



MODERN MAINTENANCE

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Question today
imagine tomorrow
create for the future

wsp

WSP Leading Business and Technical Advisory



Contributes
to
sustainable
development



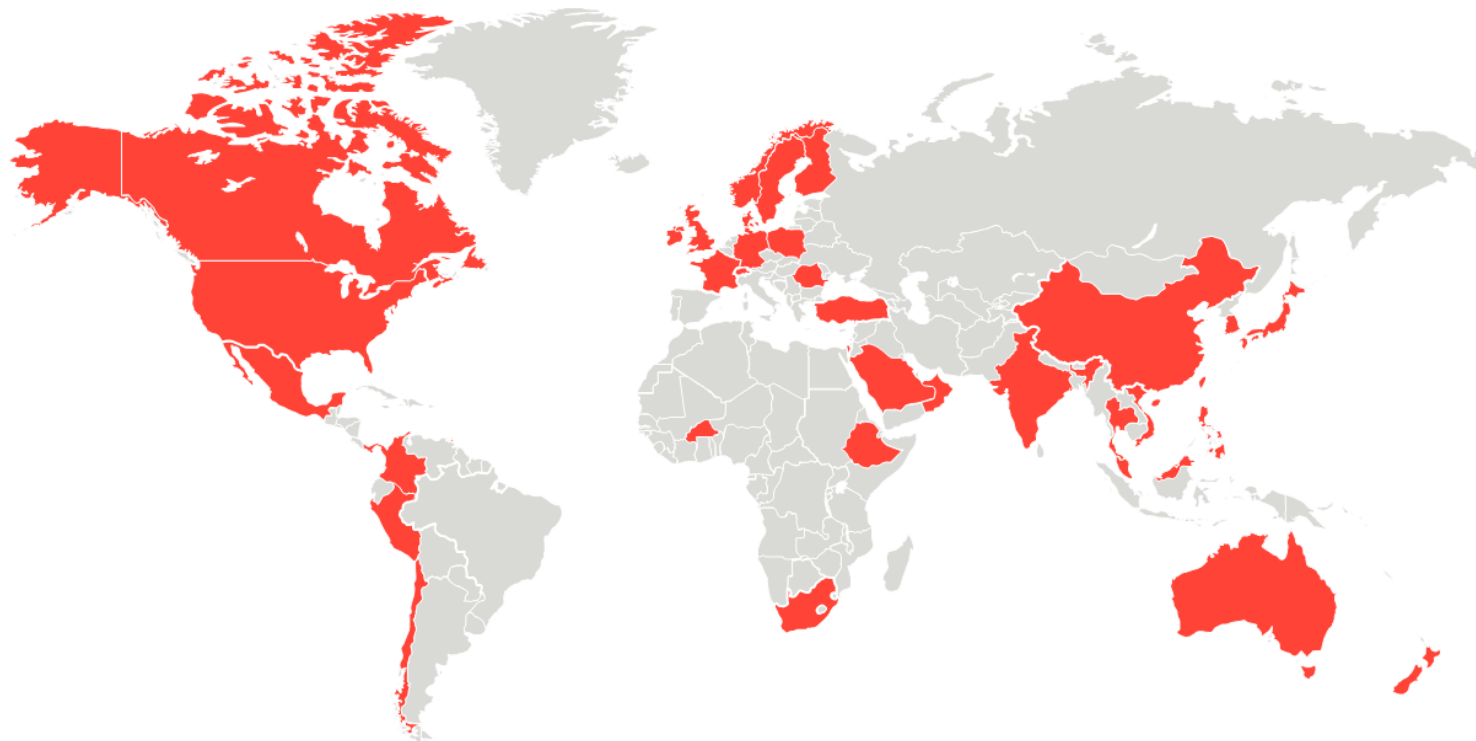
52,000



500



40



4,500



40



Residential



Bridges



Energy



Automotive industry



Healthcare



Hospitality



Industry



Rail and transit



Commercial and mixed use



Aerospace



Maritime



Sports and stadia



Cities



Telecom



Tunnels



Education



Roads and highways



Water

WSP – Future Ready

Climate change



Warmer



Wetter

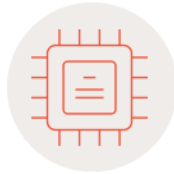


Extreme Weather

Technology development



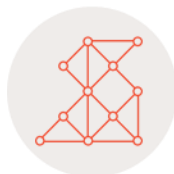
Electrification



Digitalisation and automation



New production methods



New materials

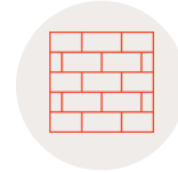
Changes in society



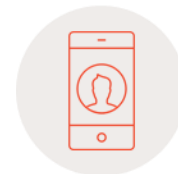
Urbanisation



Demographic changes



Segregation, loneliness and insecurity

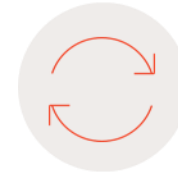


Digital relations

Resource Usage



Climate neutrality



Circular economy



Changing energy systems



Threatened Ecosystems

WSP Rail Advisory



TRANSPORT BUSINESS ADVISORY



DIGITAL RAIL SYSTEMS



ROLLING STOCK

- Experience within the railway industry both locally and globally.
- Around 80 consultants with a focus on Rolling stock, Operations and Maintenance.
- Holistic perspective based on detailed knowledge.

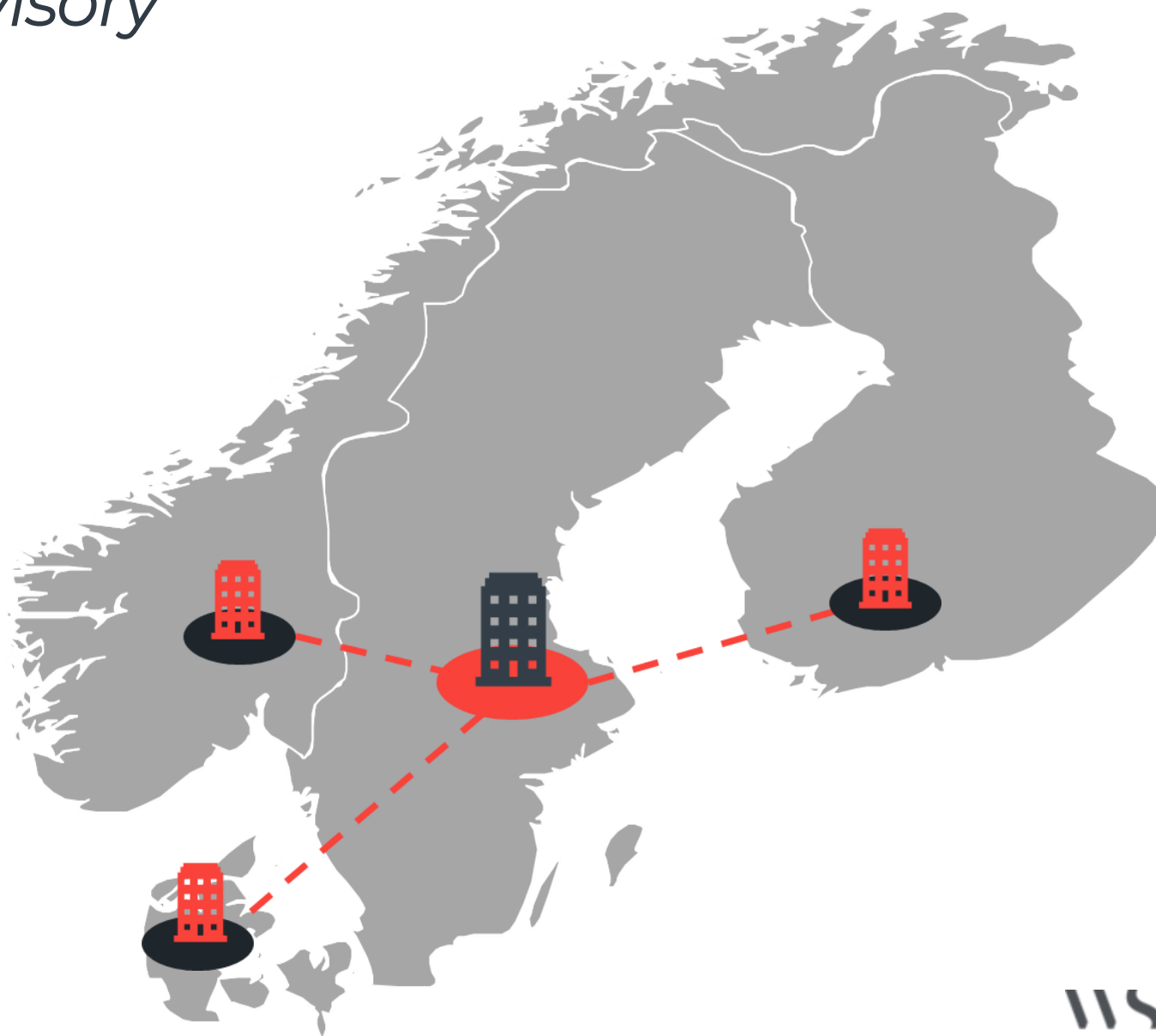
Nordic Rail Advisory



Lead
Business Unit



Area
Business Unit



Digital Rail Systems

Areas of competence

Research-
Analysis,
Procurement,
Project
Execution

Data Driven
Decisions,
Data Analytics

Digitalization
of Railways
Strategy for
Signaling

Clients & Assingments

Trafikverket
ERTMS Rollout Sweden
ALEX project
Implementation of AC...



Towards digital and
intelligent rail transport



Digirata Finland
Digitalization of
finnish Railway - TMS

Jernbanedirektoratet
Travel Analysis – Data
Analytics



Alstom NTL projekt
with Trafikverket

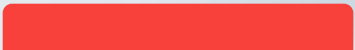
Bombardier ETCS OBU
projects




BURE ETCS OBU project

Content

- 
- Some background

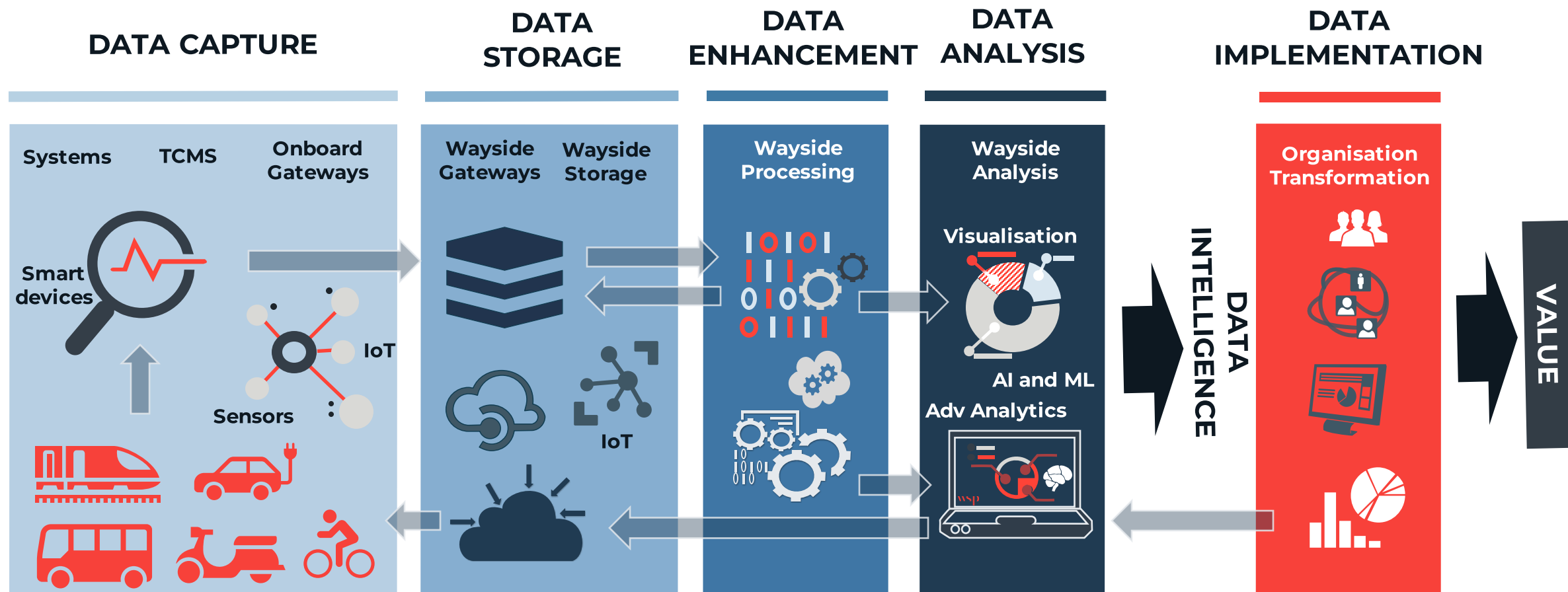
- 
- Modern Maintenance and its value

- 
- Barriers implementing Modern Maintenance

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- WSP strategy

The Data Value Chain

FROM DATA CAPTURE TO REALISING VALUE



Maintenance Application

Maintenance optimization and reduce operational disturbances



What has happened?



What is happening?

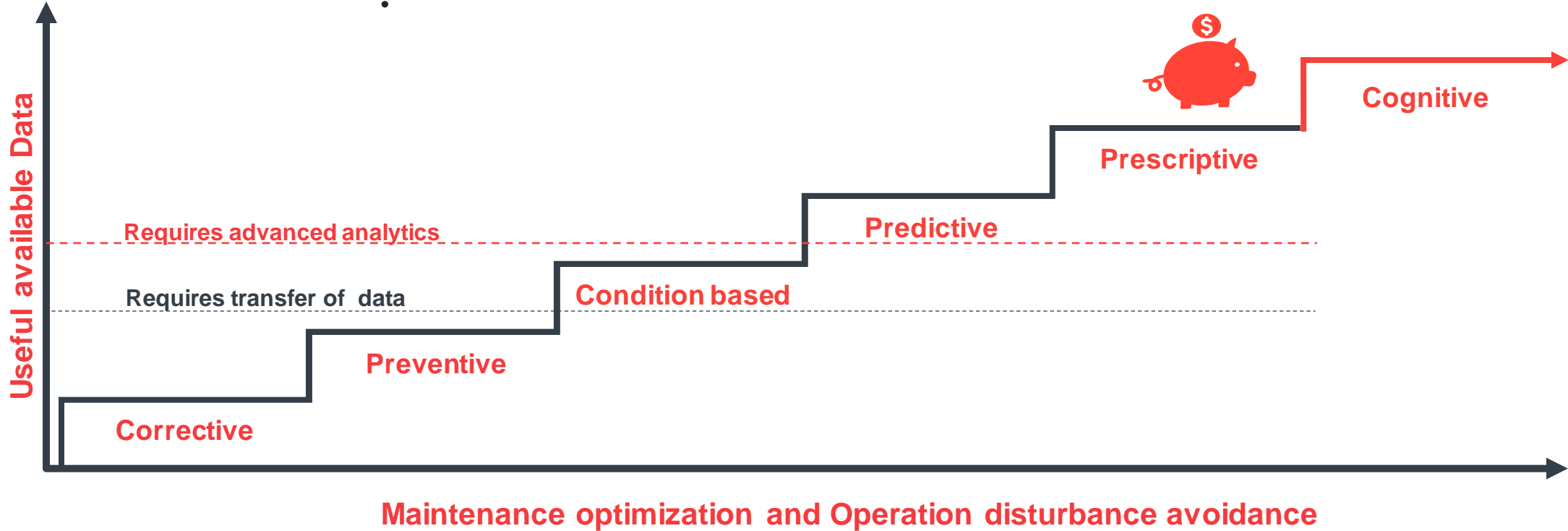


What is going to happen?

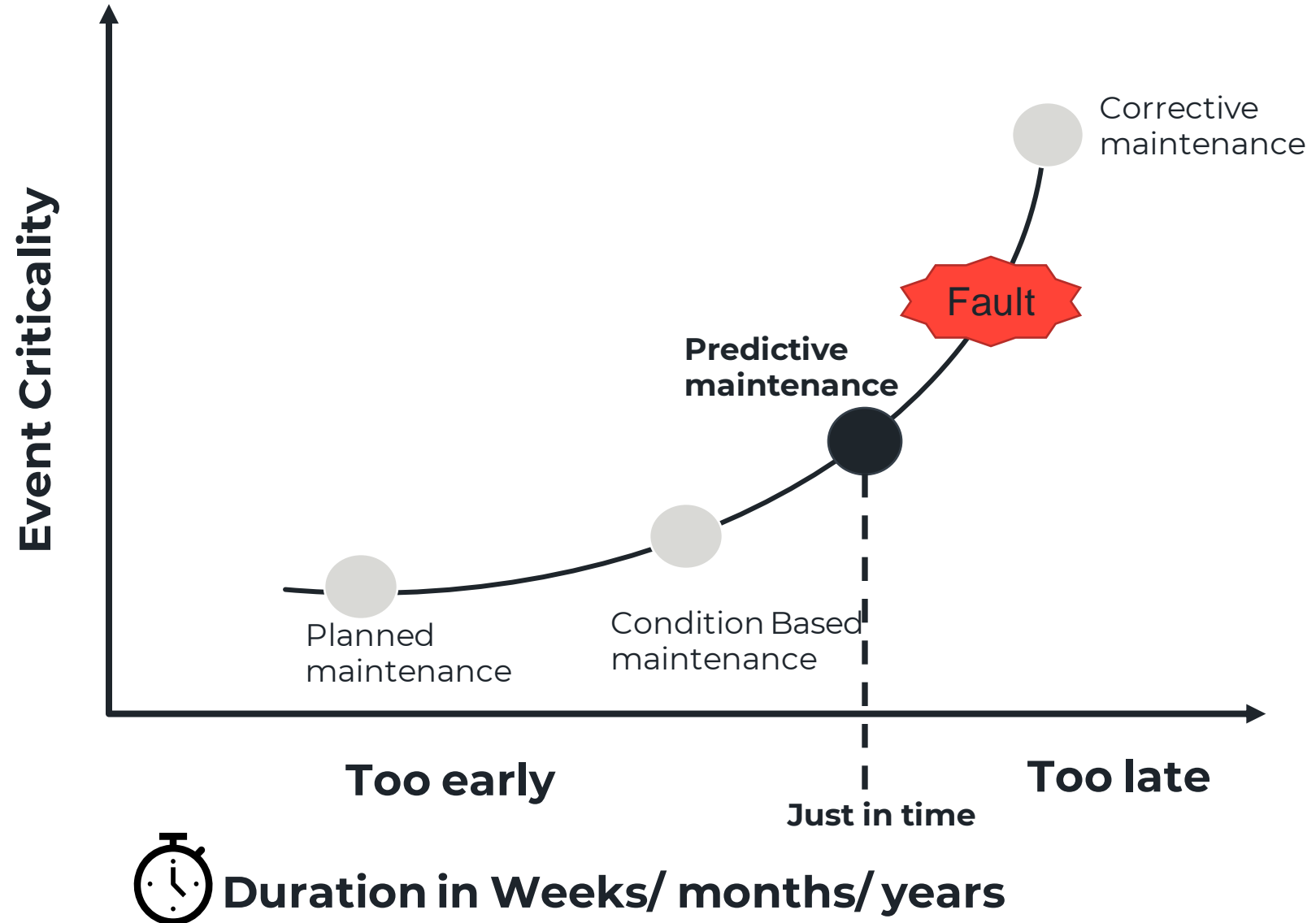


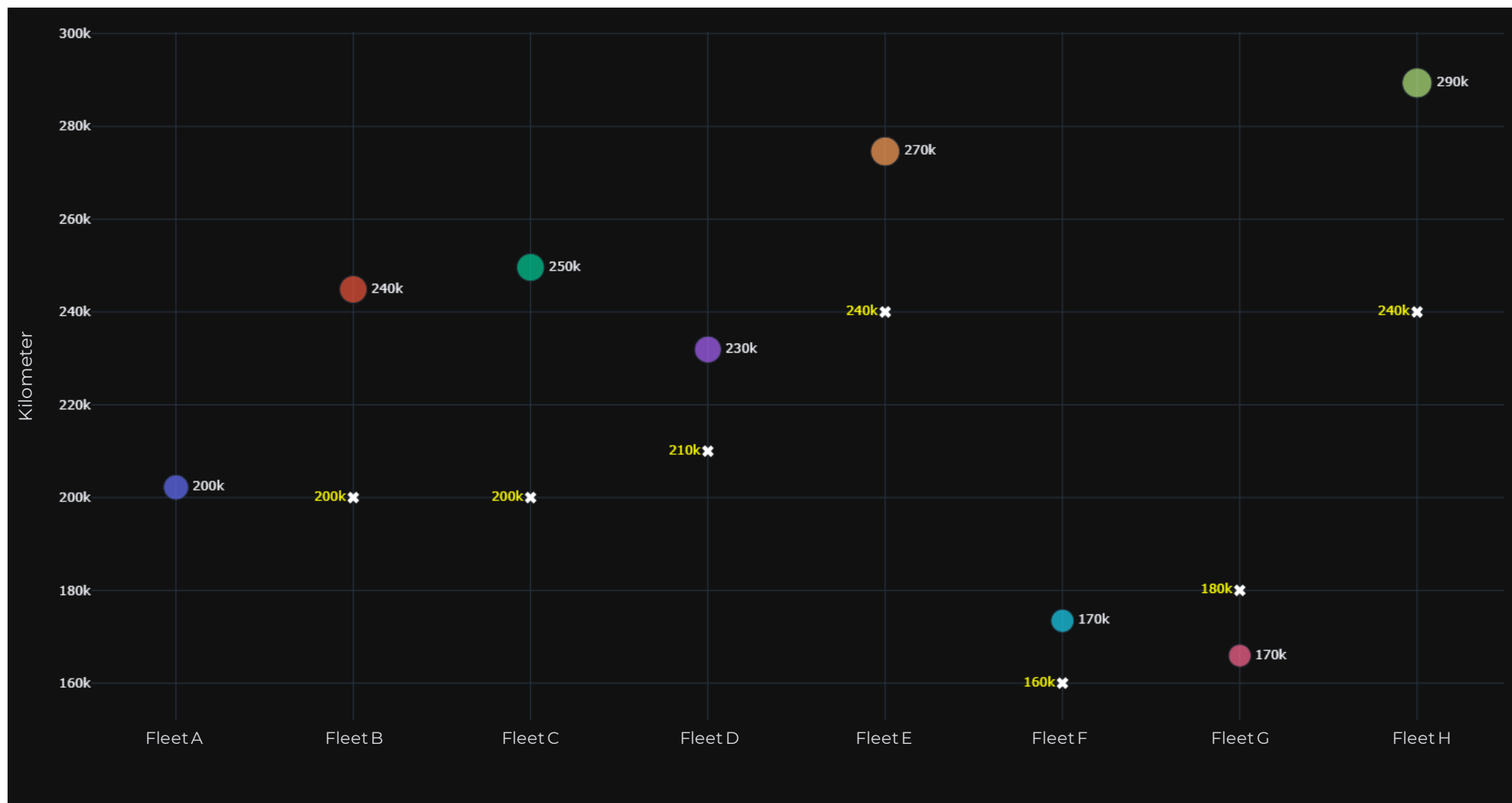
What can we do about it?

Cost savings for every step.



Fault vs Maintenance Application

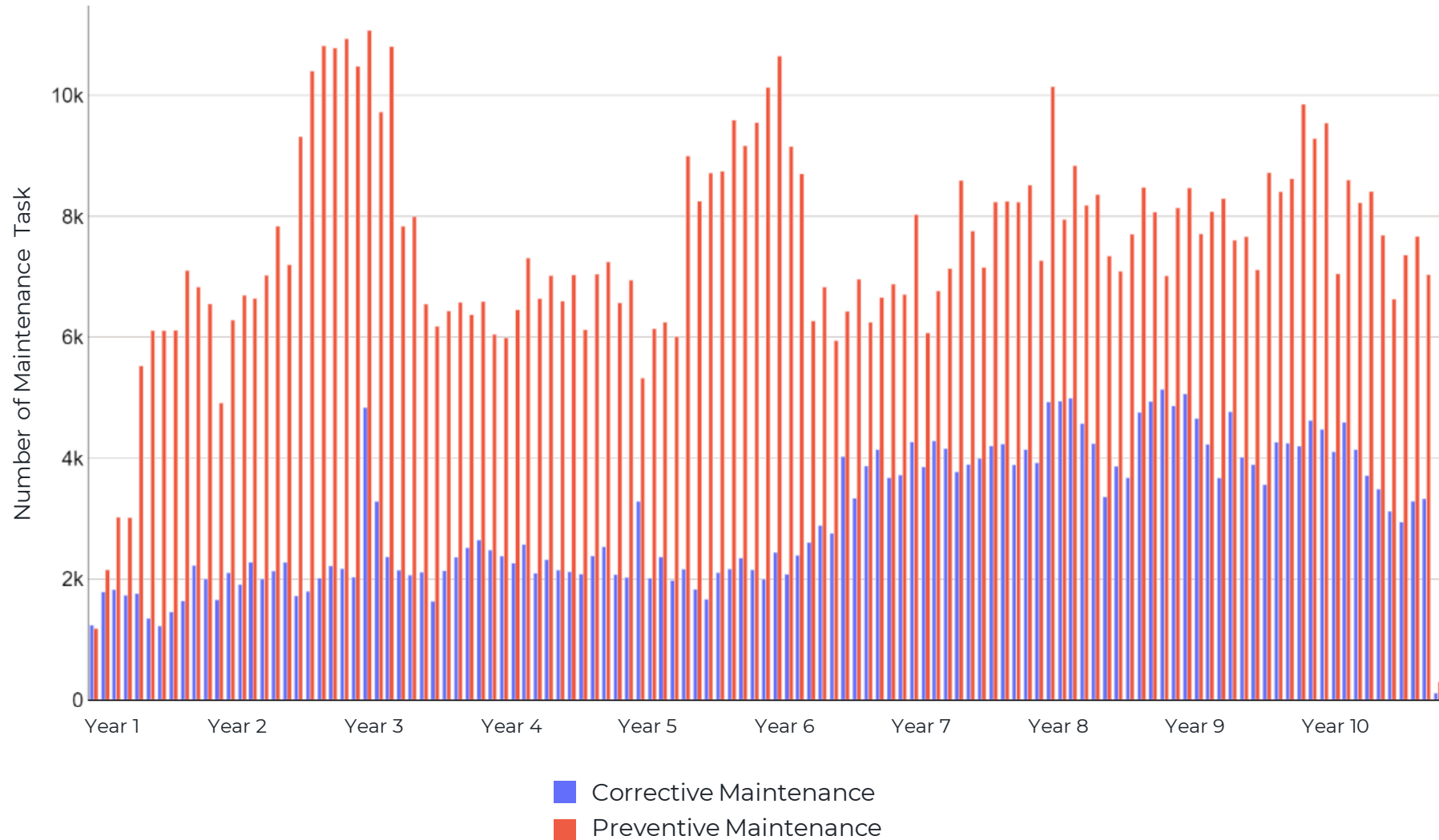




○ Actual
Kilometer

✕ Estimate
d
Kilometer

Maintenance tasks for Corrective and Preventive Maintenance



Values of Modern Maintenance



Better performance
of maintenance in
workshops



Fewer delays and
canceling of trains



14% Cost reduction

Importance



To handle complex asset



Prevent problem from the start



Improved real time visibility



Helps in maintain and optimize backlogs

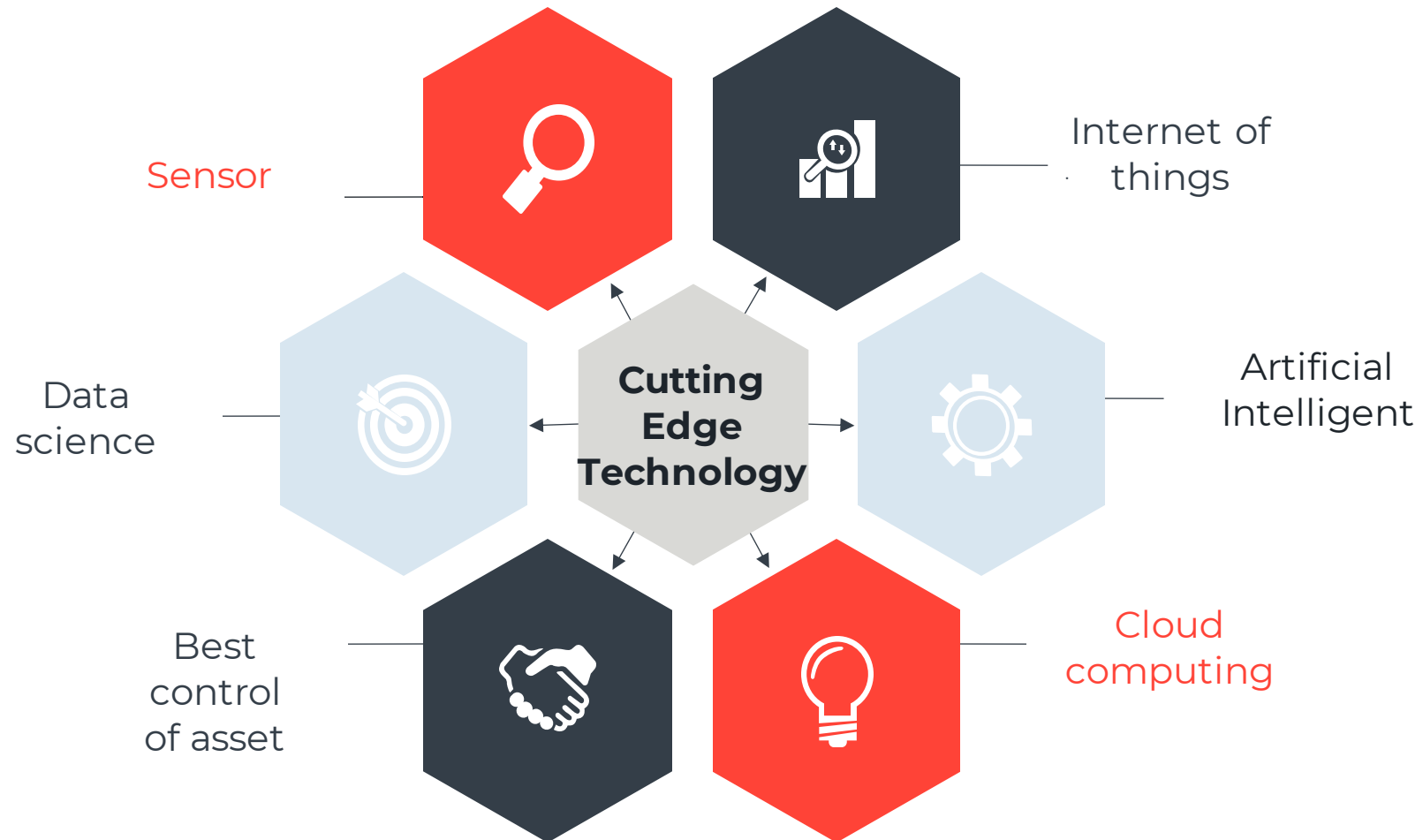


Quick access to maintenance information

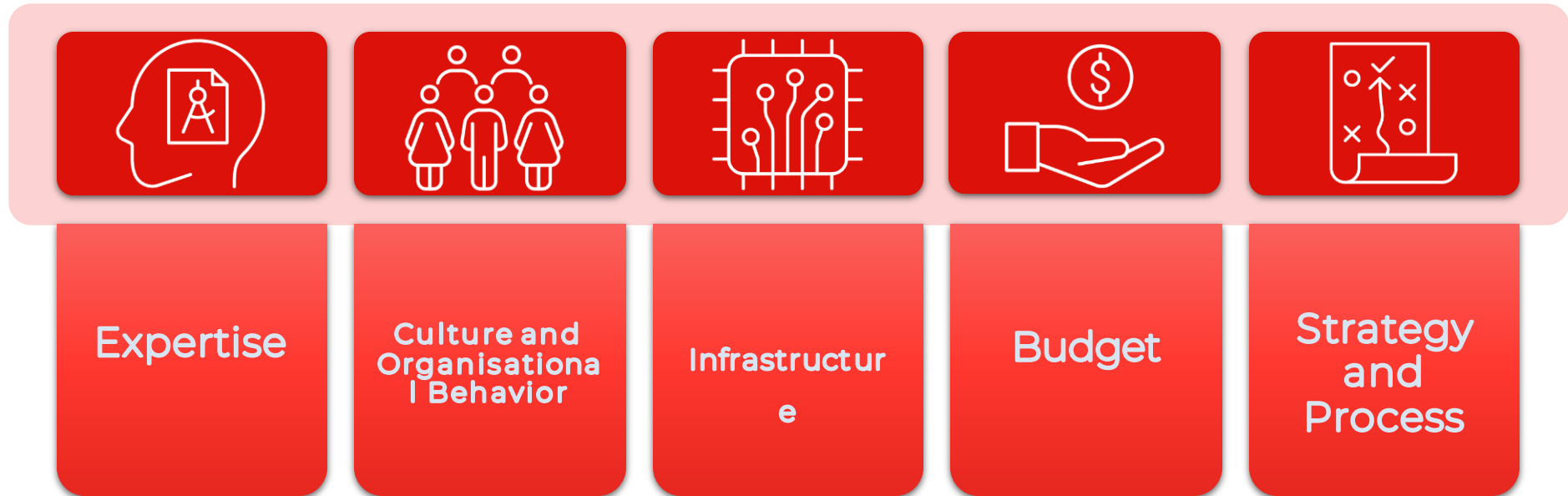


Better workplace safety

Cutting Edge Technology



Some Barriers



WSP strategy to overcome the barriers



Assess companies to find their barriers and potential opportunities using a **Maturity Model**



Help preparing **guidelines** to achieve Modern maintenance



Facilitate implementation of various stages of the process



Follow-up and evaluate the efficiency after implementation and update the plan to reach the desired efficiency

Maturity Model

Maturity Model

WSP has defined Maturity Model to assess readiness to implement

❖ **Modern Maintenance**



Source: WSP's image gallery





Key Take Aways

- **Modern Maintenance and its importance**
 - Better Maintenance Flow – Fewer Disruptions – Lower Cost
- **Barriers to implementing Modern Maintenance**
 - People – Technology – Process/Planning – Initial cost
- **WSP Strategy**
 - Maturity Model assessing the potential



WSP i Norge

WSP planlegger, utvikler og utformer bærekraftige samfunn som er rustet for fremtiden.

Construction · Oslo · 6,418 followers

Free to be

near
fierce
bold
proud
colourful
yourself
authentic



WSP i Sverige

WSP framtidssäkrar världen

Civil Engineering · Stockholm-Globen · 42,974 followers

Free to be

near
fierce
bold
proud
colourful
yourself
authentic



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Thank you



wsp.com