SPEEDING UP BIG PROJECTS WITH SPMTs

Bernd Schwengsbier, President TII Sales

CREATED AND ORGANISED BY

INTERNATIONAL CRANES AND SPECIALIZED TRANSPORT

AMERICAN CRANES & TRANSPORT ACT

khl

TII GROUP

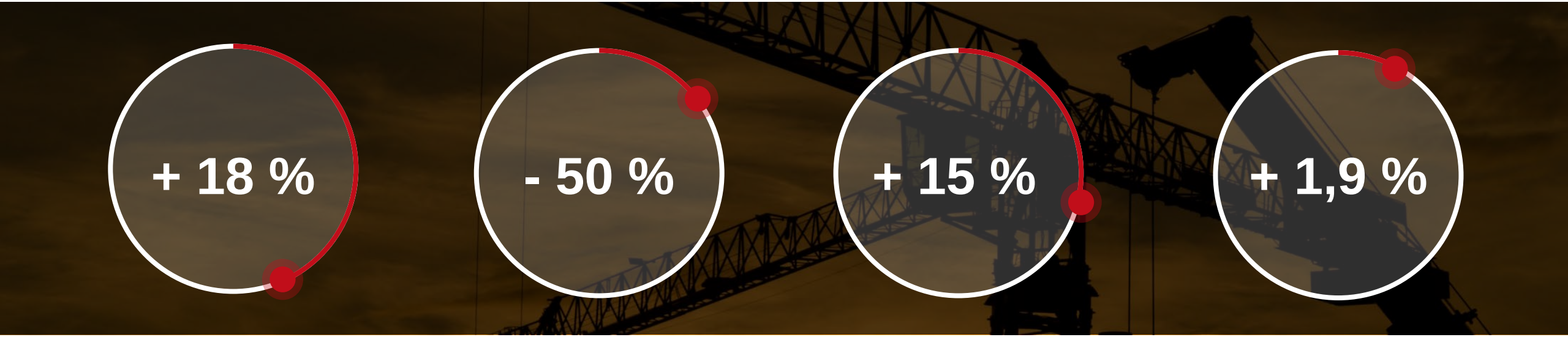
WORLD CRANE AND TRANSPORT SUMMIT 2017

7 AND 8 NOVEMBER

A GLOBAL POWER WORKING FOR YOU

EXPERIENCE THE TII GROUP

GLOBAL ECONOMIC BACKGROUND



INSECURITY

Increase of global conflicts since 2014 influences global project business

OIL PRICE

Oil prices dropped by 50 % compared to 2011

LABOR COSTS

Labor costs have risen by 15 % since 2010

WORLD ECONOMY

Low world economic development affecting general investment climate

INDUSTRY IMPACT

OIL INDUSTRY

Low invests, oil price peak USD 85 max. expected until 2027

MINING

Job cuts and investment stops in global mining

SHIPYARD

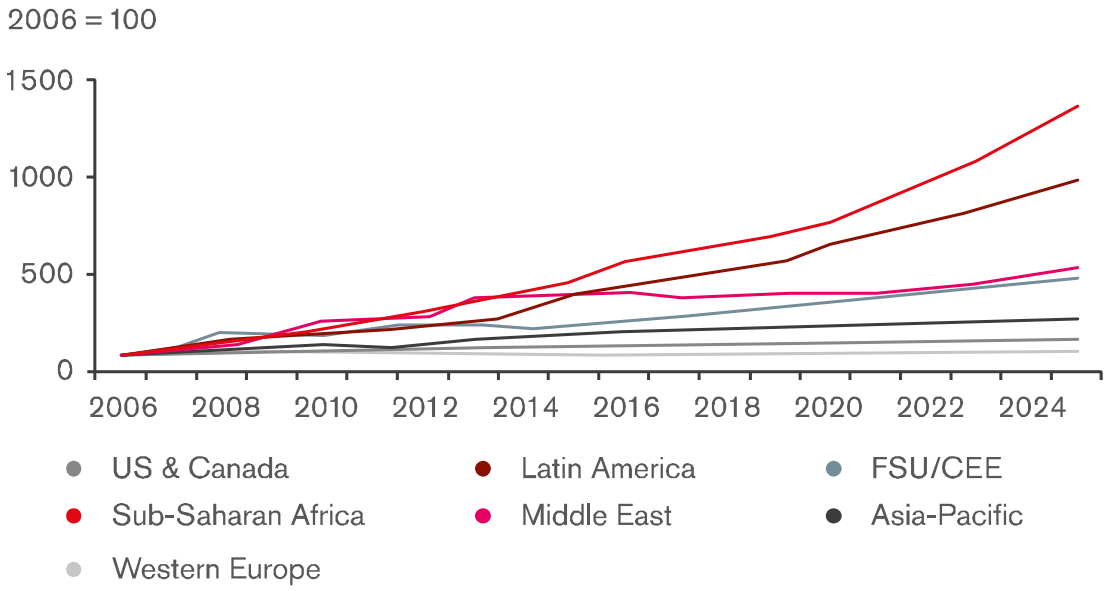
Record losses for Korean big three shipbuilders, record low on freight prices

STEEL

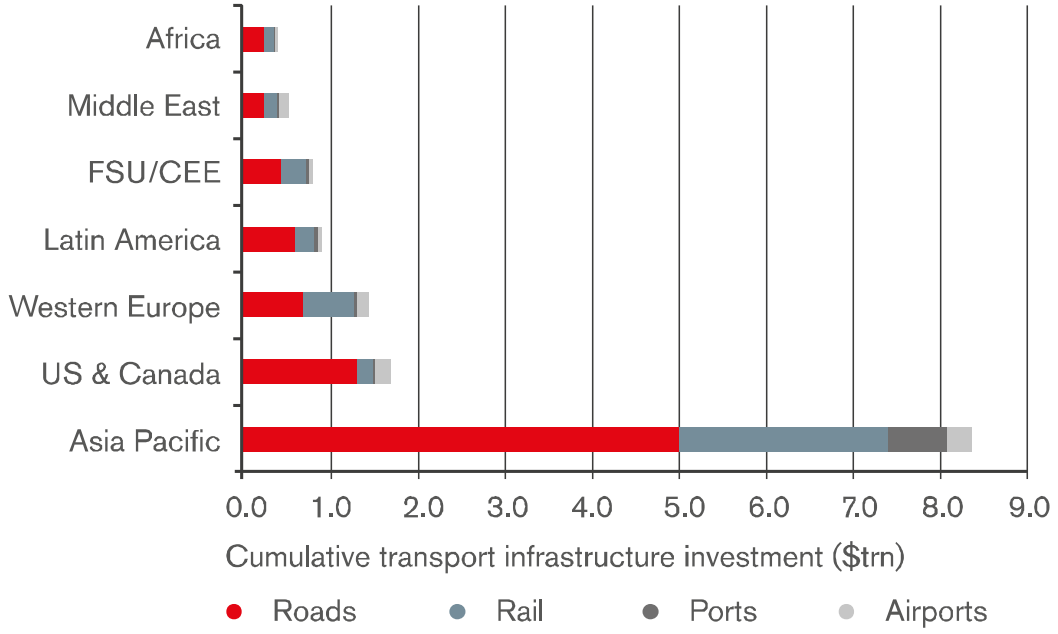
Enduring steel crisis and low demand for standard grades

STILL WE'RE SURROUNDED BY INFRASTRUCTURE GROWTH AREAS

Growth in infrastructure spending to 2025



Growth in infrastructure spending by region to 2025



SPEED UP TO TURN THEM INTO OPPORTUNITIES

Speed as driver for economic project business

YAMAL PROJECT (VIDEO MAMMOET)

Speed up under time pressure and arctic temperatures

EL SEGUNDO

12 days instead of four weeks

THE BIGGEST THING
WE MOVE IS TIME

- 3,600 ton Dragline Excavator
- 20 miles of route through the Mexican desert
- Reduction of transport time by 60 % by use of SPMT

OTTAWA BRIDGE REPLACEMENT

Two weeks instead of several months

THE BIGGEST THING WE MOVE IS TIME

- 2,254 tons / 87.5 meters
- The Ottawa flyover is the city's main traffic artery
- Rapid Bridge Replacement with SPMT minimizes downtime

TURCOT TUNNEL DEMOLITION

20 minutes instead of several days

THE BIGGEST THING
WE MOVE IS TIME

- 10,000 ton concrete segment had to be removed from over an active rail line in Quebec

- Time frame was an hour maximum – Mammoet took care of it within 20 minutes

SUNDERLAND PYLON TRANSPORT (VIDEO SARENS)

Tough time schedule

SUNDERLAND PYLON TRANSPORT

Tough time schedule

IMPOSSIBLE WITHOUT SPMT

/ The New Wear Crossing bridge scheduled to open in 2018

/ Centrepiece will be a 105 m-high pylon with 1,700 t weight

/ Sarens' PJ250 jacking system and jack & pack with 52 axle lines SPMT

/ Limited time frame and limited space

MOSE PROJECT

Fighting Aqua Alta (Video Fagioli)

MOSE PROJECT

Fighting Aqua Alta

IMPOSSIBLE WITHOUT SPMT

/ The MOSE project protect the Venetian Lagoon from being submerged by the Adriatic Sea

/ Large time pressure due to flood situation

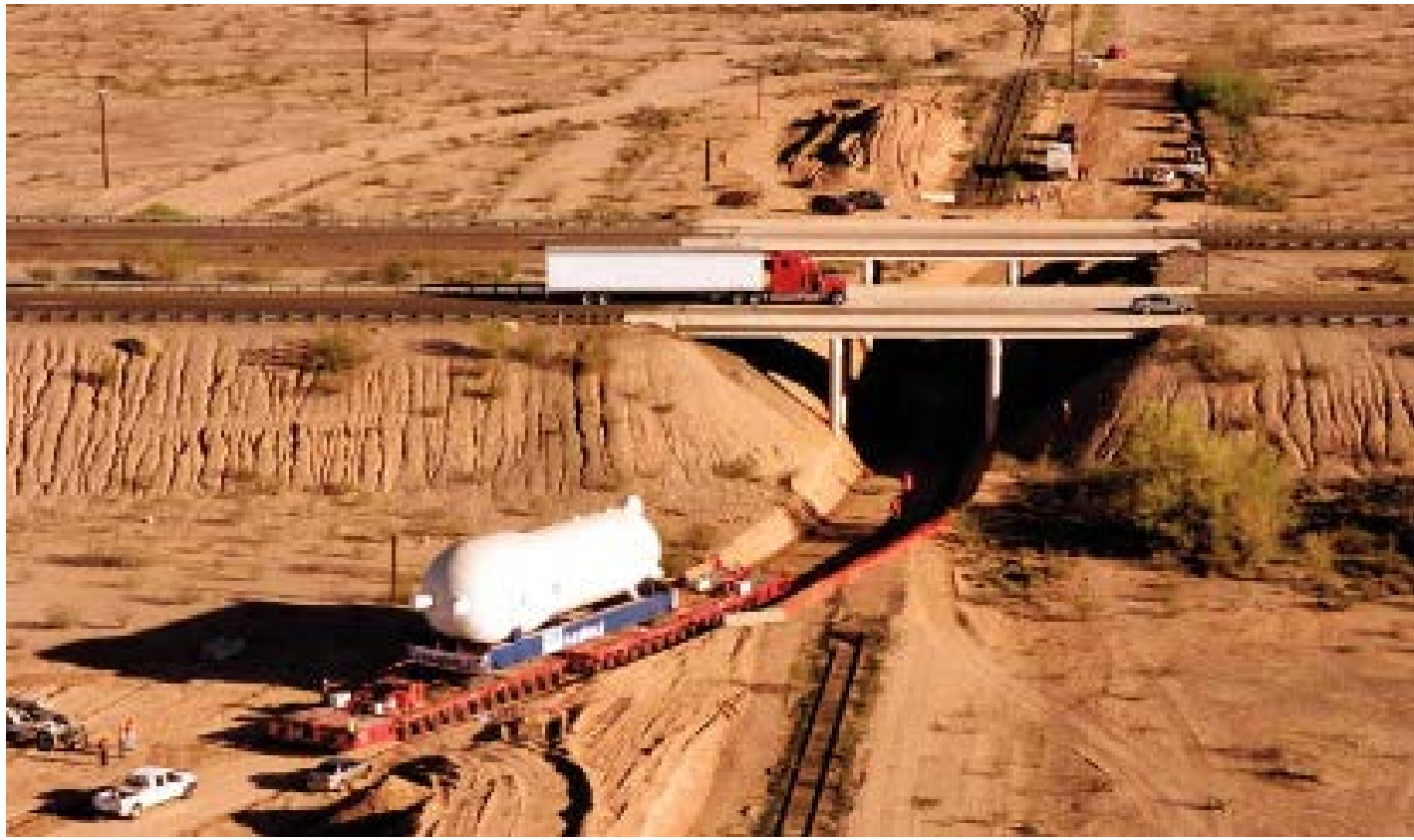
/ 78 mobile flood gates (300 t each) brought into place by SPMT

PALO VERDE

17,000 km in two months (including barge time)

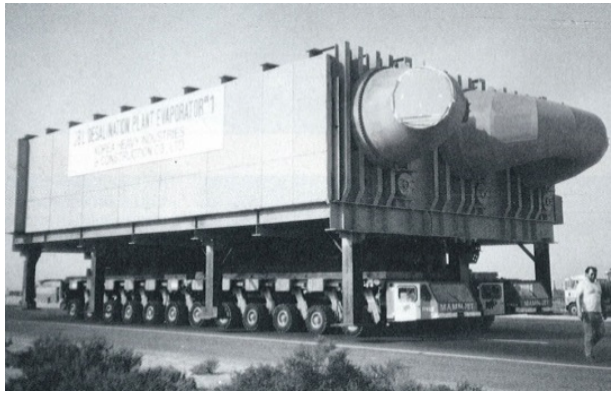
IMPOSSIBLE WITHOUT SPMT

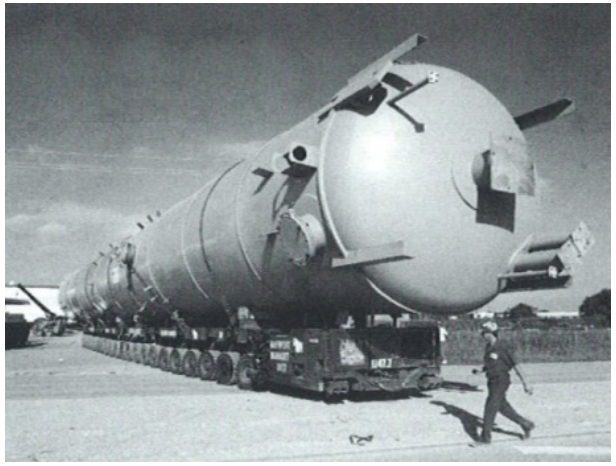
- Load: Two steam generators with 550 t each from Italy to Arizona
- 480 wheels and a convoy length of 100 metres
- 410 km ground transportation mastered in record time



HOW DID IT START?

The first SPMT





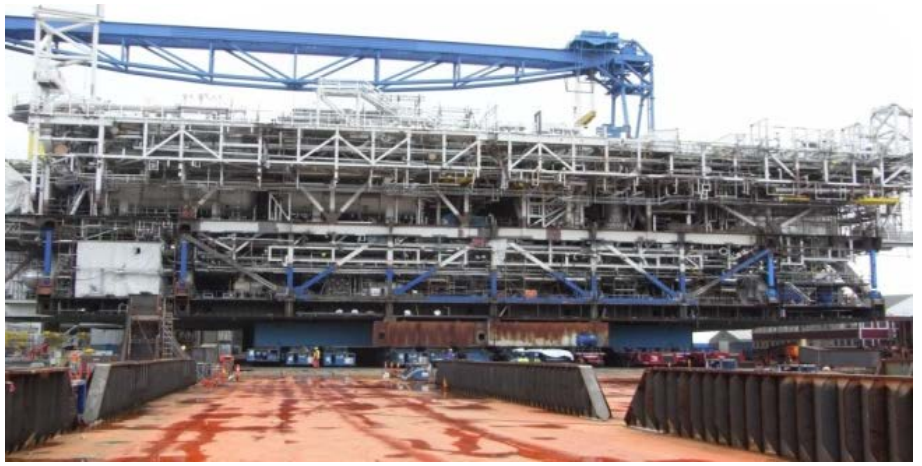
HOW DID IT START?

The Red Dog Project

SPEED UP IN PROJECTS

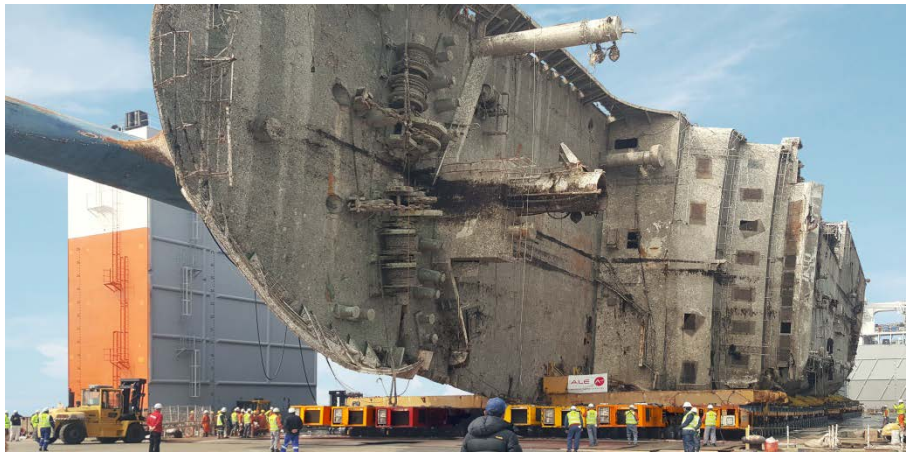
Record chased by record

13,000 tons



15,000 tons

17,200 tons

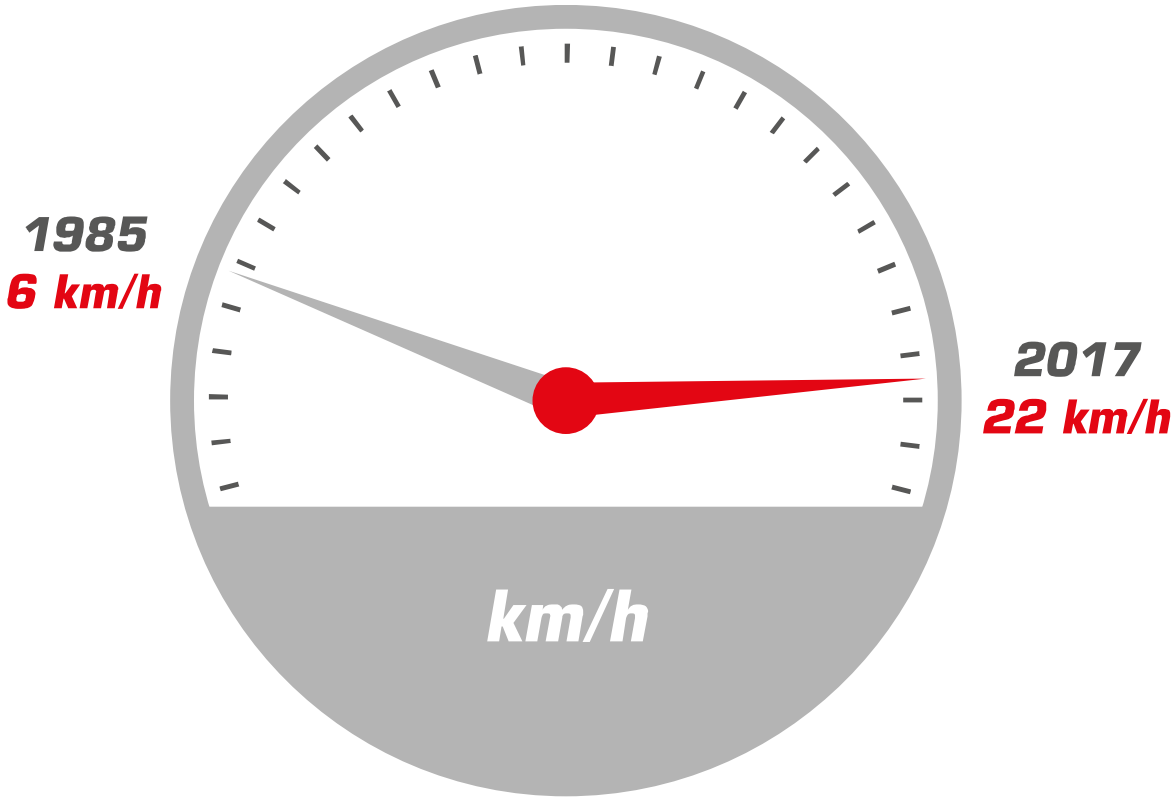


6,000 tons

SPEED UP IN TECHNOLOGY

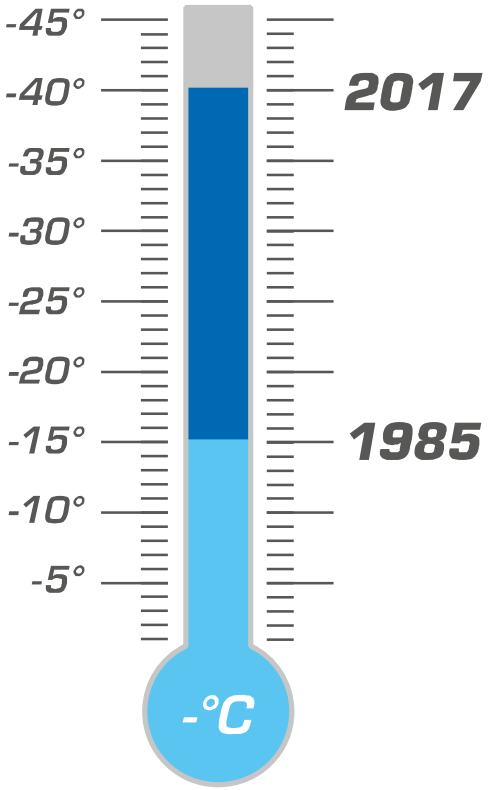
The Fastrunner

22



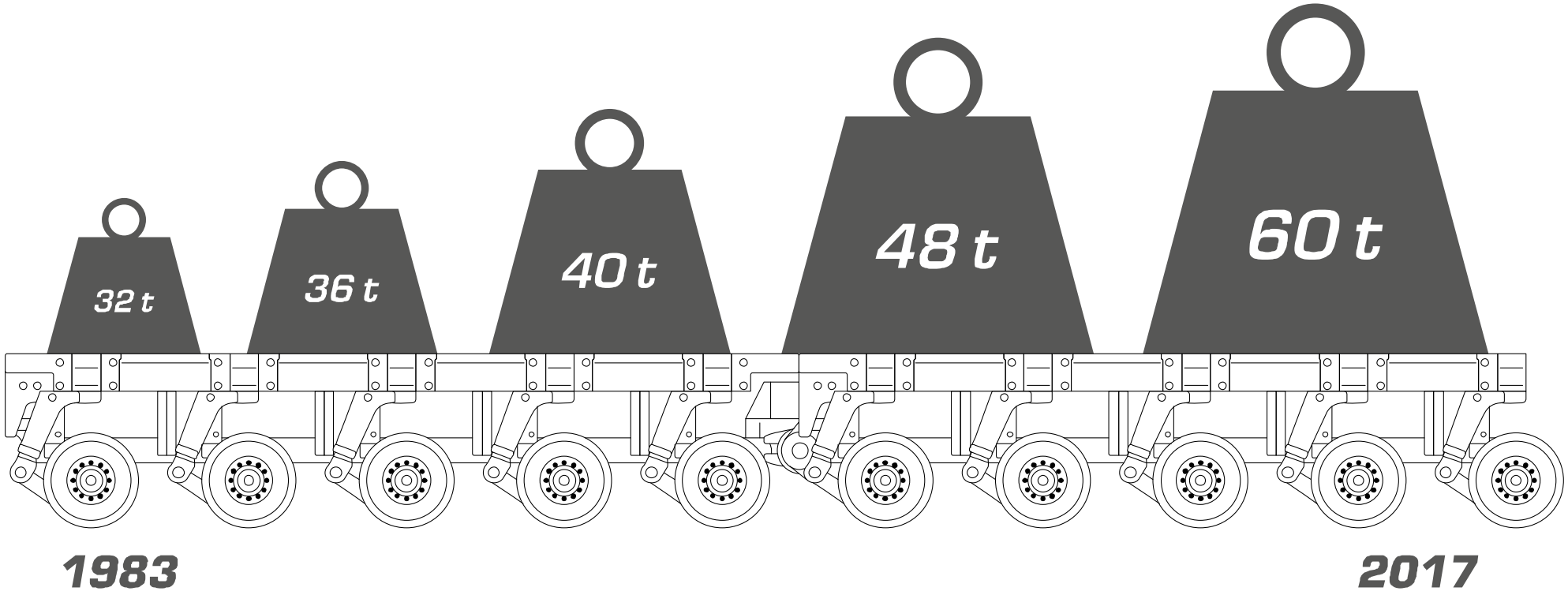
SPEED UP IN TECHNOLOGY

Eliminates winter breaks – speeds up operation



SPEED UP IN TECHNOLOGY

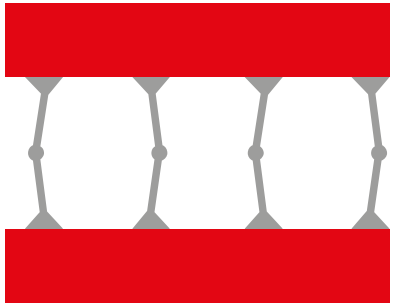
Allows smaller compounds and faster assembly



SPEED UP IN TECHNOLOGY

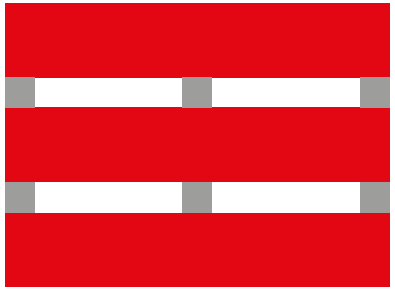
Widening systems, double PPU, electric PPU

2.43 Standard



Widening Scissor

Widening Telescopic



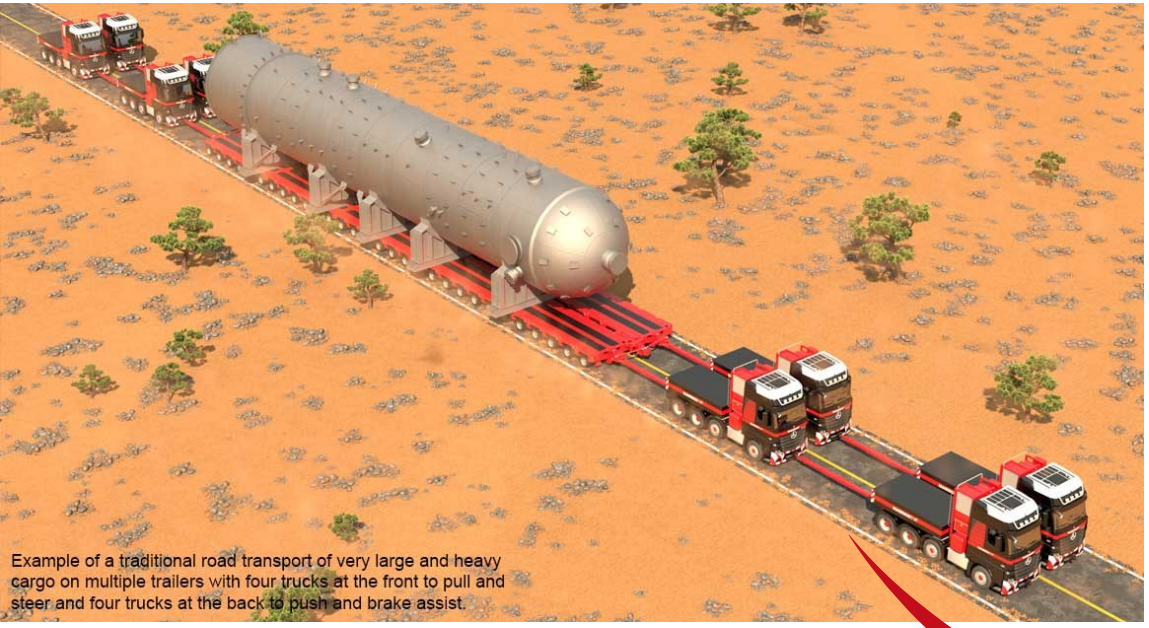
2.43 < Split

Double PPU

Electric PPU

SPEED UP IN TECHNOLOGY

Efficiency and safety



Example of a traditional road transport of very large and heavy cargo on multiple trailers with four trucks at the front to pull and steer and four trucks at the back to push and brake assist.

In future, exceptionally large transports of over 2,000 tons over longer distances using multiple rows of trailers with one truck at the front and one at the back could become a reality.

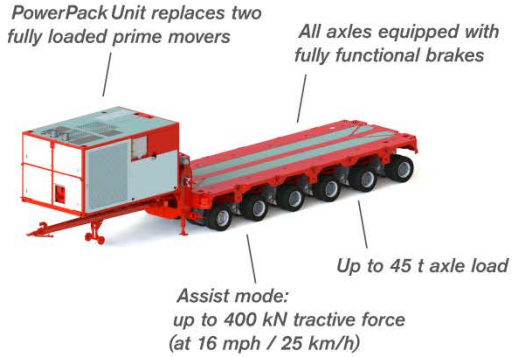
SPEED UP IN TECHNOLOGY

Efficiency and safety

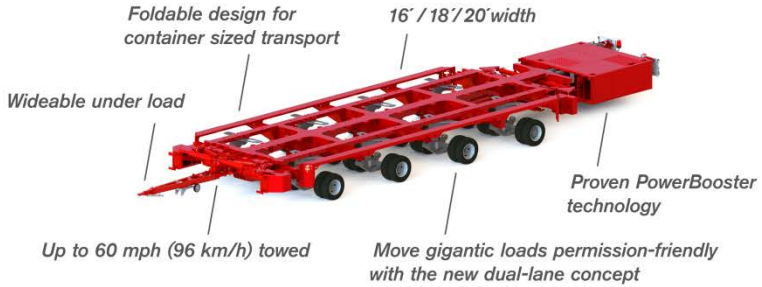
SPEED UP IN TECHNOLOGY

The PowerBooster Range

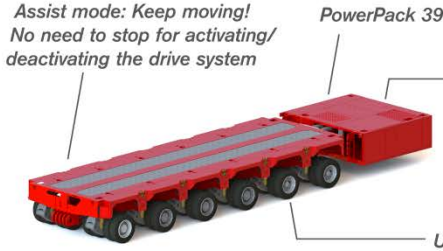
TPA POWERBOOSTER
1,000 HP



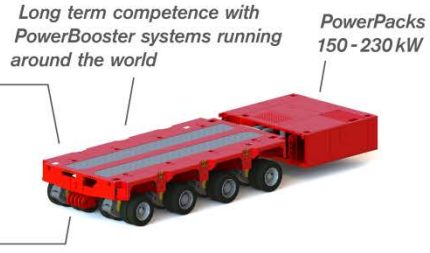
SCHEUERLE HIGHWAYGIANT POWERBOOSTER



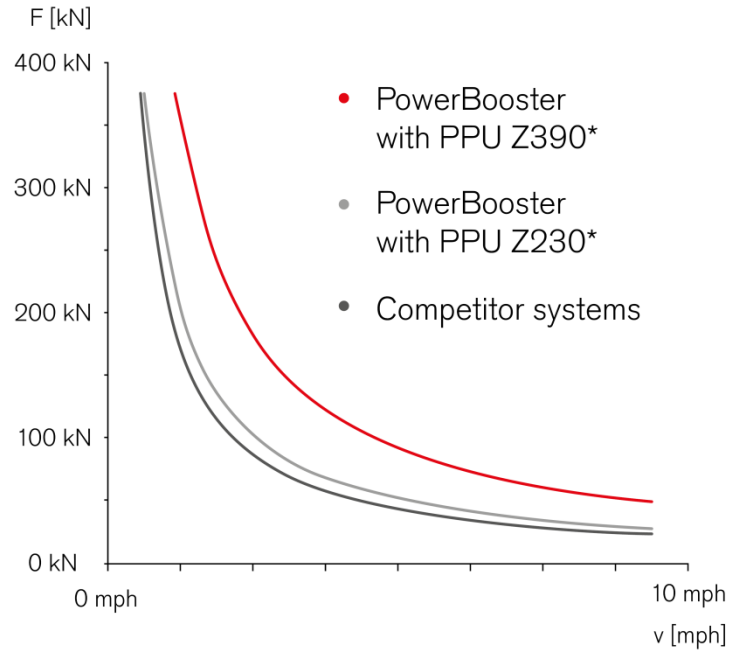
HIGH TORQUE POWERBOOSTER
MAXIMIZED THRUST



THE ORIGINAL POWERBOOSTER
BOOST YOUR FLEET



THRUST/SPEED RATIO



* 6-axle module with 5 driven axle lines

BUT WHAT'S NEXT?

Is there a future for SPMTs and how might it look like?

IS THERE A FUTURE FOR SPMT TRANSPORTATION?

Traditional SPMT industries are going through an all times low

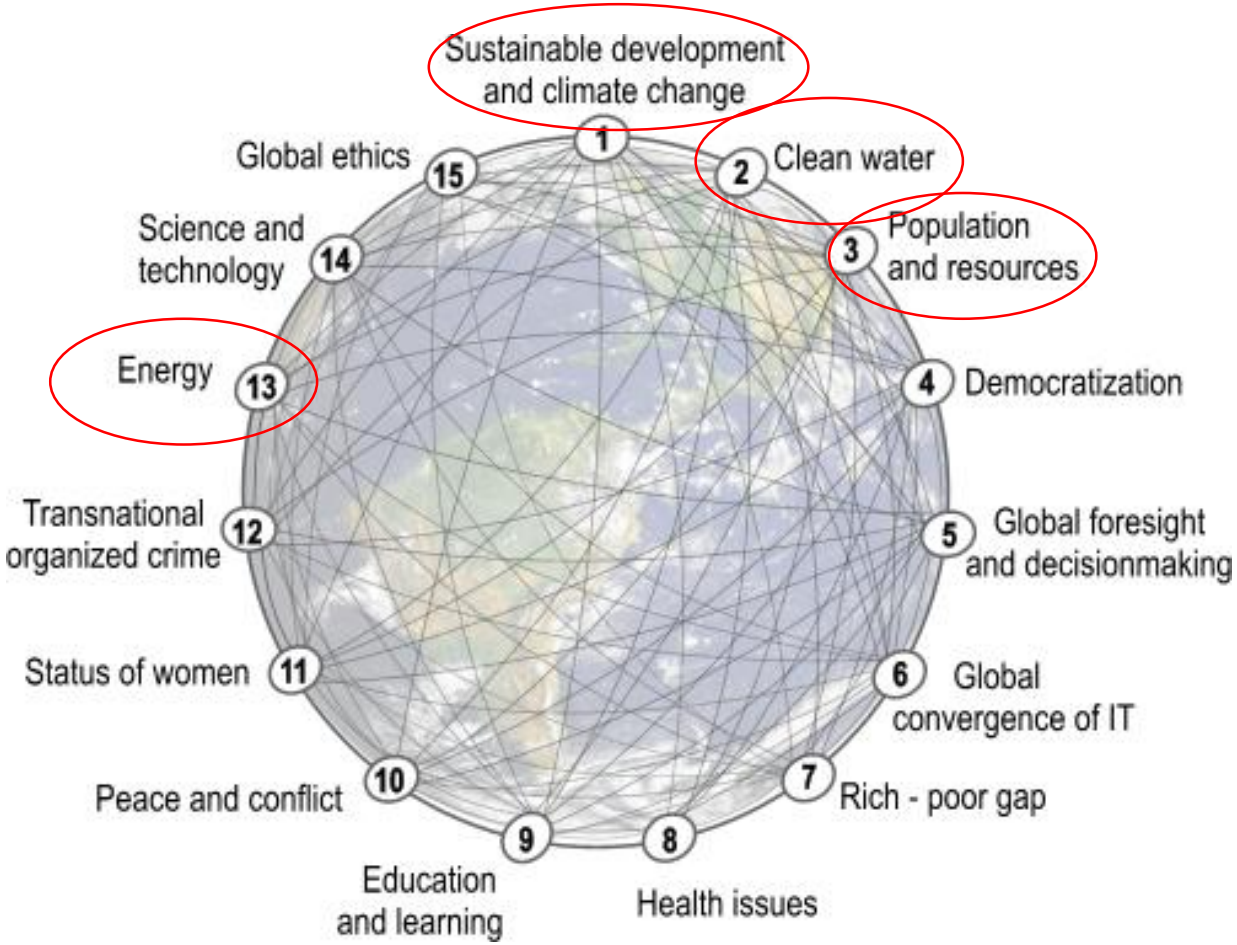
- **Oil price peak USD 85 max. expected until 2027**
- **Steel crisis**
- **Reduced mining sector**
- **Development of new business models**
- **Rise of energy and renewables**
- **Rise of new technologies**

YES, THERE IS!

New markets – shipyard efficiency

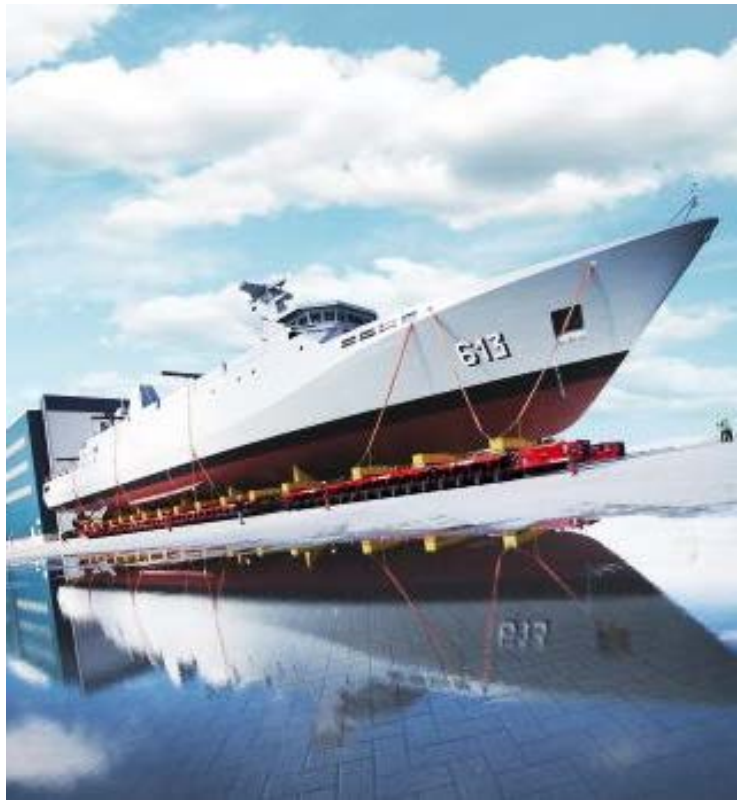
YES, THERE IS!

The SPMT plays a significant role in solving the world's challenges



SHIPBUILDING INDUSTRY

Move production facilities away from the seaside



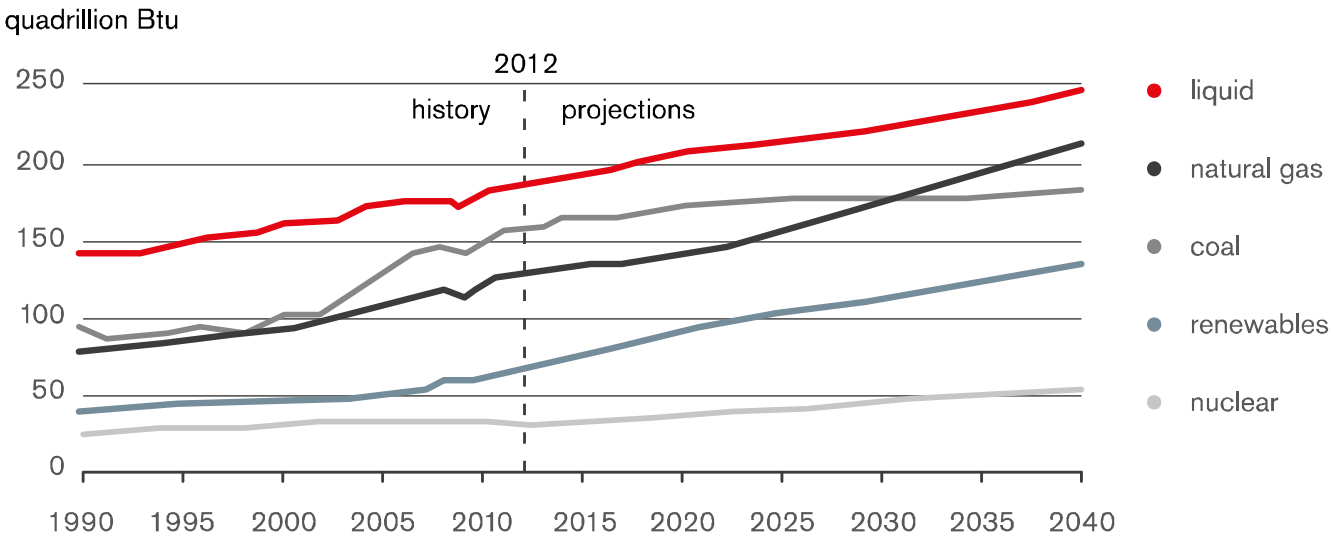
SHIPBUILDING INDUSTRY

Expand modularity

YES, THERE IS!

New markets – Energy demand on the rise

World energy consumption by source, 1990-2040



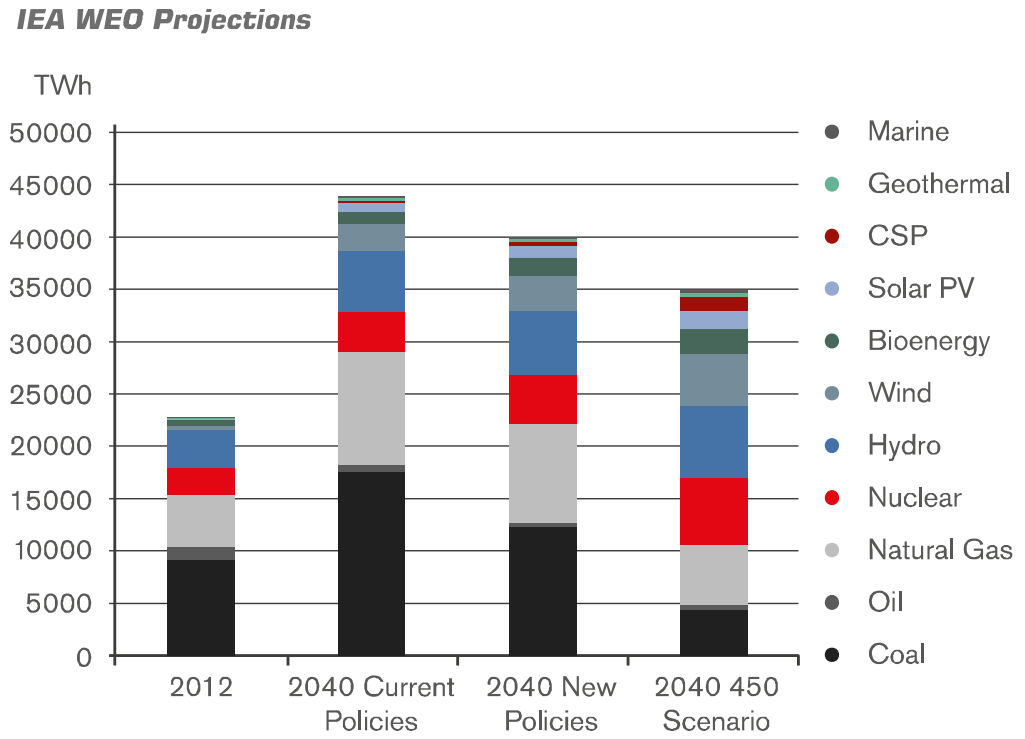
YES, THERE IS!

New markets – Nuclear new construction worldwide

/ Nuclear power capacity worldwide is increasing steadily, with about 50 reactors under construction

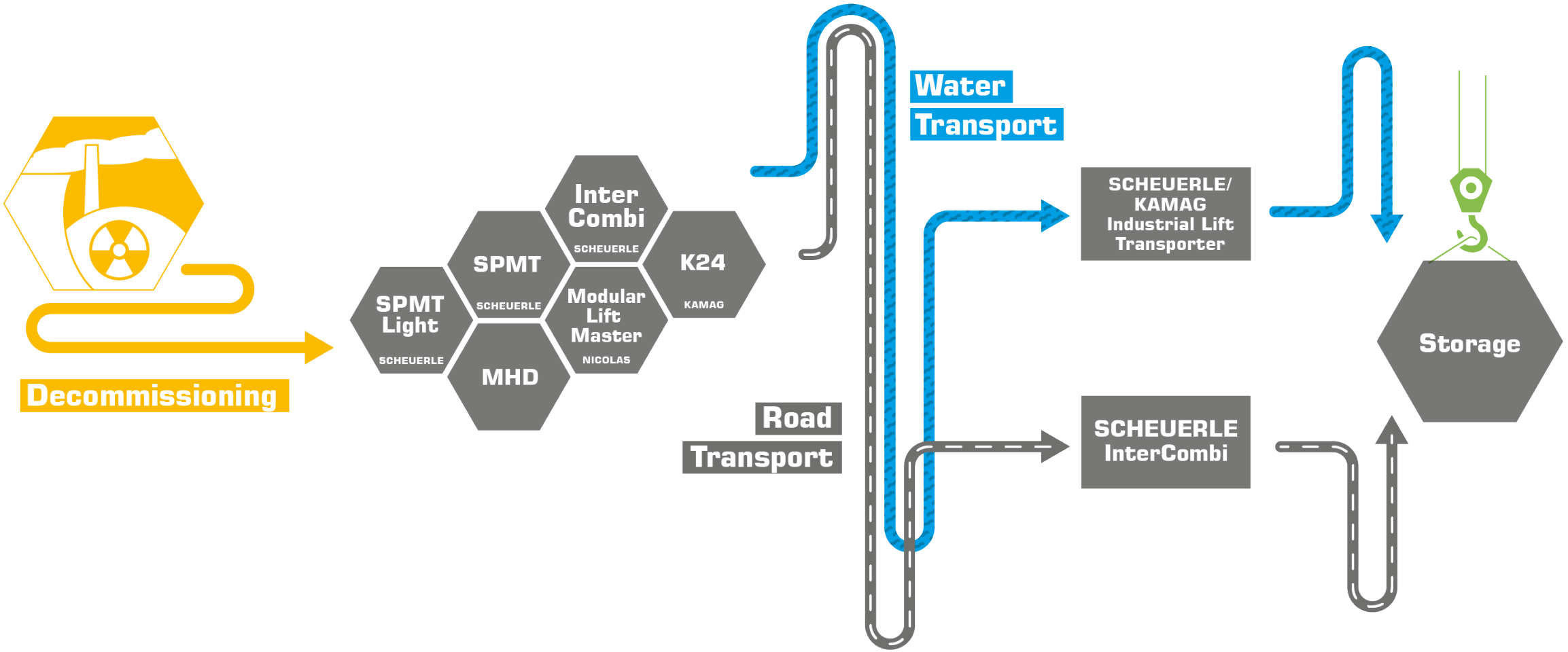
/ Most reactors on order or planned are in the Asian region, though there are major plans for new units in Russia

/ Significant further capacity is being created by plant upgrading.



YES, THERE IS!

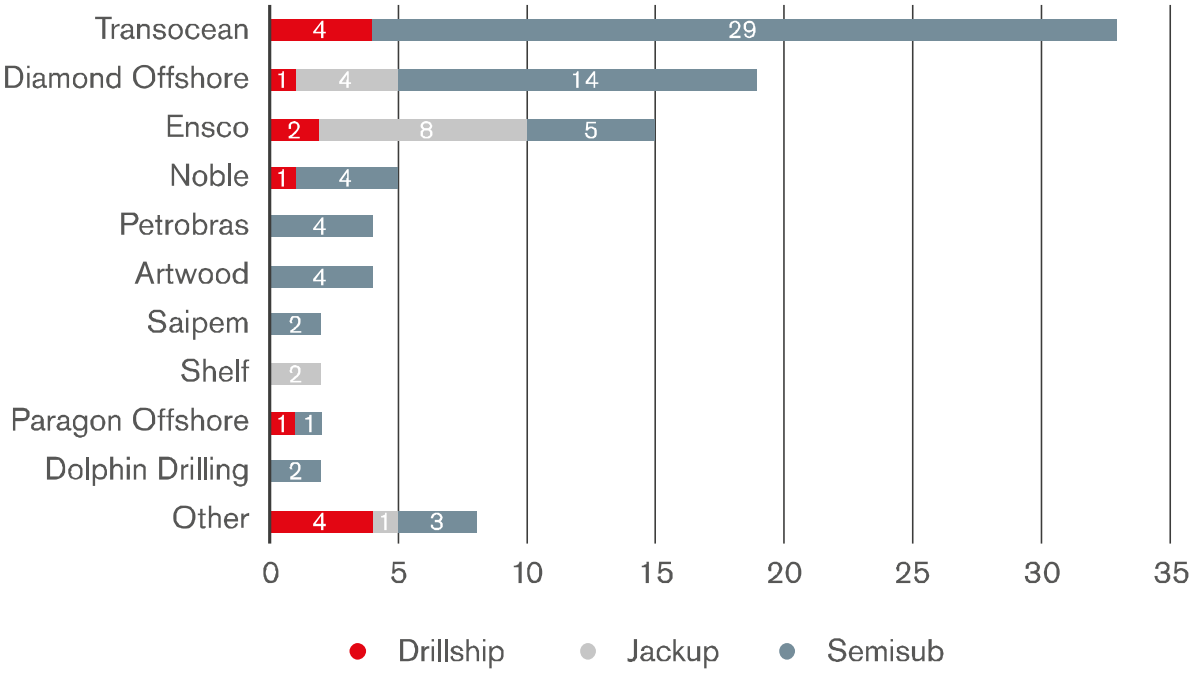
New markets – Nuclear decommissioning in Germany



YES, THERE IS!

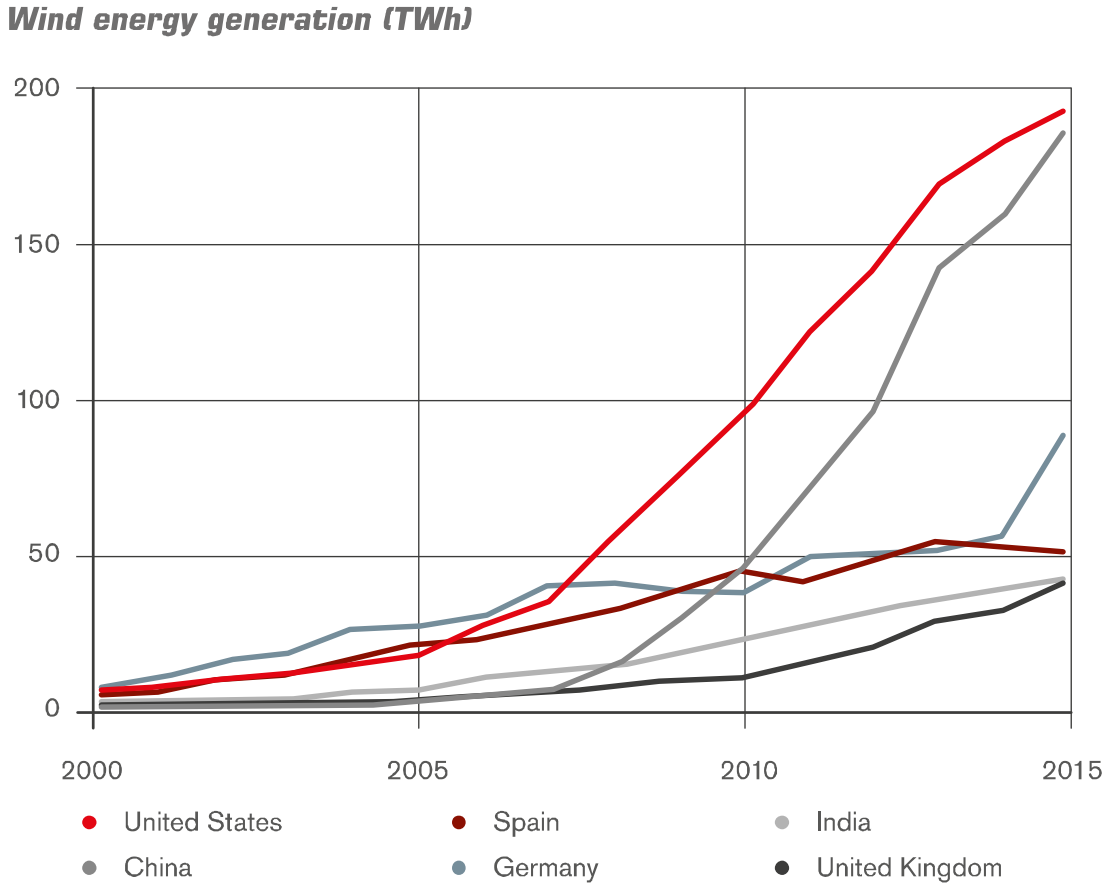
New markets – Scrapping oil rigs

Nearly 100 rigs announced for recycling since 2014



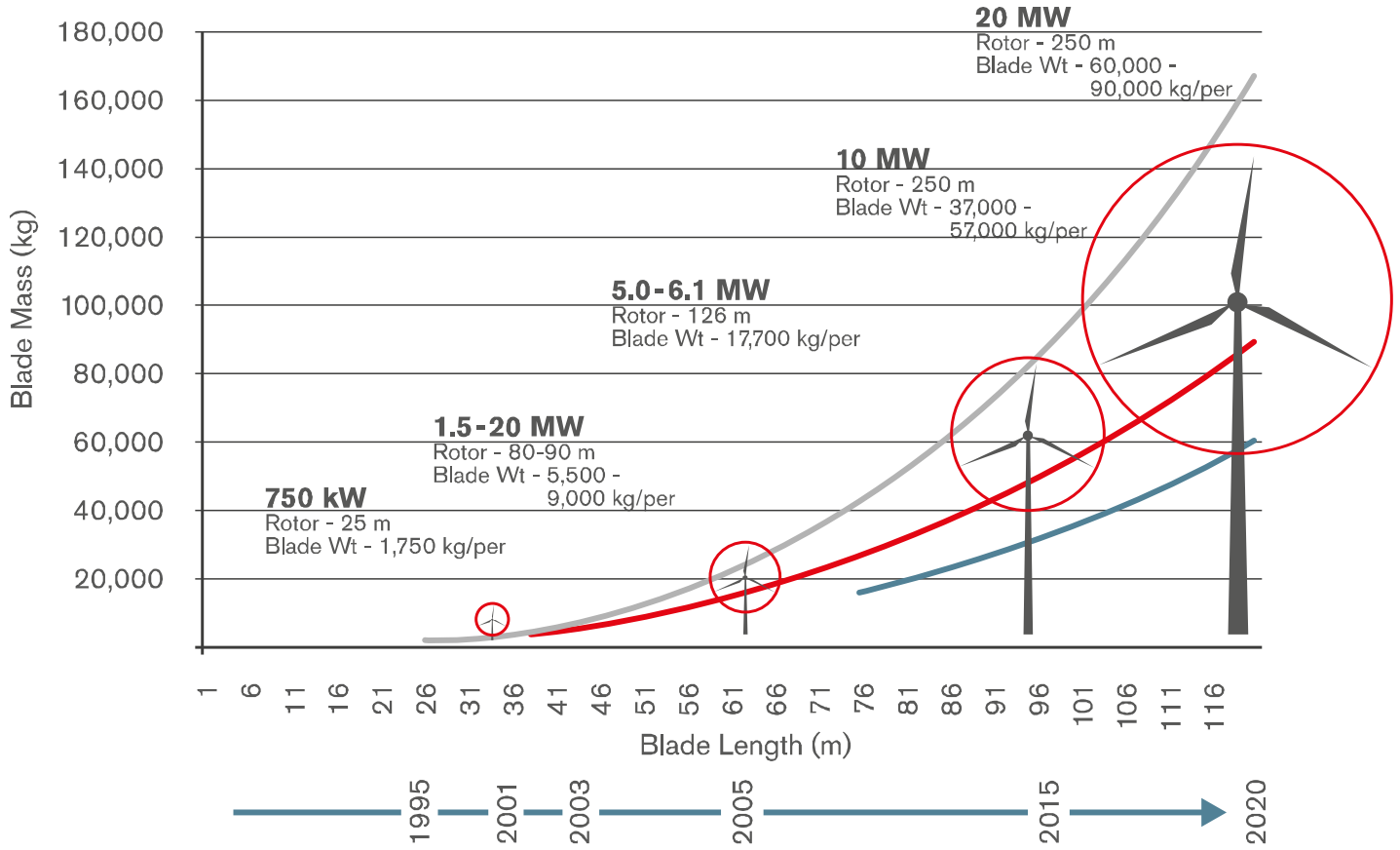
YES, THERE IS!

New markets – Renewables Offshore



YES, THERE IS!

New markets – Repowering and blade developments



- WindPACT - Baseline Design
- LM Glasfiber Commercial Products
- WindPACT - Final Design

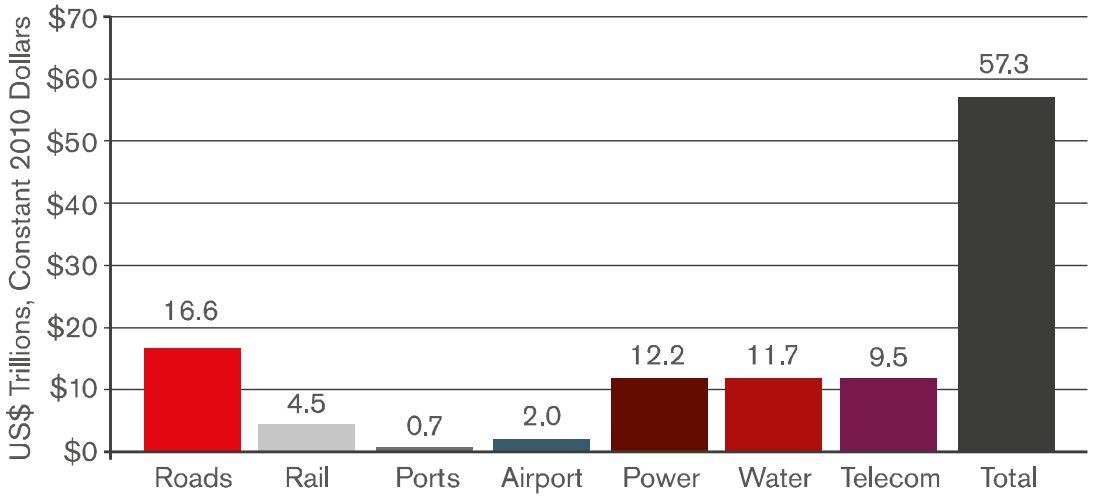
https://www.compositesworld.com/articles/offshore-wind-how-big-will-blades-get

YES, THERE IS!

New markets – New assets and modernized assets to close the gap

Global infrastructure Demand Requires $57 Trillion in investment by 2030

Based on projections of demand equaling 3.5 percent of global GDP, 2013-2030



YES, THERE IS!

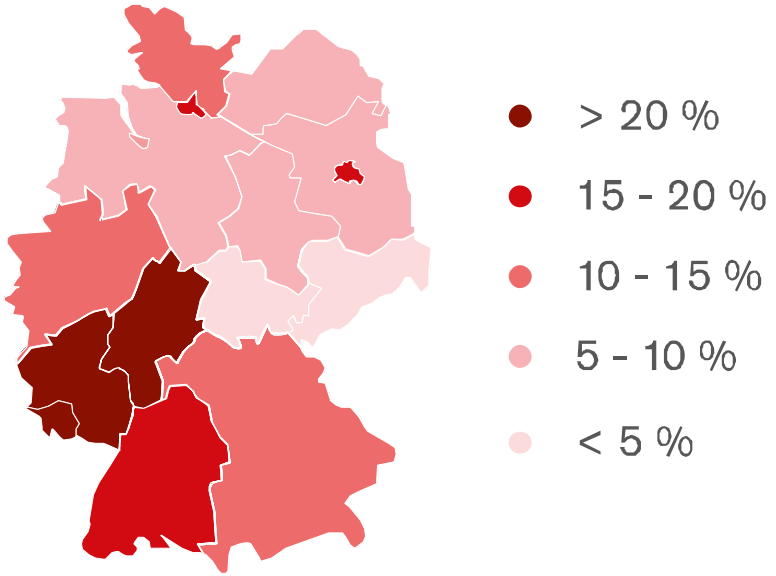
Global issue: Bridge refit

Number of bridges in the US that need repair?
More than 55,000

Top 5 states with the most structural deficient bridges

Iowa (4,968)
Pennsylvania (4,506)
Oklahoma (3,460)
Missouri (3,195)
Nebraska (2,361)

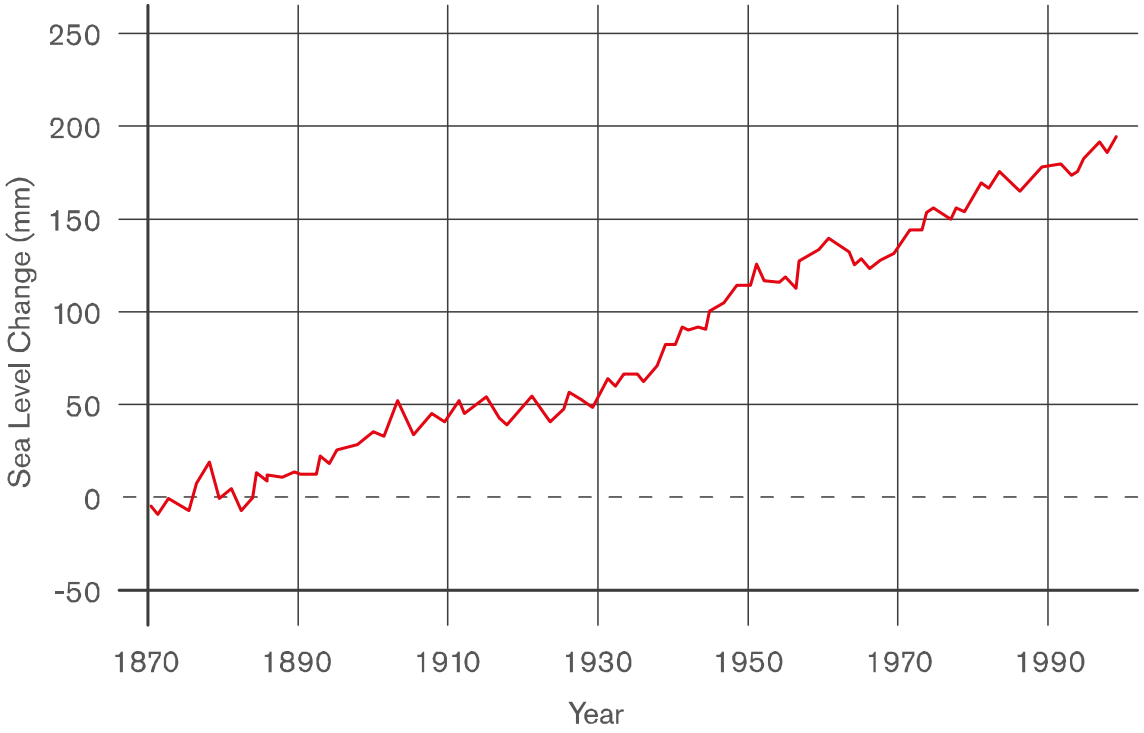
Number of bridges in Germany that need repair in %



YES, THERE IS!

New markets – Flood protection

Ground Data: 1870-2000



YES, THERE IS!

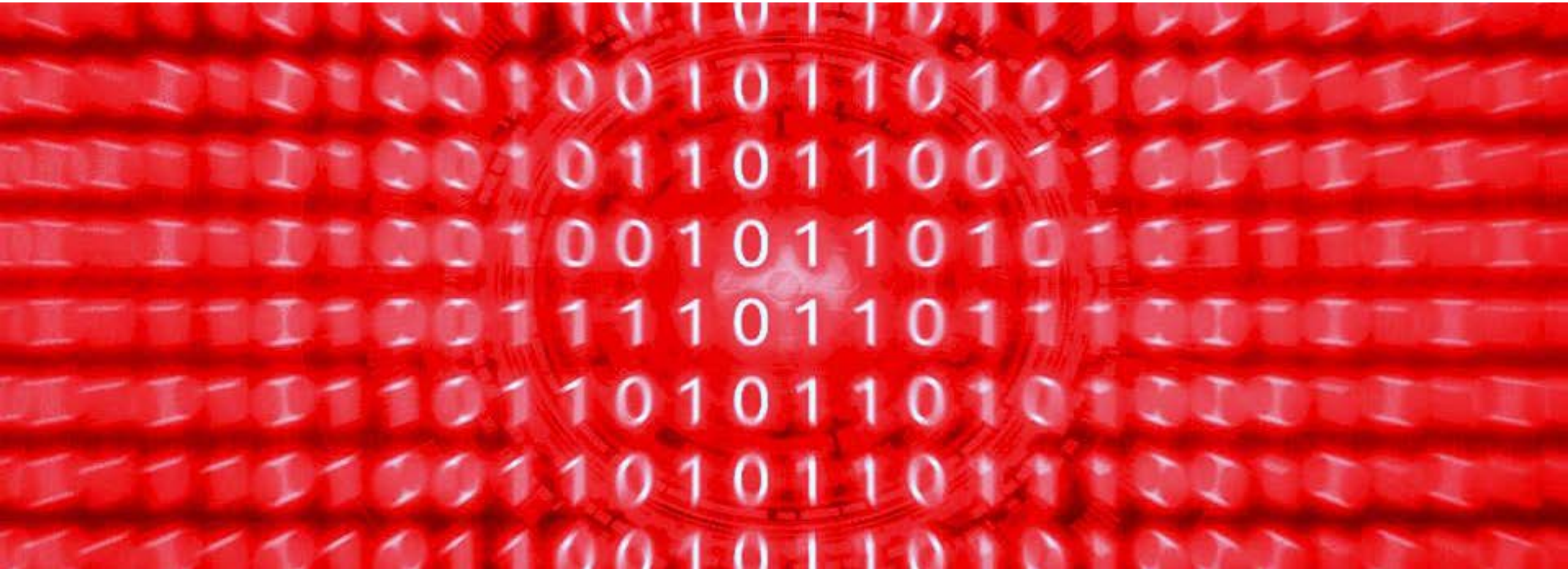
New markets – Flood protection Huge structures call for SPMT

YES, THERE IS!

New markets – Urban infrastructure goes modular?

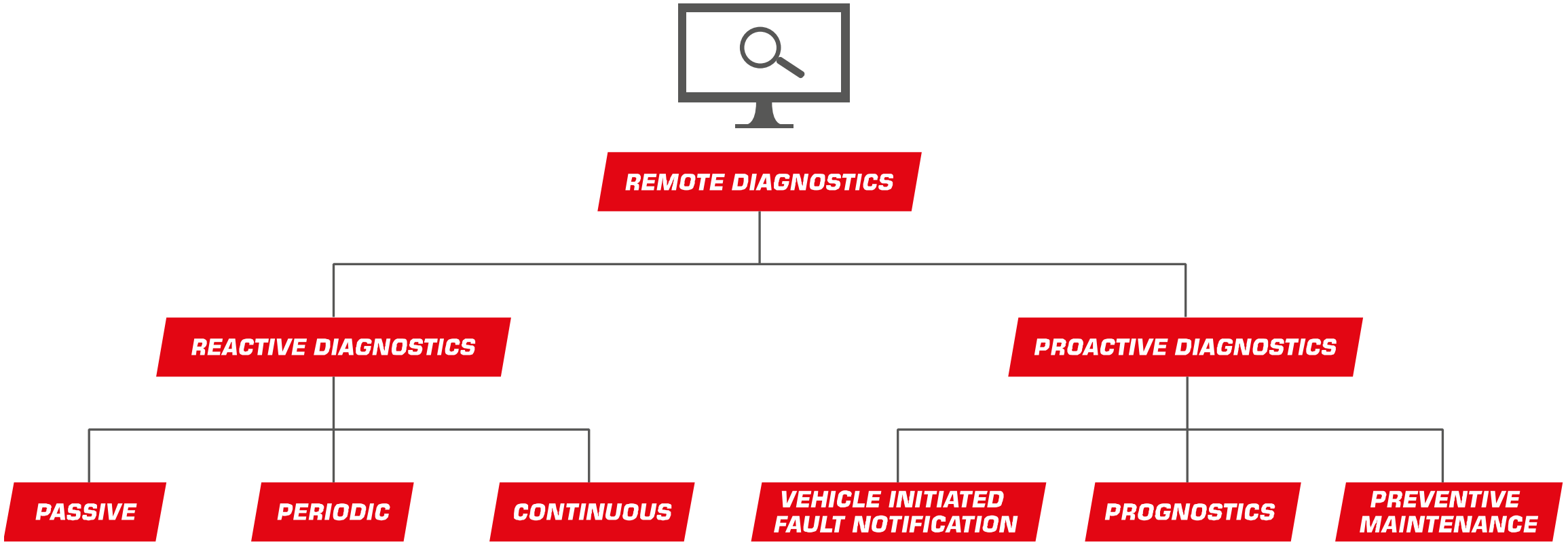
TRENDS AND OUTLOOK

Towards data-driven connected services



SPEED UP MAINTENANCE ONLINE

One step ahead to guarantee you a functional vehicle



MOVE FROM PRODUCT TO SERVICE

SPMTs as a part of the Internet of things

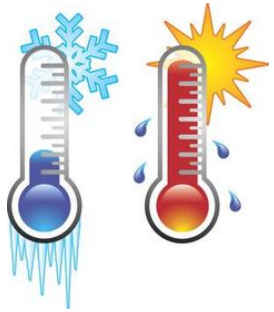
What are the new possibilities?

REALTIME REMOTE TRANSPORT ROUTE SIMULATION

"UBER" FOR SPMT SPMT LOCATOR REALTIME ASSET TRACKING

REALTIME REMOTE LOAD SIMULATION

REALTIME CLIMATE CHALLENGES SIMULATION

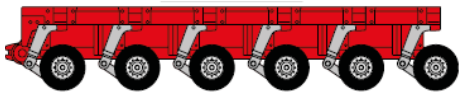


REALTIME TELEDIAGNOSIS AND SERVICE

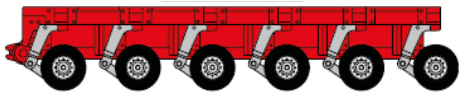
FROM TRANSPORTERS TO SUPER LOGISTICS

Digitalization

PRODUCT



INTELLIGENT PRODUCT

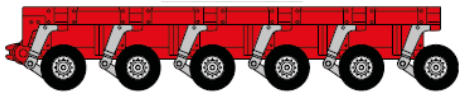


+ CONTROL

CONNECTED PRODUCT

Via APP, e.g. LogiApps

+ NETWORKING



+ CONTROL

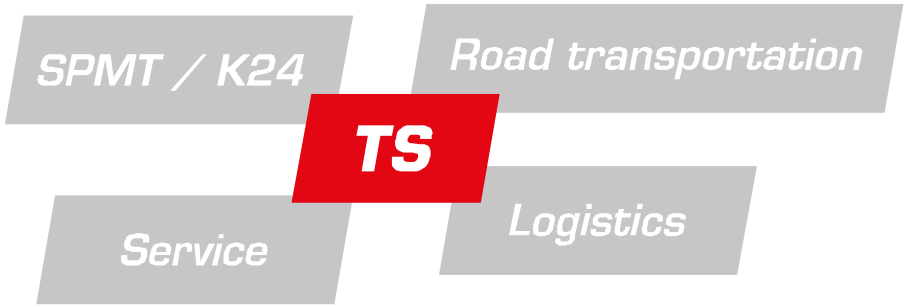
SHARING CONCEPT

DIGITALIZATION

From Product to Service

Today

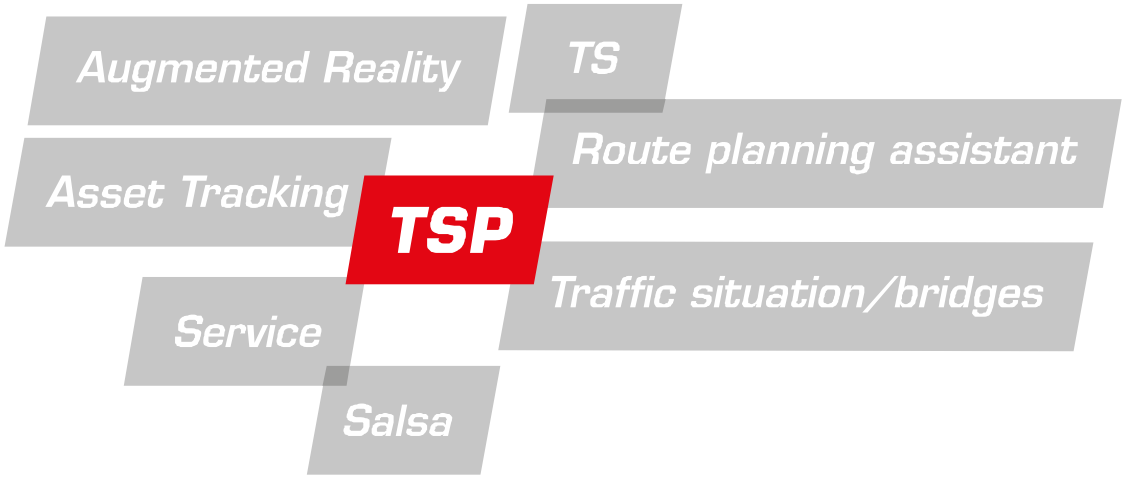
PRODUCT



TS = Transportation Systems

Soon

SERVICE



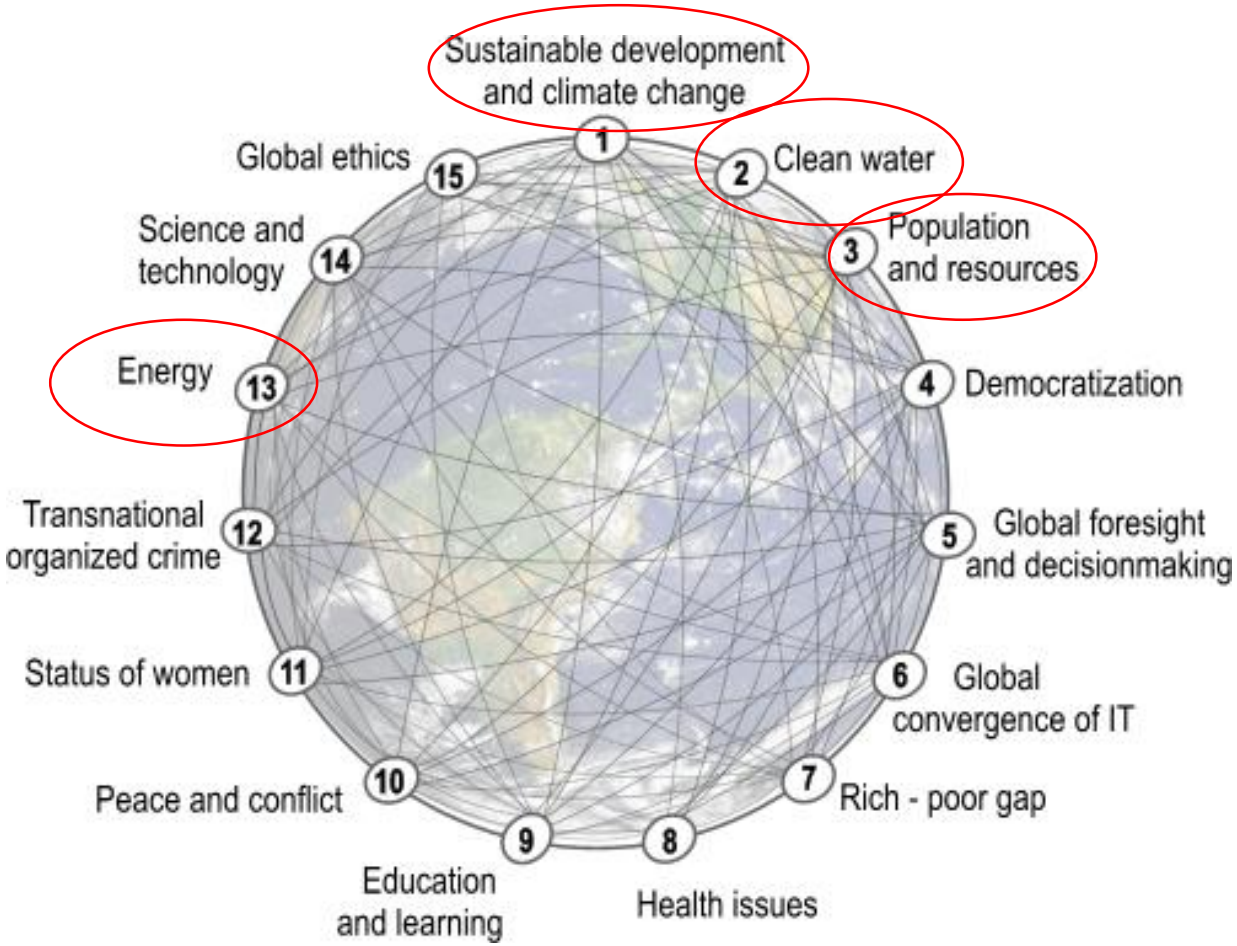
TSP = Transportation Systems Platform

WHERE ARE WE GOING

Improvise. Adapt. Overcome.

AHEAD!

There is no infrastructure development without cranes and heavy transport!



THANK YOU FOR YOUR ATTENTION!