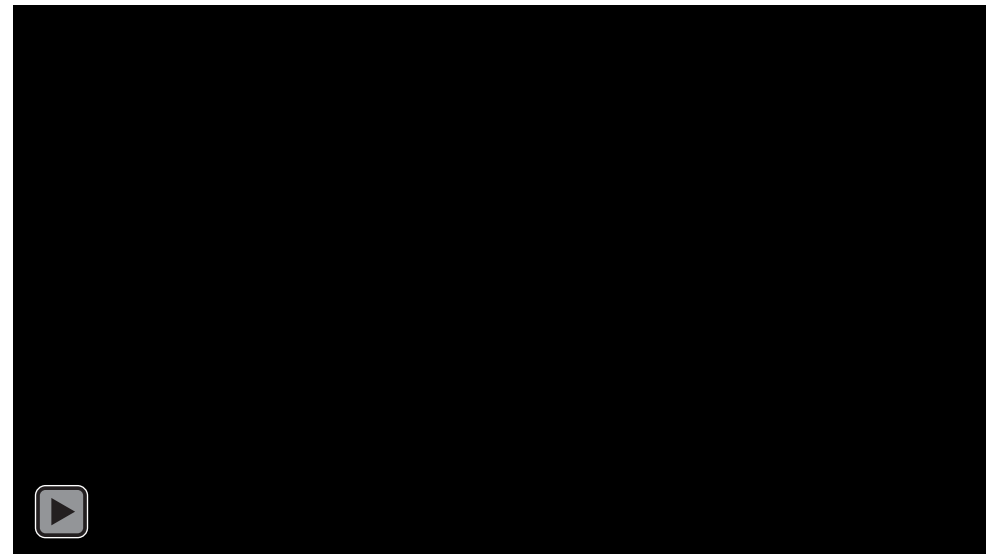
The Technologycal Stack

Digital inventory and inspection Process

The use of a centralized asset management and infrastructure monitoring platform guarantees that all members of the organization use the same data source to make critical decision

Data from surveillance activities are used to prioritize maintenance activities based on **asset condition and severity.**

This approach allows effective resource allocation and ensures that the most critical assets are maintained first.
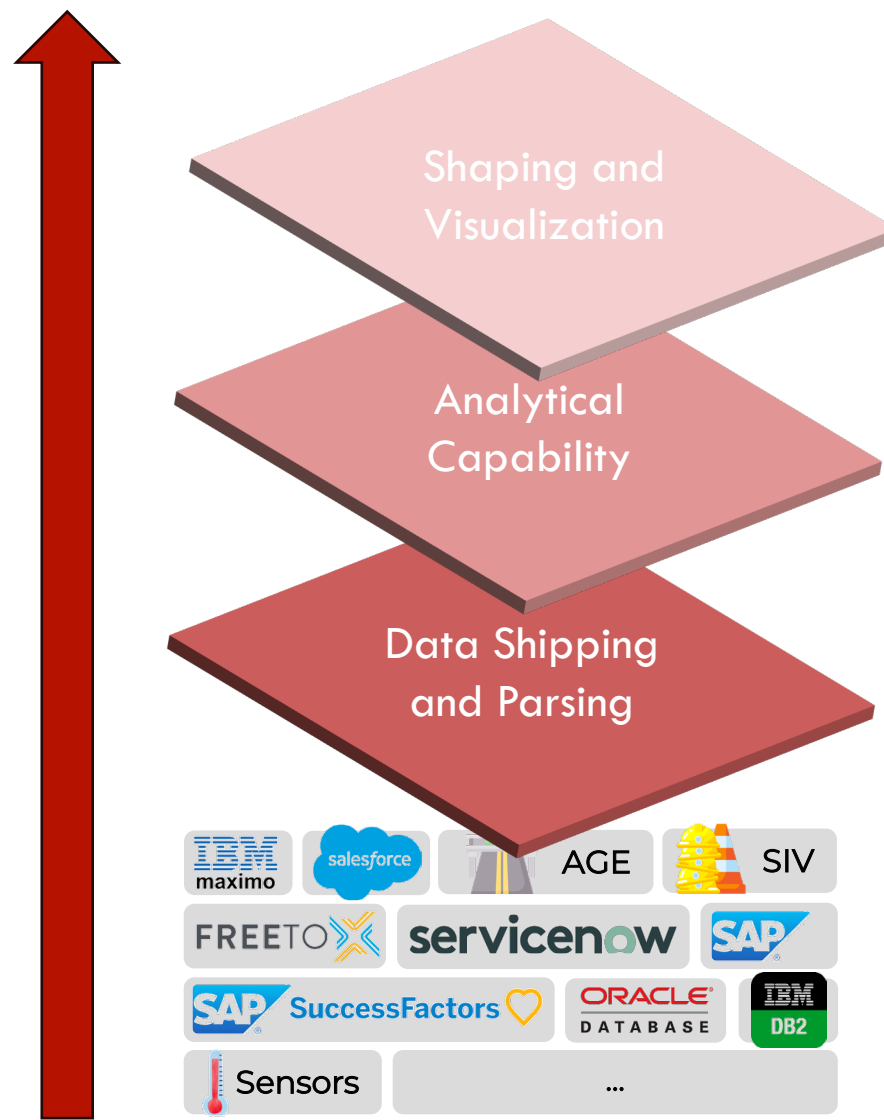
Make better decisions using a data-driven approach

Data lakes provide a single storage for massive amounts of (business and system) data to drive insights and predictions

Business data (related to assets, inspections, traffic, construction site plans, ...) are combined to get an overview of the network status and improve traffic flow

System data are used to investigate threats, monitor systems and improve performance

THANK YOU

- emiliano.dimarino@autostrade.it