

TECHNOLOGY WITH EXCELLENCE

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Group Vice President, Industrial Operations



Our product portfolio 2012



4-stroke engines



2-stroke engines



Gensets & Auxpacs



Propellers FPP/CPP



Steerable thrusters



Transverse thrusters



Flue gas desulphurisation & scrubbers



Energy efficiency systems*



Frequency converters



Propulsion controls



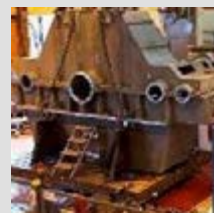
Automation, monitoring & control



I/O cabinets



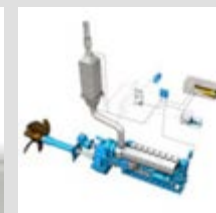
Switchboards



Gears

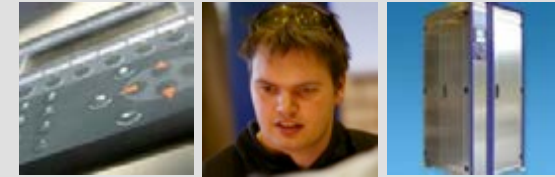


Fuel cells

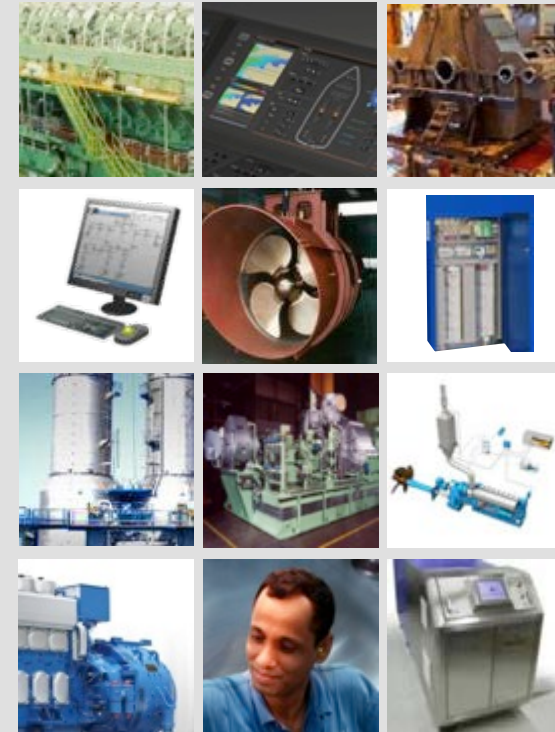
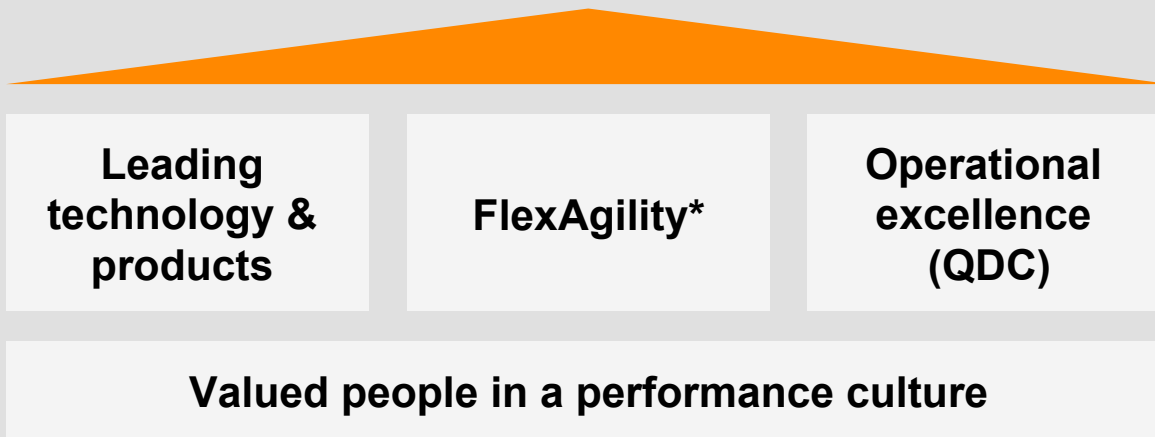


Catalysts (SCR, Oxicat, etc.)

* e.g. Waste Heat Recovery Systems



We provide market leading products



*) FlexAgility = Flexibility + Agility
Flexibility = Ability to deal with known and predictable variations (singular systems)
Agility = Cultural capability to cope with the unknown (affecting bigger systems)



Technology & product development

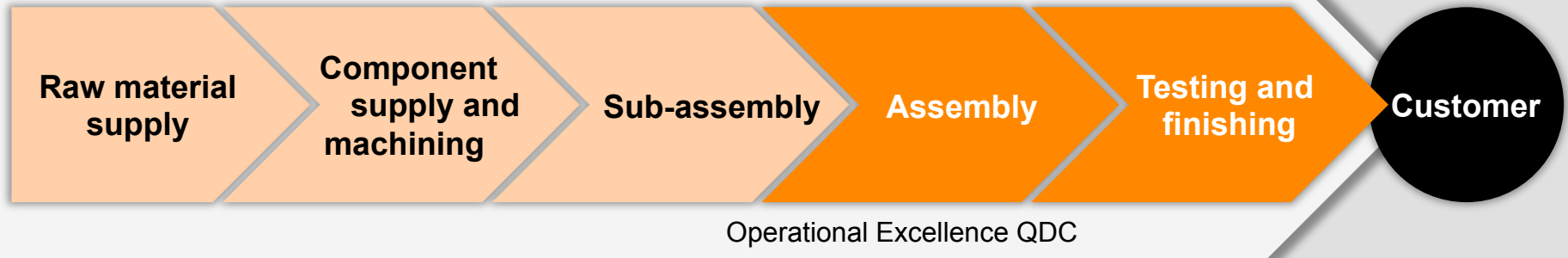
Innovation with a focus on future market needs, know-how leadership



A streamlined, broad and competitive product portfolio

Product delivery

Focus on customer value, whilst reducing waste across the value stream





Differentiators

Reliability

- High quality and reliability

Performance

- Environmental compliance
- Superior efficiency
- Gas focus
- Multi-fuel capability and fuel flexibility
- Superior loading capability

Design

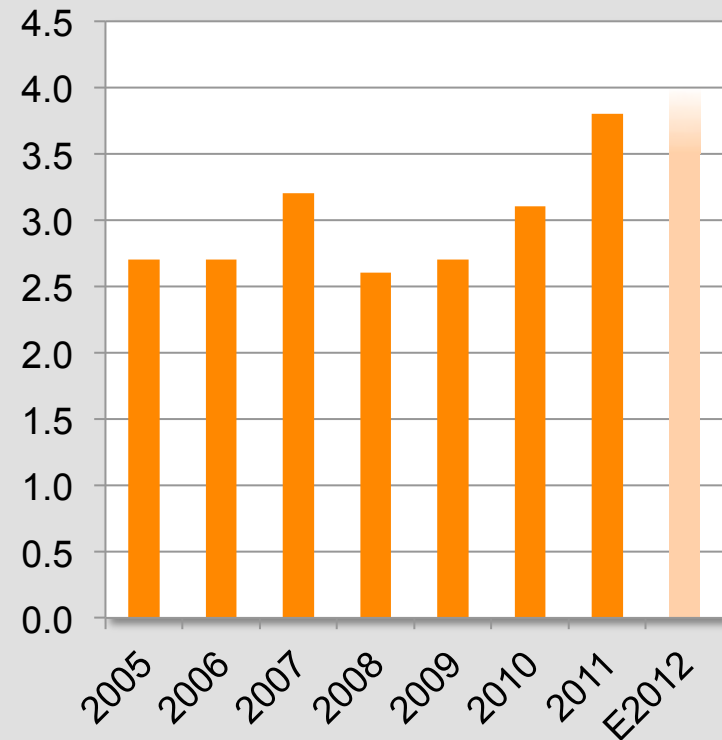
- High power density
- Solutions integration
- Service-ability

Cost

- Total cost of ownership

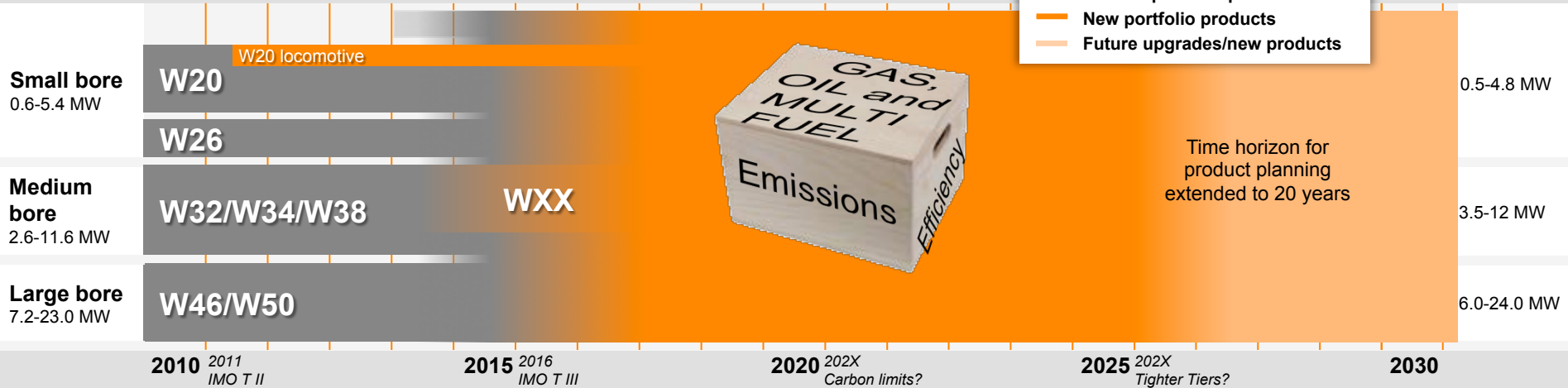
WÄRTSILÄ R&D EXPENSES

% of net sales

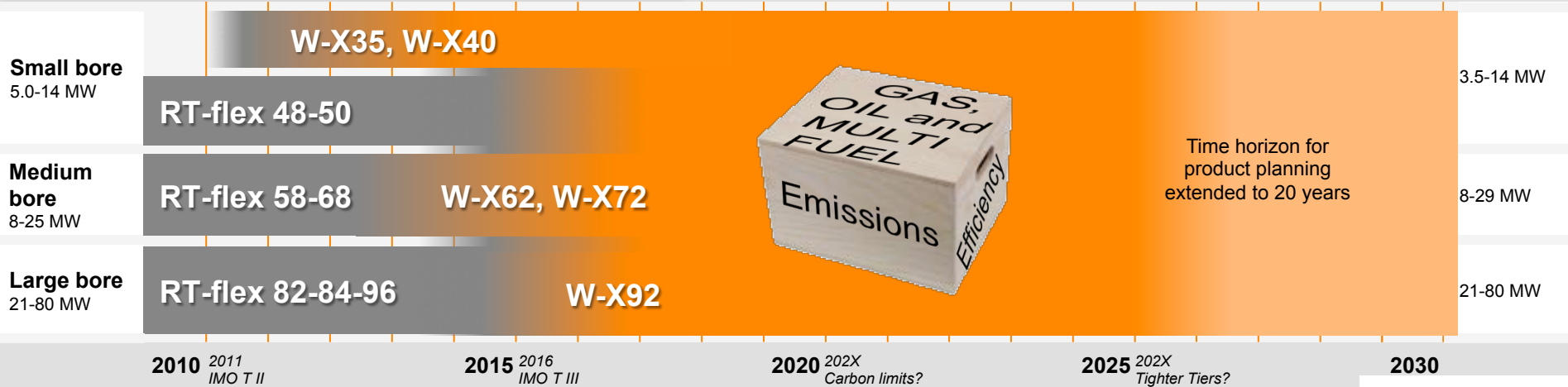


Keeping the lead in engine products

4-stroke portfolio program



2-stroke portfolio program

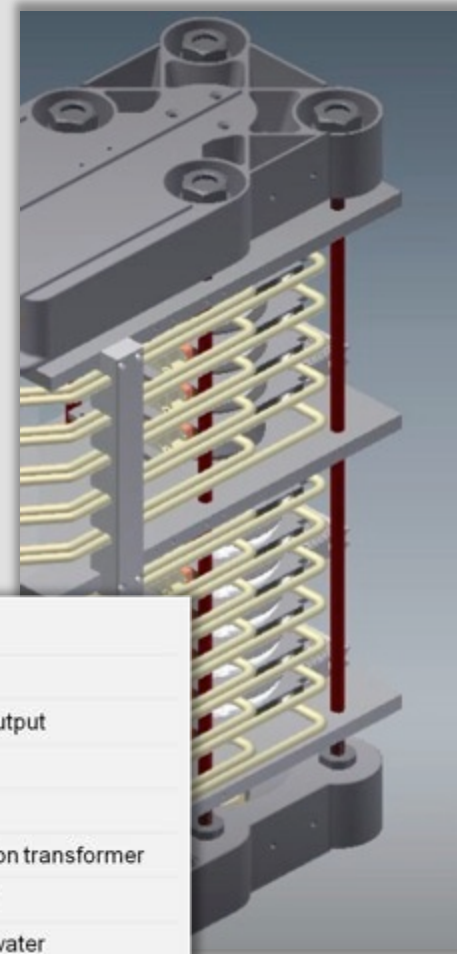


Medium Voltage Power Drive

- Power electronics for marine electric propulsion (fast growing market with increasing power)
- Supports new and increased power concepts in the 10–25 MW range
- Enables energy savings
- Specific market segments: LNG, cruise and offshore vessels

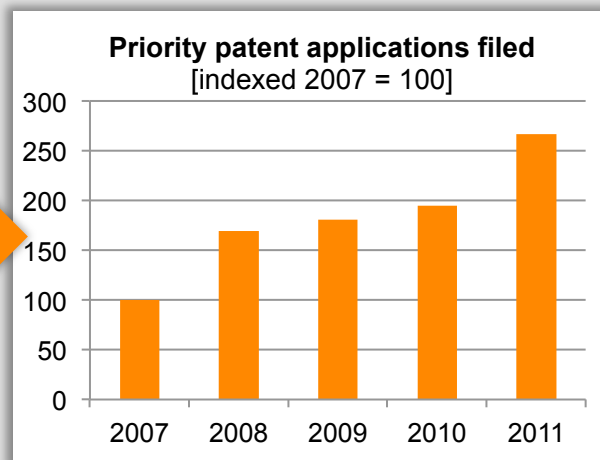
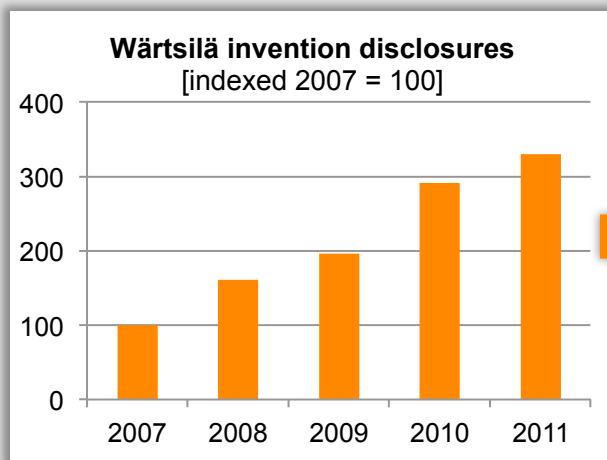


Motor power	1 000 - 25 000kW
Supply voltage	3300-6600VAC
Control	Vector control/PWM output
Efficiency full load	>98,8%
Power factor	>0,96
Switchboard connection	Direct or with propulsion transformer
Cooling method	Deionized fresh water
External cooling water	10-38°C fresh or salt water
Protection	IP44





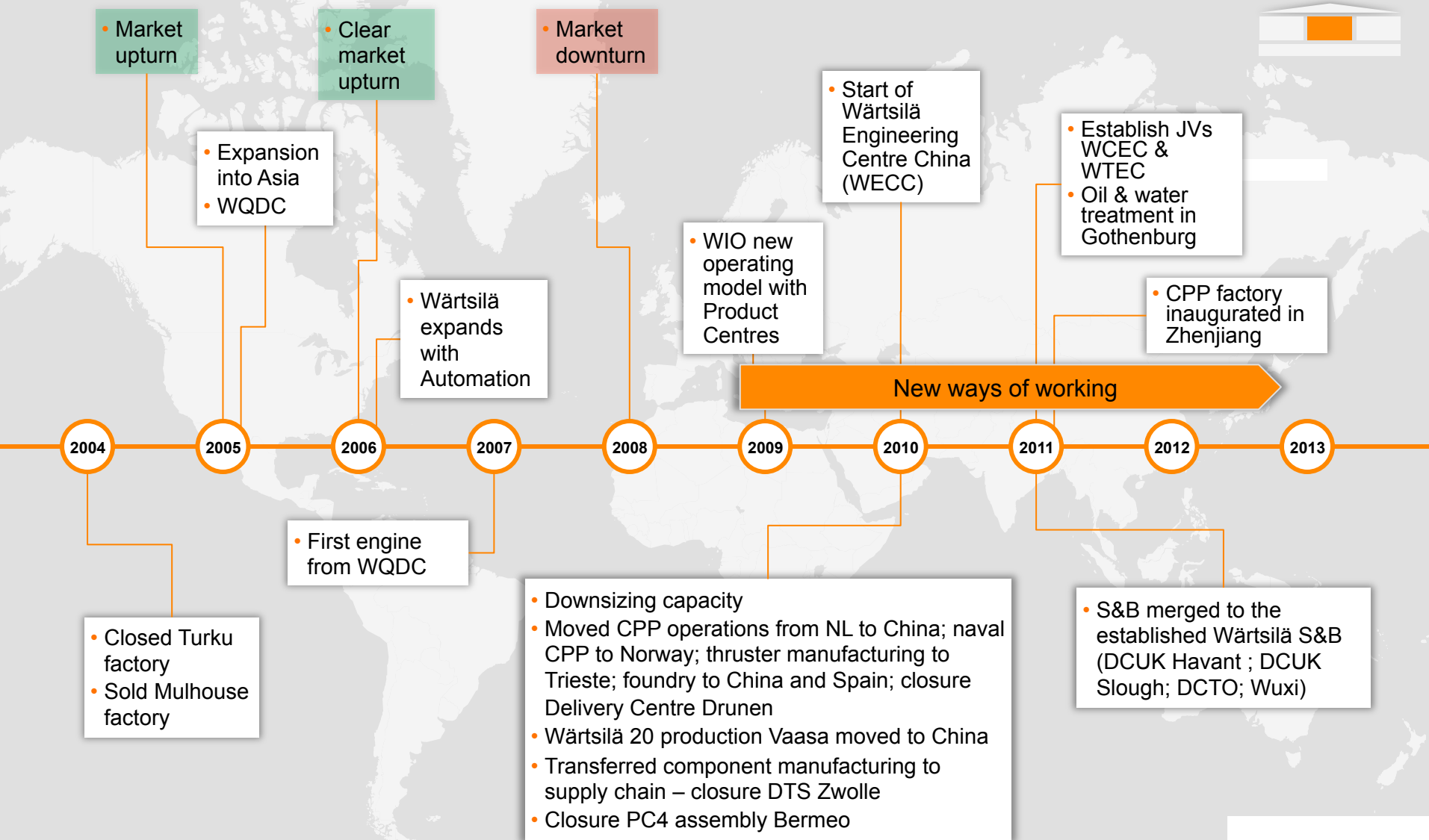
- Increased attention on Intellectual Property Rights (IPR) and Intellectual Asset Management (IAM)
- Owning > 2,000 patents and patent applications^{*)}
- Filing annually over 500 new national applications



Indicator for innovation culture

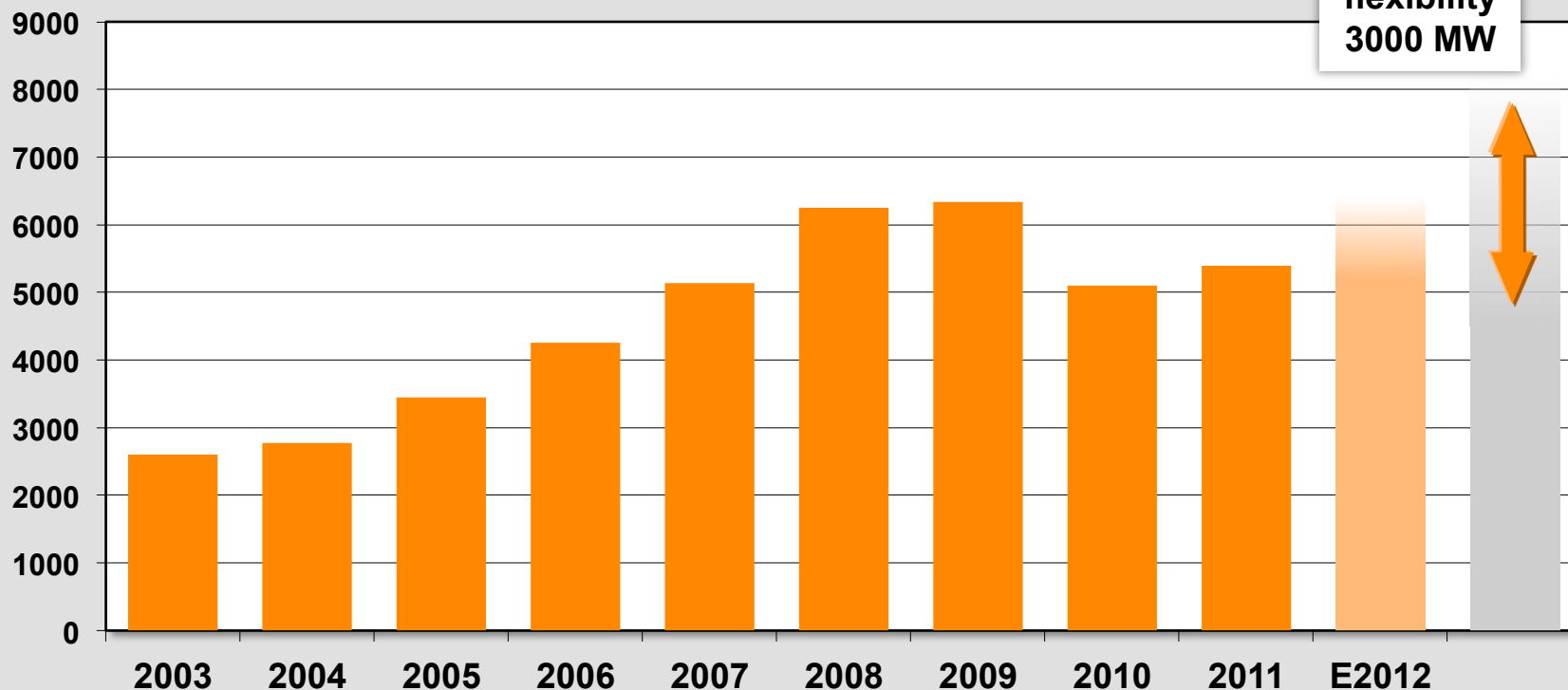
^{*)} All in force in countries where Wärtsilä products or components are manufactured and sold.

FlexAgility: Adjusting operations over time



Flexibility in capacity is essential

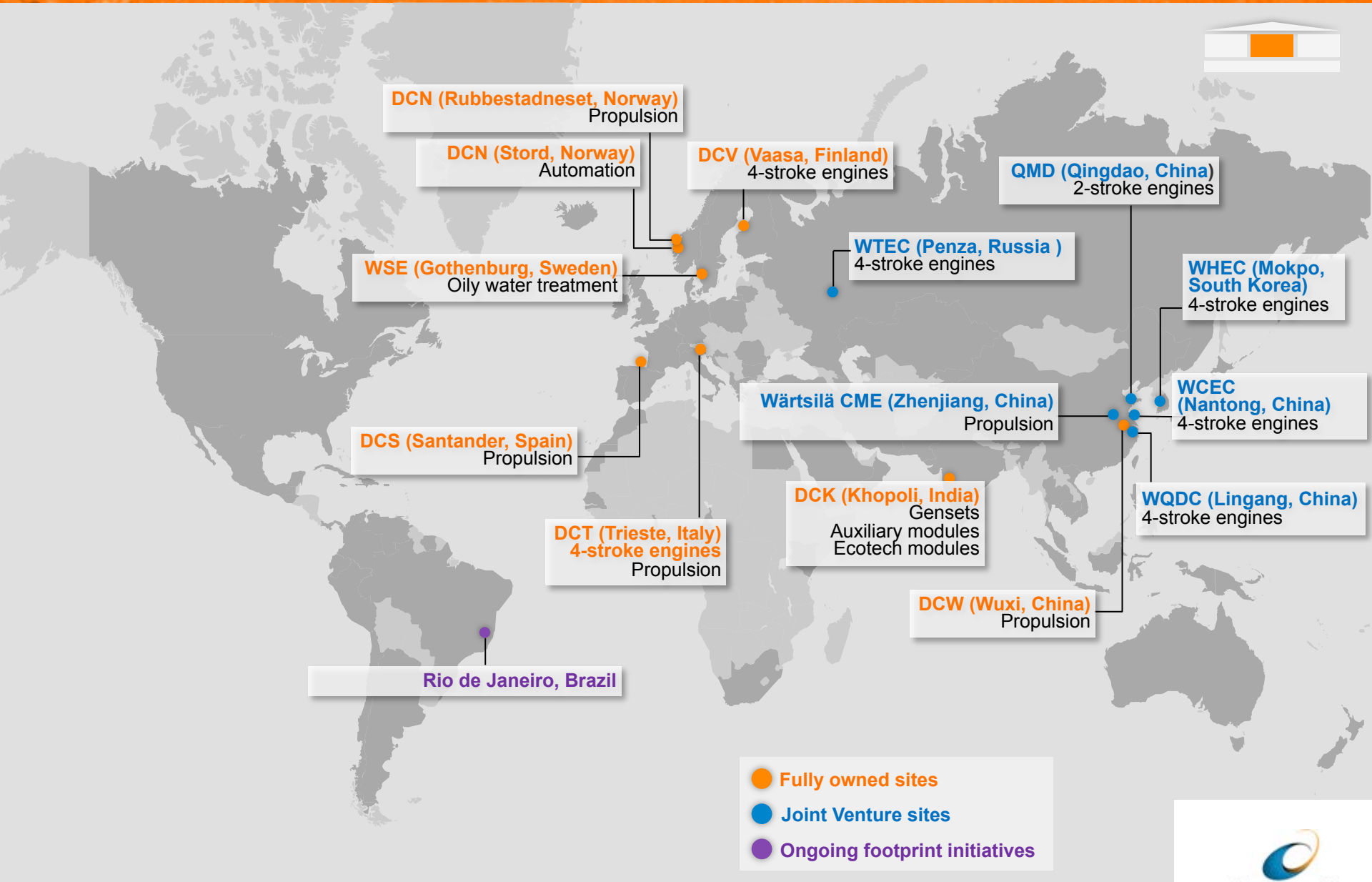
4-stroke MW delivered by Wärtsilä (incl. JVs)



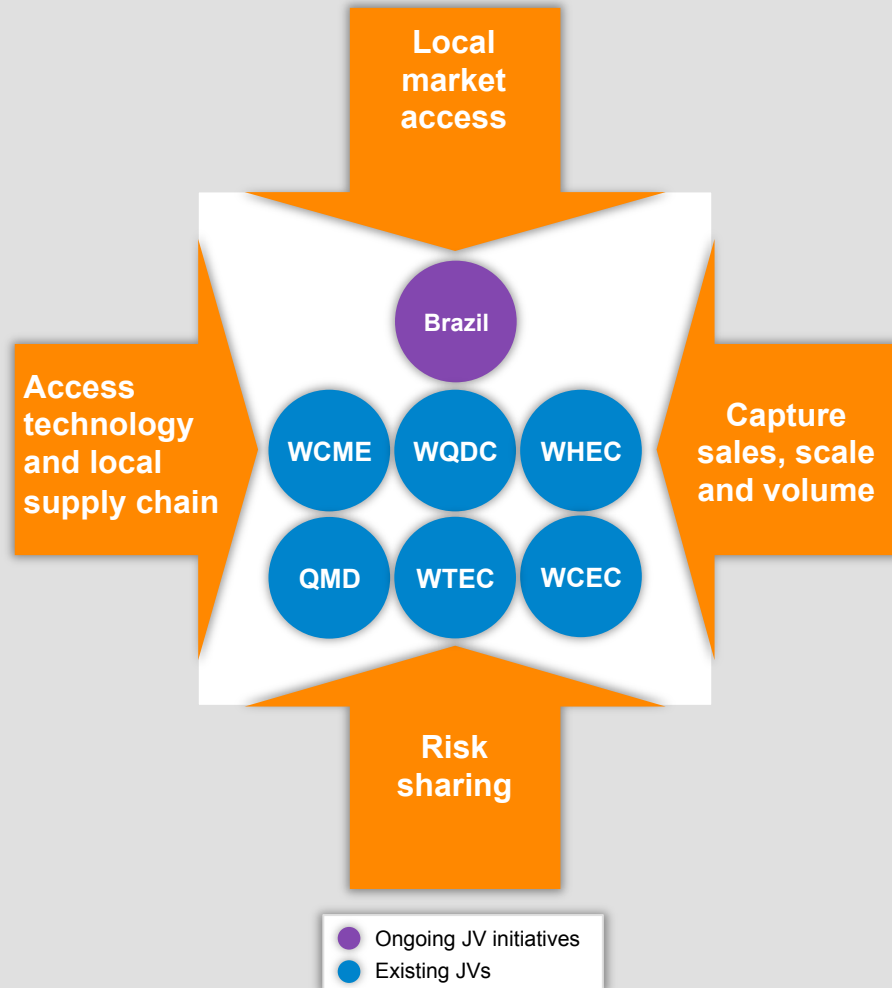
Capacity flexibility
3000 MW

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

Manufacturing footprint: Ability to deliver in all markets

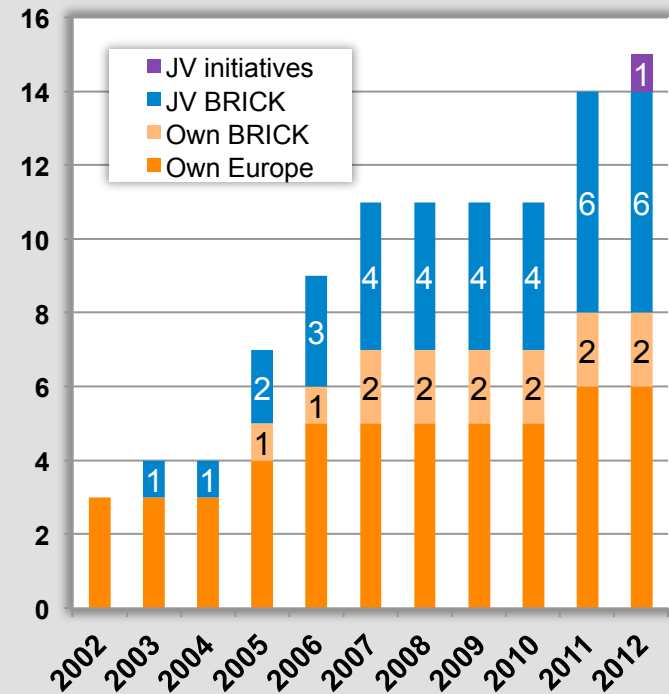


DRIVERS OF JOINT VENTURES



WIO manufacturing locations

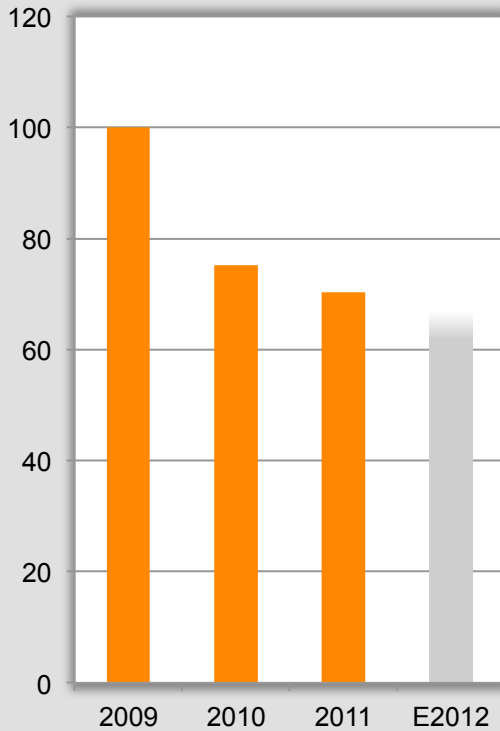
(development over time; existing scope only)





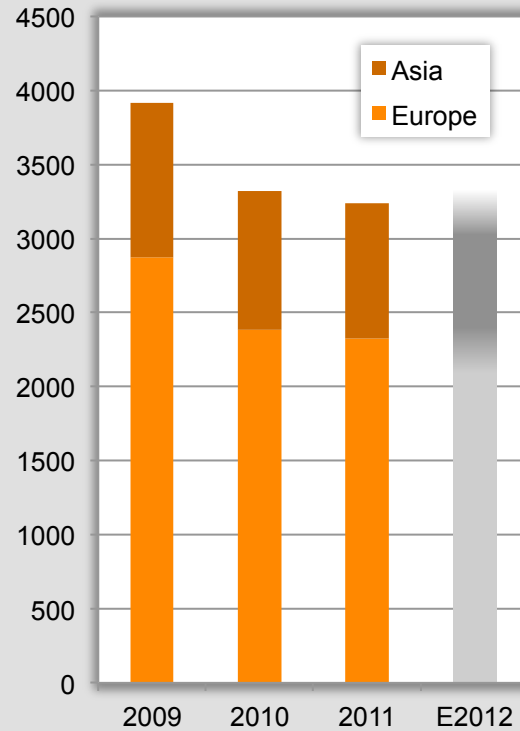
Manufacturing capacity cost

[indexed 2009 = 100]



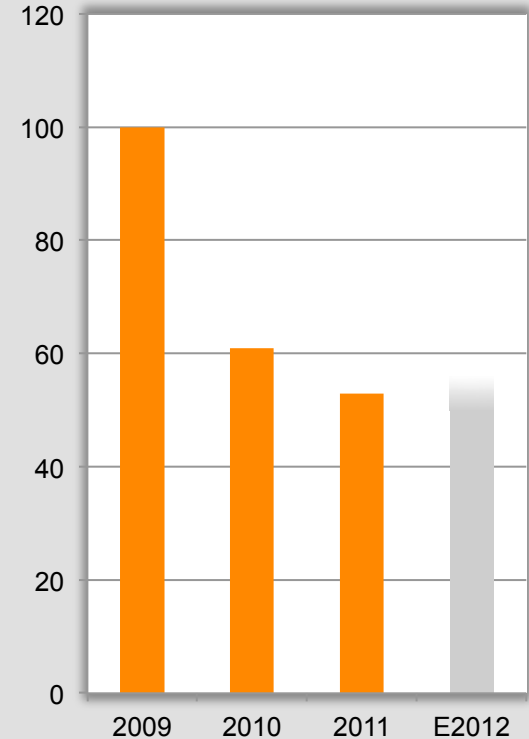
Manufacturing employees

[FTEs]



Manufacturing inventory

[indexed 2009 = 100]





• KPIs & 12 cockpits deployed

- SP/WIO joint Value Stream Management project
- SC21 fast track & bronze award (WIO & Services)



• Toshulin machine change over time reduction 2hr → 30mins

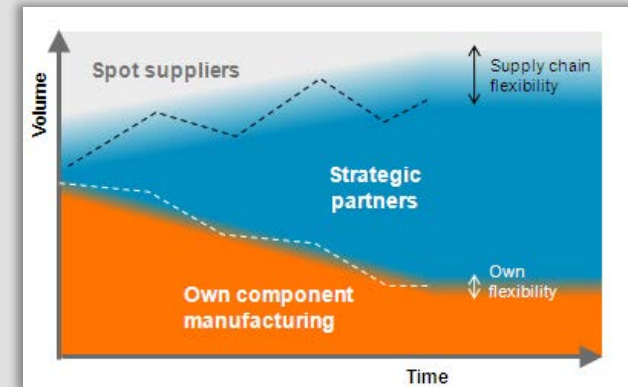


• Leader Acuity (SS, SD, SP & WIO)

- Voice of the Customer
- Sealol case value stream >50 Improvements identified
- Lead time reduction ~20%
- Cost reduction ~3.5%



- Global sourcing
- Consistently controlling **Q**uality, **D**elivery accuracy, **C**ost competitiveness, lead time and required capacity
- Moving towards 'Extended Enterprise approach' (Lean)
- Risk & continuity planning
- Category concepts (economy of scale)
- Early supplier involvement in our product development processes



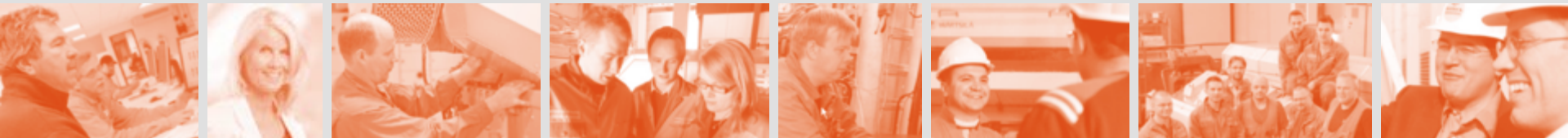
- Control and enhance core competences and outsource non-core activities →
- Increase manufacturing in partnerships

Supplier selection, assessment and qualification





We grow when our people grow



Competent people, leaders and experts, in a strong global performance culture are the foundation for being a trusted business partner

Competence management

- Managed core competences
- Hire and retain best people
- Right people in right places

Active leadership

- Visionary & entrepreneurial
- Role modelling
- Recognise performance
- Situational leadership

Performance culture

- Empowerment
- Entrepreneurial mindset
- Managing complexity



WÄRTSILÄ