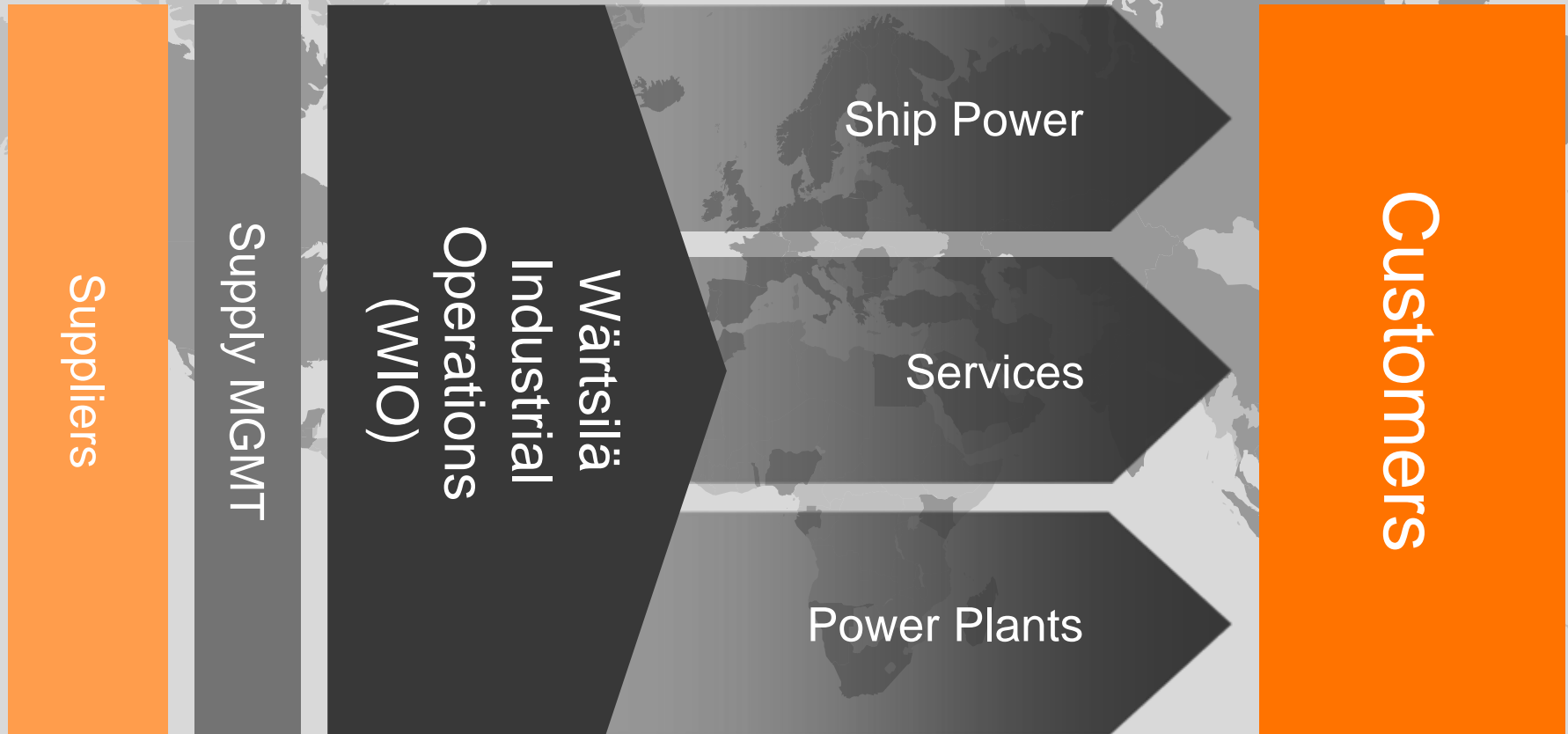


# WÄRTSILÄ INDUSTRIAL OPERATIONS FOOTPRINT NOW AND IN THE FUTURE

LARS HELLBERG

GROUP VICE PRESIDENT, WÄRTSILÄ INDUSTRIAL OPERATIONS

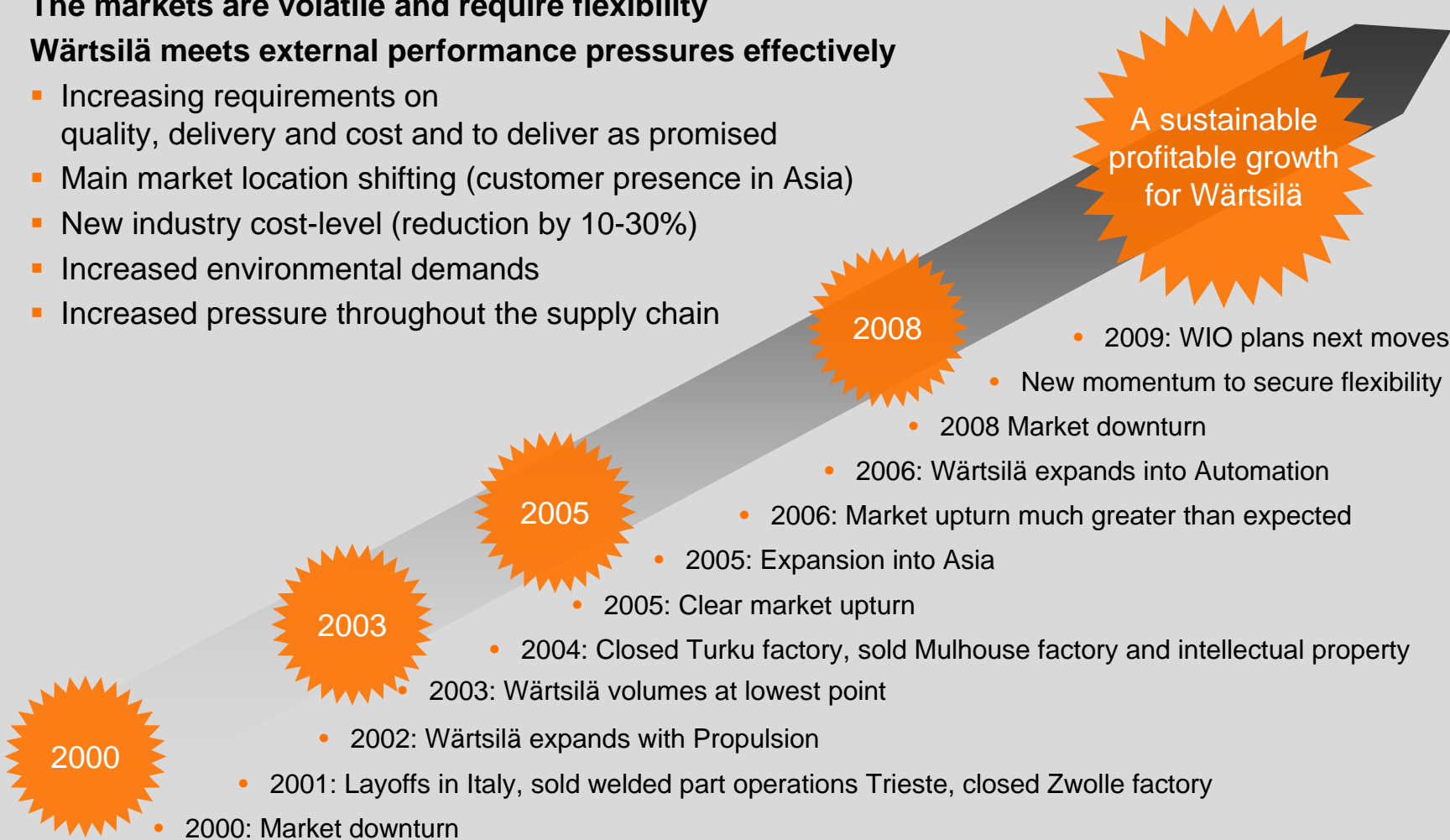




## The markets are volatile and require flexibility

### Wärtsilä meets external performance pressures effectively

- Increasing requirements on quality, delivery and cost and to deliver as promised
- Main market location shifting (customer presence in Asia)
- New industry cost-level (reduction by 10-30%)
- Increased environmental demands
- Increased pressure throughout the supply chain

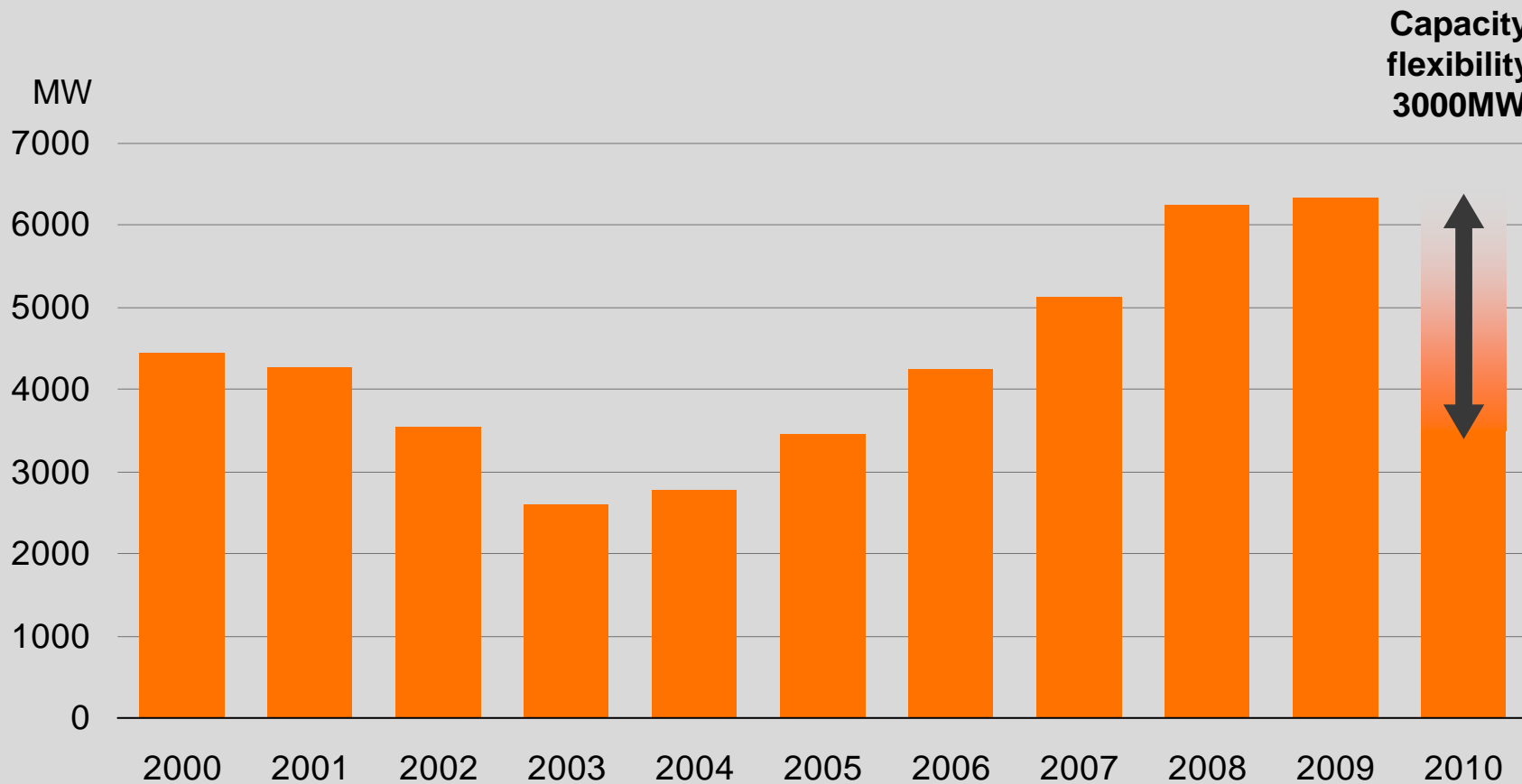


Net sales	2.4	B€
EBIT	4.6	%
People	11,000	#

Net sales	5.3	B€
EBIT	12.1	%
People	18.500	#



# 4-stroke MW delivered 2000-2009



Flexibility is obtained from people, outsourcing, supply chain optimisation and streamlining of manufacturing foot print

# Wärtsilä's current manufacturing capacity

**Norway**, 390 employees  
Propellers, gears, propulsion controls, R&D, power drives, power distribution, vessel automation

**Finland**  
1,430 employees  
Engine manufacturing, R&D

**China**, 1,130 employees  
Low-speed engines, thrusters, components, seals, bearings auxiliary engines, propellers, shaft lines, blades and hubs

**UK**, 180 employees  
Seals, synthetic bearings, R&D

**The Netherlands**, 530 employees  
Propellers, thrusters, propulsion controls, R&D, DTS – Component Machining unit

**Switzerland**,  
270 employees  
R&D and licensing

**Spain**, 70 employees  
Engine manufacturing, R&D, blades, propellers

**Italy**  
890 employees  
Engine manufacturing, R&D

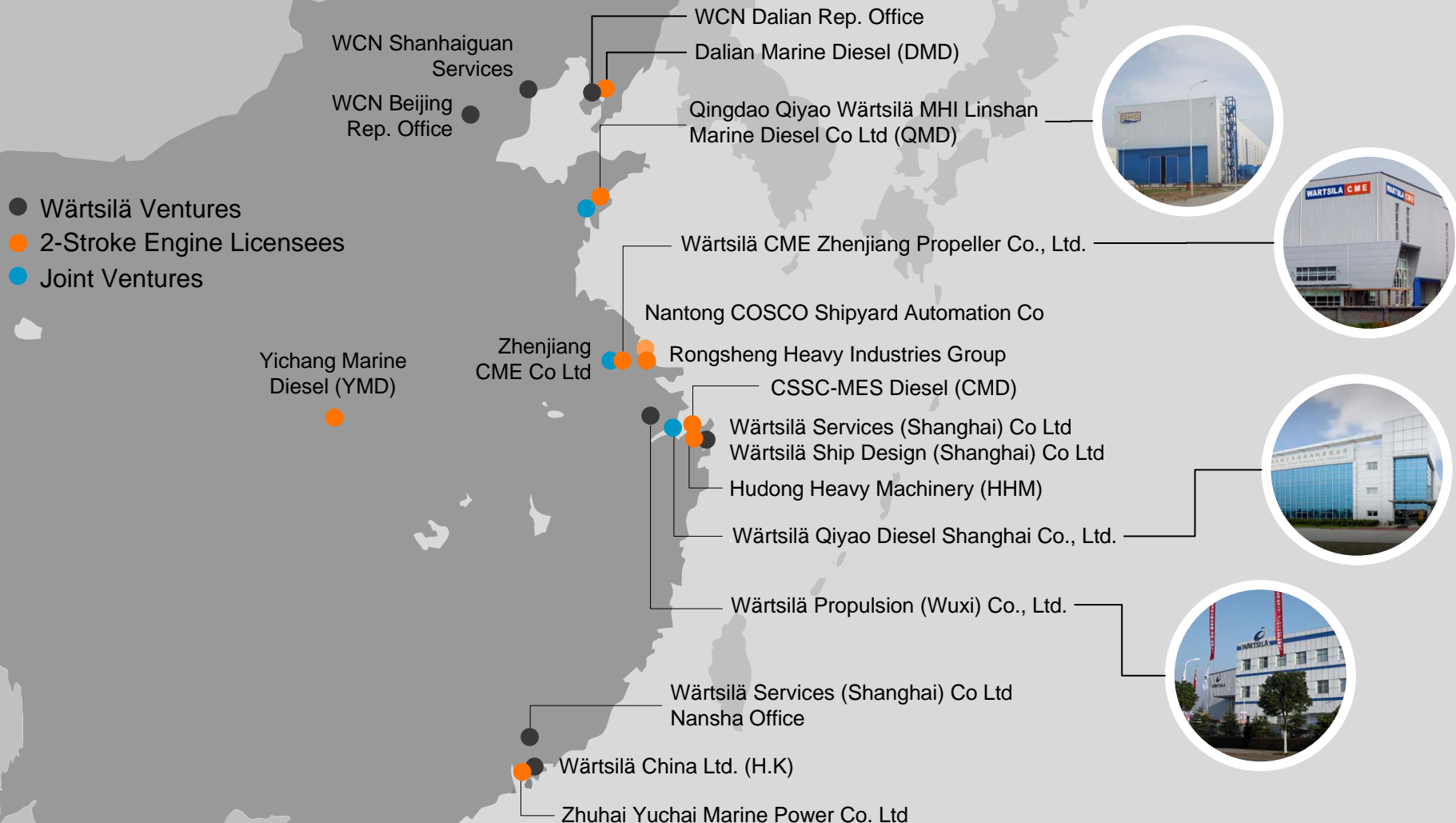
**India**, 130 employees  
Gears, propellers, components, auxiliary engines

**Japan**  
170 employees  
Seals, bearings

**South Korea**  
30 employees  
Engine manufacturing

Number of employees December 31, 2009:  
4,900 in Industrial operations, 18,541 Wärtsilä total

70-80% in Europe, 20-30% in Asia



2010: WIO starts Wärtsilä Engineering Centre China (WECC)



- Local provision of competences as a service provider in a global network
- Operational engineering activities\* are brought close to the customers
  - Better engineering support for customers
  - Closely located to local manufacturing
  - Local operational functions for application engineering, quality, problem solving, supplier development, product localisation and production support and development.
  - Shorter information loop to serve running projects
  - Shorter engineering lead-times, faster and more efficient
  - Growth support in Asia
  - Technical hub function
  - IP protection

\* This excludes R&D activities

# Capacity growth in Asia - examples



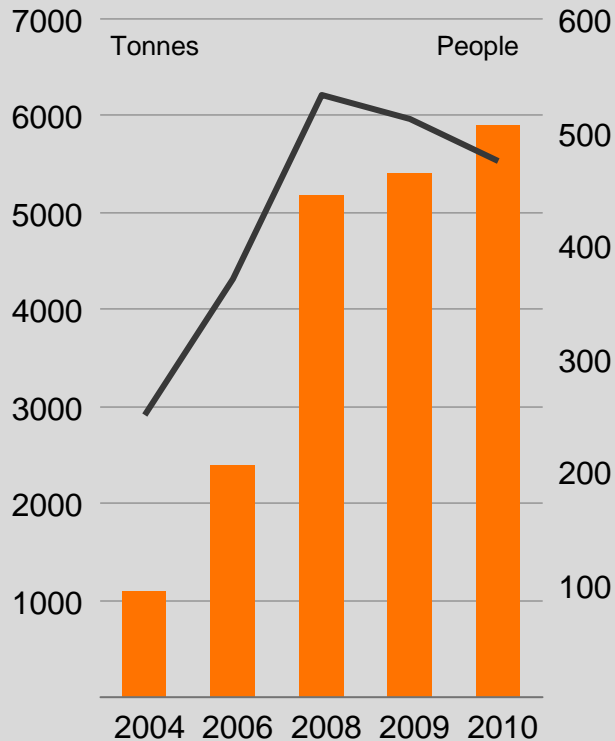
**Wärtsilä CME** (Zhenjiang)  
No 1 in China and 4th biggest FPP manufacturer in the world



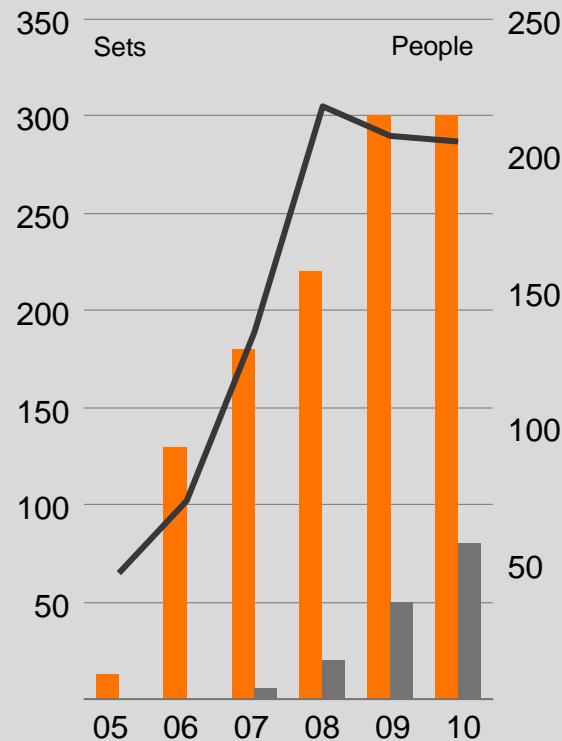
**Wärtsilä Propulsion** (Wuxi)



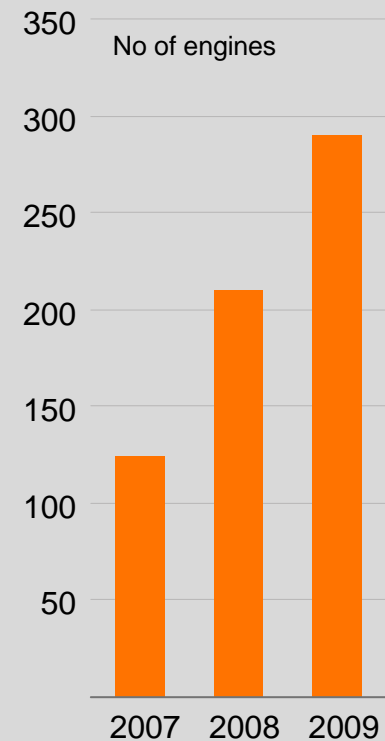
**Wärtsilä Qiyao Diesel Company Ltd.** (Shanghai)



● Annual Output  
● Employees



● Tunnel Thrusters  
● Wärtsilä Transverse Thrusters  
● Employees





Global economy  
and financial

Innovation &  
technical

Competitors and  
competitive  
landscape

Customer  
expectations

Regulations &  
environment

## Key issues:

- Volatile and unpredictable market calls for **flexibility in supply chain**
- Customer requests move from “technology” to “**benefits of technology**”
- Customer demands for **quality** (first time right and reliability), **timely responses, short lead time, competitive life cycle costs, serviceability** and **high power output density**.
- **Environmental** and **Energy efficiency** concern is raising throughout all world leaders.

## 2005

### Engine division

- Vaasa (FI)
- Trieste (IT)
- Winterthur (CH)

### Ship Power

- Khopoli (IN)
- Havant (UK)
- Drunen (NL)
- Santander (ES)
- Toyama (JP)
- Rubbestadneset PCP (NO)
- Slough (UK)

**Expansion and focus to develop industrial competences in one division**

## 2009

### Wärtsilä Industrial Operations

- Vaasa (FI)
  - Trieste (IT)
  - Winterthur (CH)
  
  - Khopoli (IN)
  - Havant (UK)
  - Drunen (NL)
  - Santander (ES)
  - Toyama (JP)
  - Rubbestadneset PCP (NO)
  - Slough (UK)
  
  - Wuxi (CN)
  - Stord (NO)
  - Bermeo (ES)
  - Zwolle (NL)
  - Rubbestadneset PCA (NO)
- JV's:**
- Zhenjiang (CN)
  - Qingdao (CN)
  - Mokpo (KO)
  - Lingang (CN)

## Targets 2010+

- Close to customers
- Assembly focused
- Global supplier base
- Plan to reduce European footprint
- Component manufacturing by supply chain

## The Netherlands

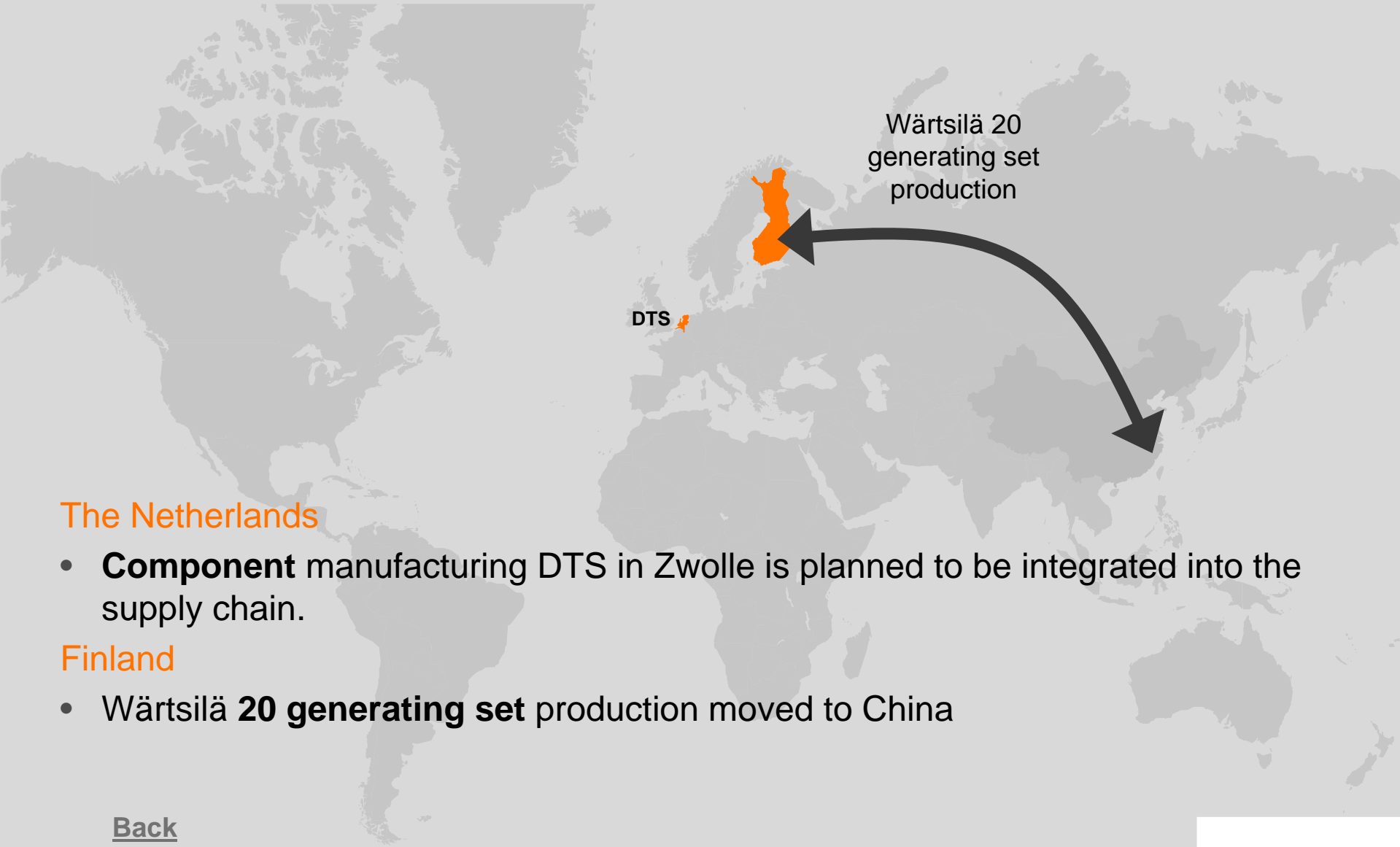
Production of CPP  
special and naval  
applications

Foundry activities

Fixed Pitch Propeller and  
Controllable Pitch  
Propeller production

Thruster  
assembly

- **Controllable Pitch Propeller** manufacturing is planned to be moved to China and naval applications focused in Norway
- **Thruster** manufacturing is planned to be transferred to Trieste, Italy.
- **Foundry** (Fixed Pitch Propellers, blades and hubs) is planned to be moved to the existing foundries in China and Spain



## The Netherlands

- **Component** manufacturing DTS in Zwolle is planned to be integrated into the supply chain.

## Finland

- Wärtsilä **20 generating set** production moved to China

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## 2005

### Engine division

- Engines (2-stroke and 4-stroke)

### Ship Power

- Propulsion equipment

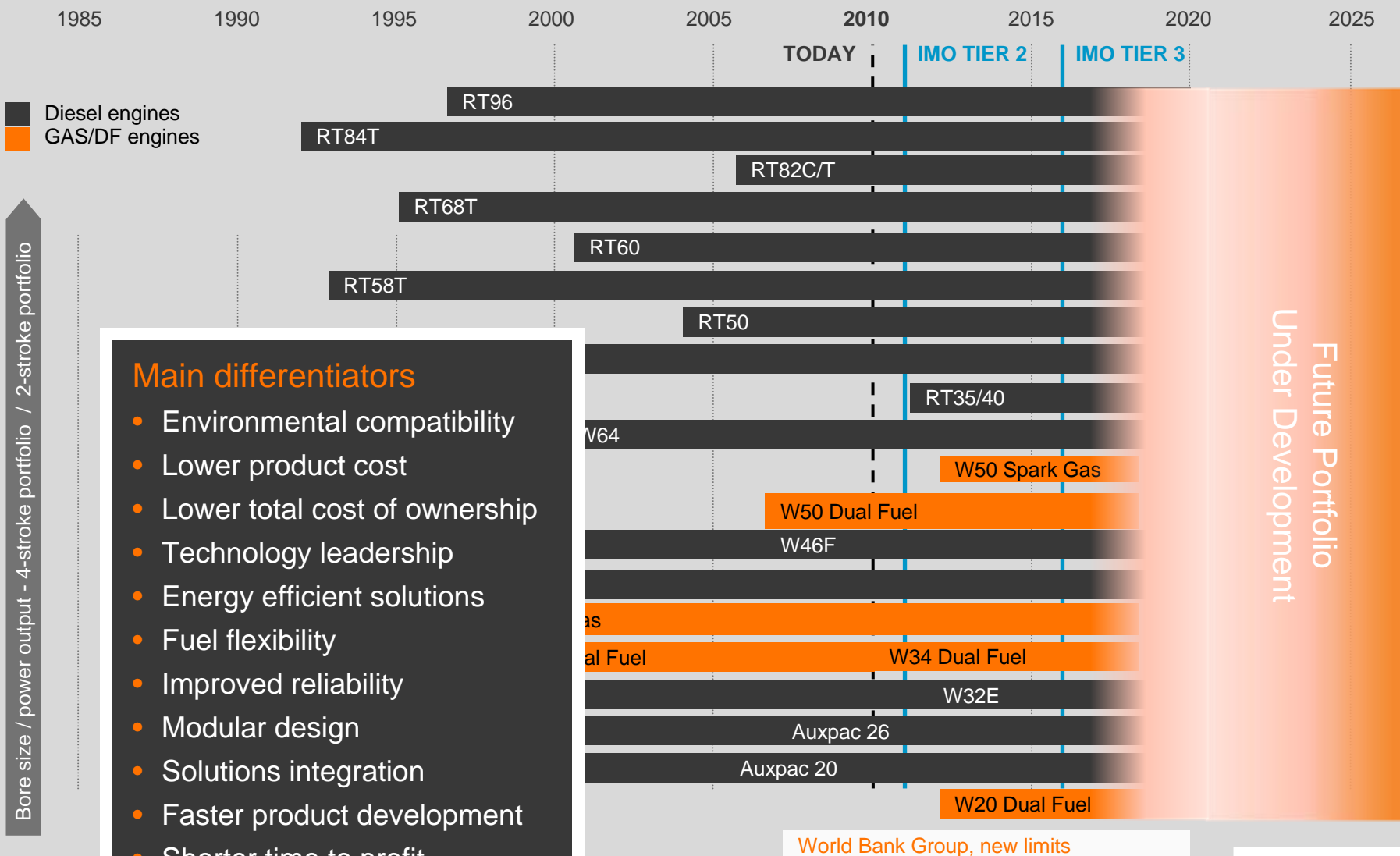
## 2009

- Engines (2-stroke and 4-stroke)
- Propulsion equipment
- Automation equipment
- Ecotech products

## Targets 2010+

- Start renewal of portfolio
- Conceptual approach on commonality, modularity, platforms, design to manufacture, design to cost and design to service

# Wärtsilä engine portfolio & focus areas



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Global challenges = our opportunities

**CLIMATE AND ENVIRONMENT**

**ENERGY GUARANTEE**  
(reliable power supply)

Customer focus = our focus

**ENERGY  
EFFICIENCY**

**ULTRA LOW  
EMISSIONS**

**RELIABILITY**

**LIFE CYCLE  
COST**

Our strengths

**PEOPLE WITH  
KNOWHOW**

**INNOVATIONS**

**SYSTEMATIC  
WAY OF WORKING**

**TESTING &  
VALIDATION**

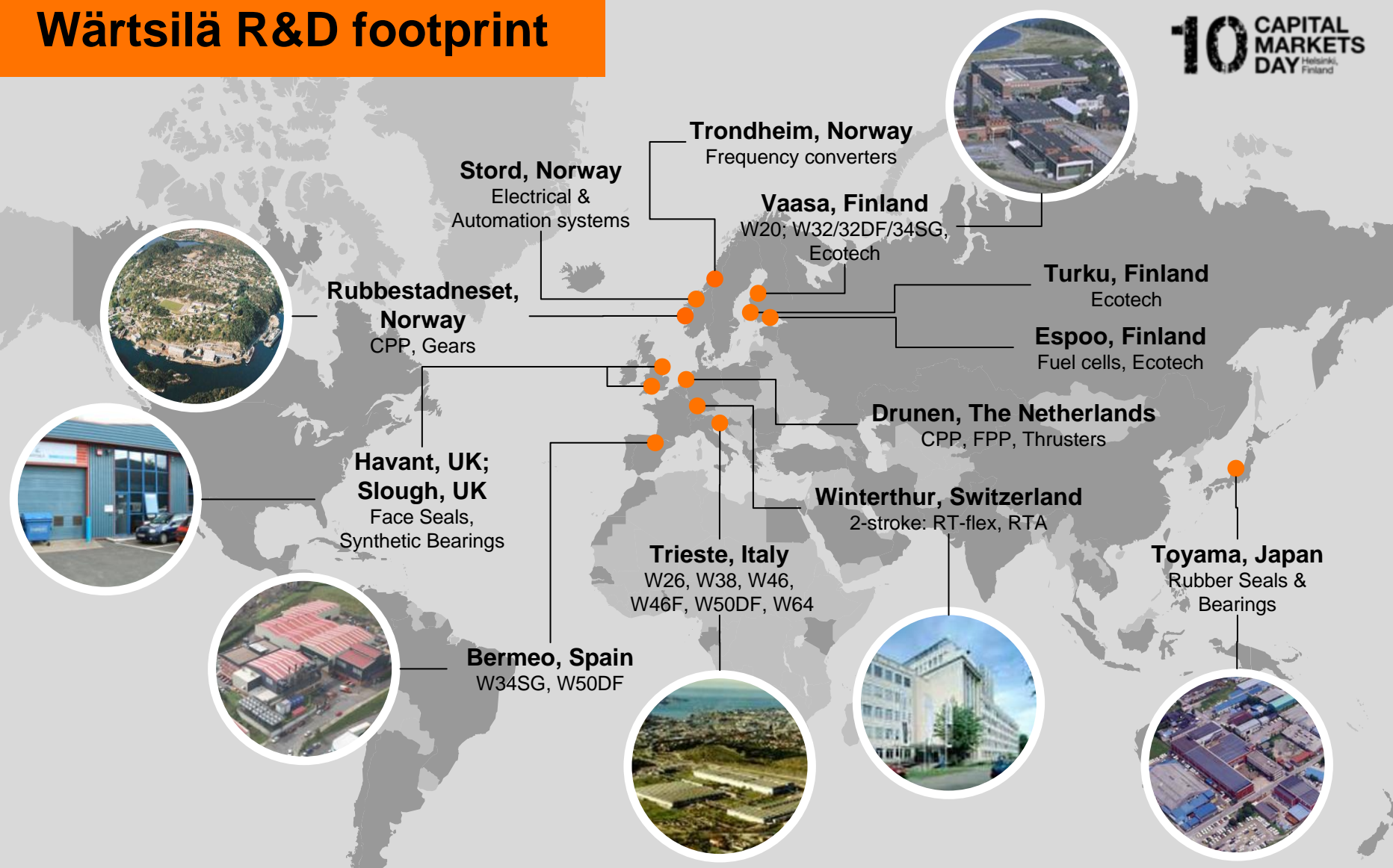
Our improvement areas

**STATE-OF-THE-ART  
SIMULATION**

**SUPPLY CHAIN  
INTEGRATION**

**DESIGN FOR MANUFACTURING,  
ASSEMBLY, COST, SERVICE ABILITY**

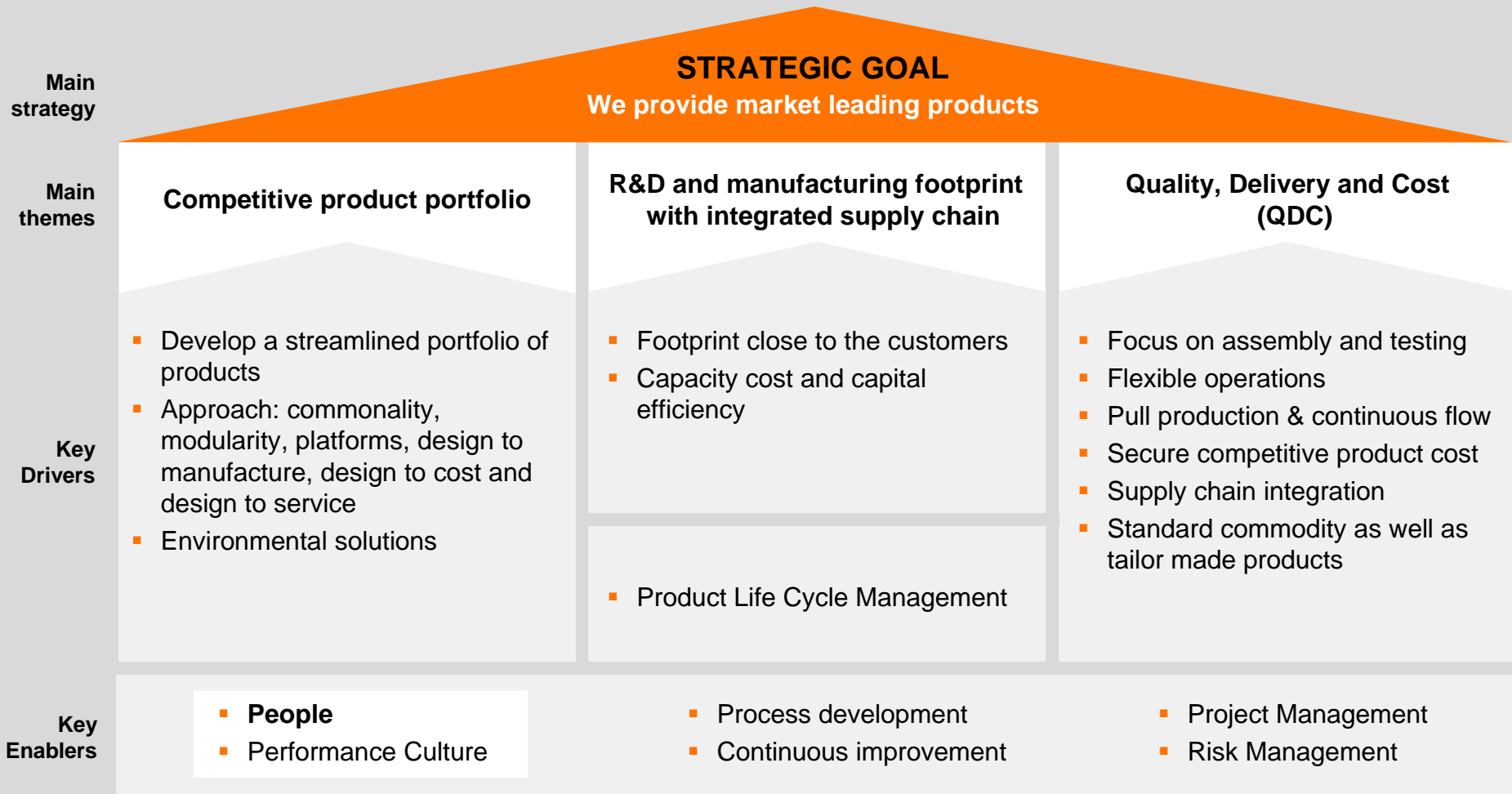
# Wärtsilä R&D footprint



**WIO R&D** ~740 employees  
R&D spending 2010: EUR 141 million  
Continuous strong focus on R&D and life-cycle solutions will further strengthen Wärtsilä's position as technology leader

R&D will be maintained in Europe







**WÄRTSILÄ**