

Wind Power & Industry

Kalmar, Sweden

26th May 2009

**Siemens Wind Power's supplier base:
expectations and challenges**

Global Sourcing Manager

Gregory Glen

Background

- Origins date back to 1980, where a company making irrigation equipment, Danregn, made its first wind turbine.
- The first turbine had 2 generators, one with 5 kW, and the other with 22 kW. Rotor diameter was 10m, and the tower height was 18 m.
- The following year Danregn Vindkraft was established, later known as Bonus Energi A/S, in order to separate the wind activities from the main business.
- 1982 we delivered our first overseas project, 6 turbines to Oak Creek in California, USA. This was the start of 'the American Dream' where several Danish wind turbine manufacturers, including Bonus, had success in exporting turbines to the American market. The main product at this time was a 55 kW turbine with a rotor diameter of 15 m.
- In 1986, the US govt subsidies were stopped, and Bonus was the only Danish manufacturer to stay afloat.
- Our first offshore project was in 1991 – 11 pcs.450 kW turbines for the Vindeby project.

Background

- 1997 we broke the MW barrier for the first time.
- A significant milestone was reached in summer 2002, where we launched our own blade factory in Aalborg. The factory produces all blades for our models SWT-1.3-62, the SWT-2.3-series and the SWT-3.6-107.
- In 2004 Bonus Energi A/S was acquired by Siemens. Within a year no. of employees had grown from 800 to 1500. Currently we are ca. 5500 worldwide.
- Second blade factory established Feb 2006 in Engesvang, Denmark.
- First non-Danish plant established in Fort Madison, Iowa, USA in Aug 2006.
- Currently installing Horn's Reef II, an offshore project 60 km off the west coast of Jutland, DK. Project consists of 91 pcs. 2,3 MW turbines, rotor diameter of 93 m. Total height of the turbine above sea level is 114,5 m. Foundations below sea level are between 30-40 m.

Background

- First electricity from Horn's Reef II came on stream on 13 May. When finished the turbines will produce enough electricity for the yearly consumption of 200,000 households.

Difficult environment to work in → What do we then do?

Choose the right suppliers

- Reduce the complexity
- Focus on improvements
- Enhanced co-operation
- Open Cost and Cost our programs
- Fulfil Conduct Guidelines

Share knowledge from capacity planning and risks

- Balance capacity
- Minimize uncertainties and risks in Supply Chain
- Detailed planning, control and support from Siemens
- Create and ensure agreed buffer in SC

Suppliers need to grow with SWP

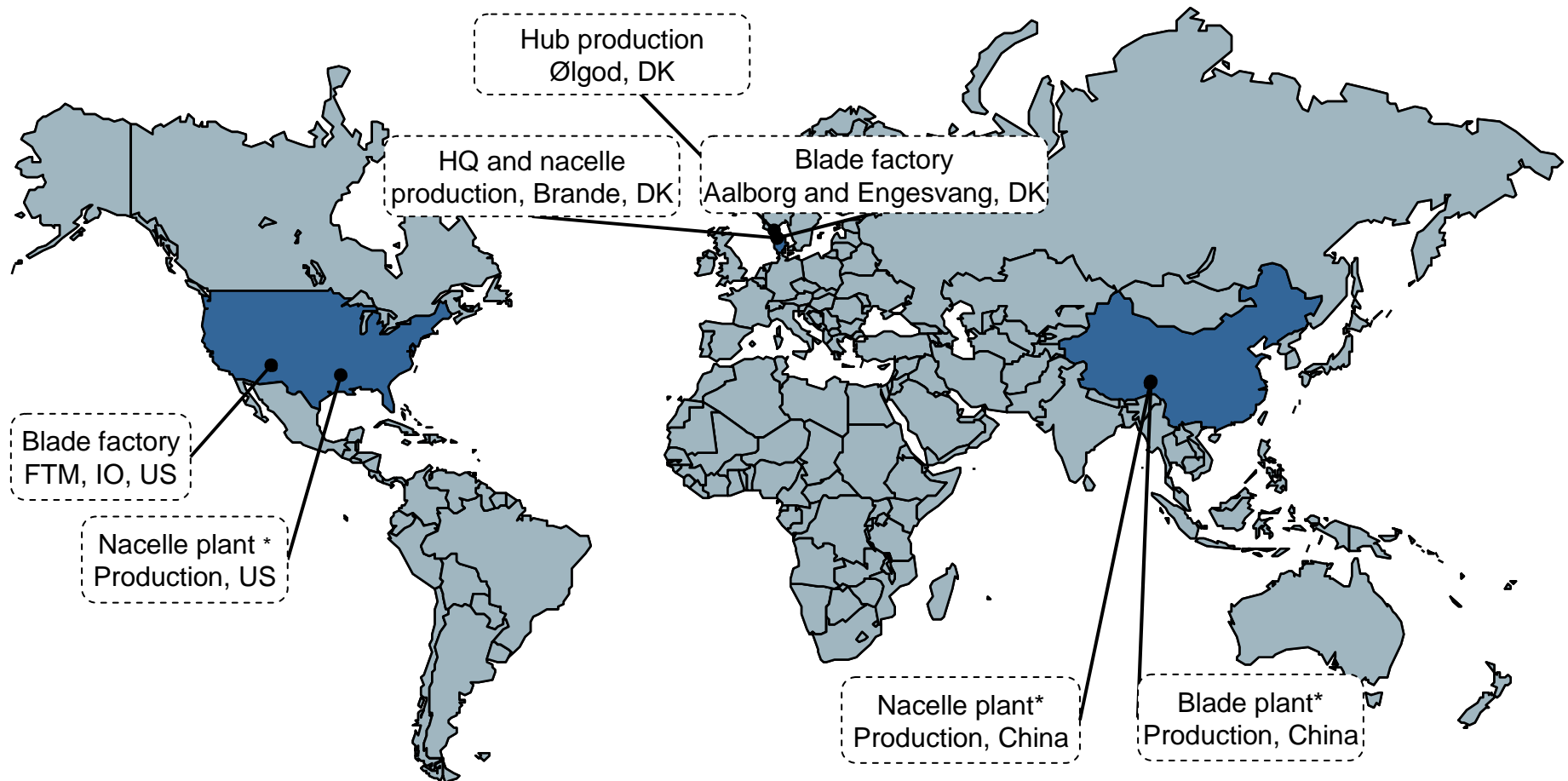
- With a solid base in DK SWP needs to establish an international production
- Ensure capacity
- Support & co-operation
- \$ based Procurement

Best in class suppliers

- Suppliers values need to match Siemens' values
- "Open book " principle & continuously improvement
- Involvement in R&D

**We base our purchases on long-term relations/partnership with the supplier.
Develop the supplier in order to ensure capacity & high quality.**

We are supporting our global manufacturing network



* planned

Procurement

Procure

Principles

Responses

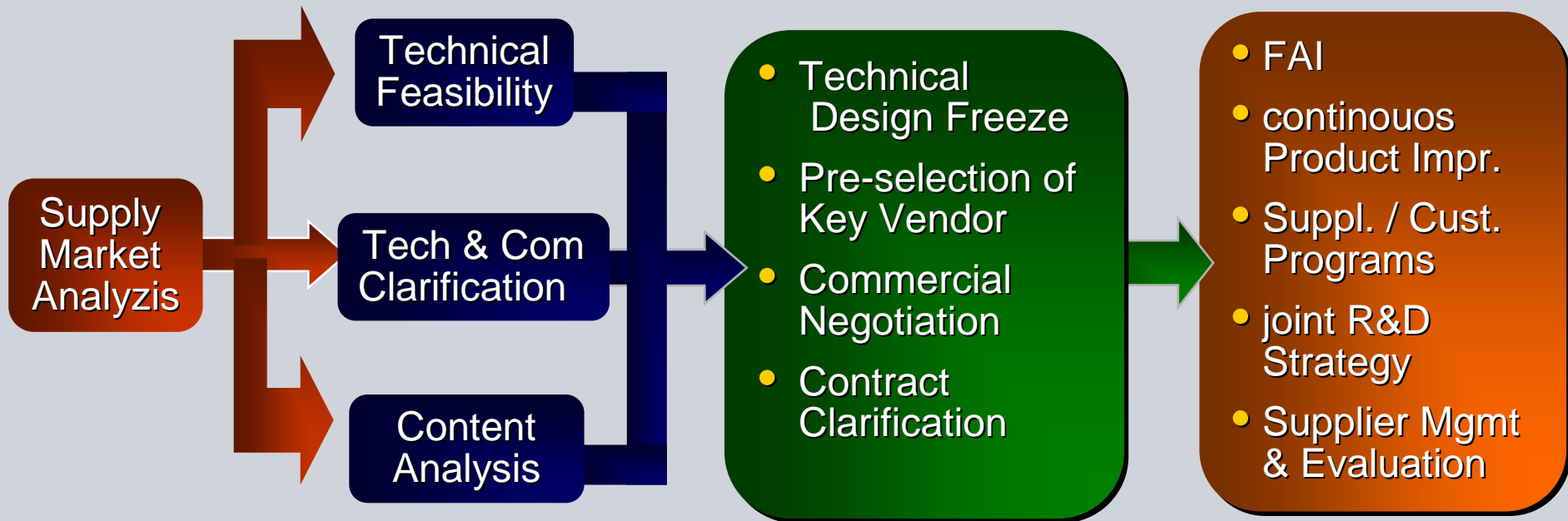
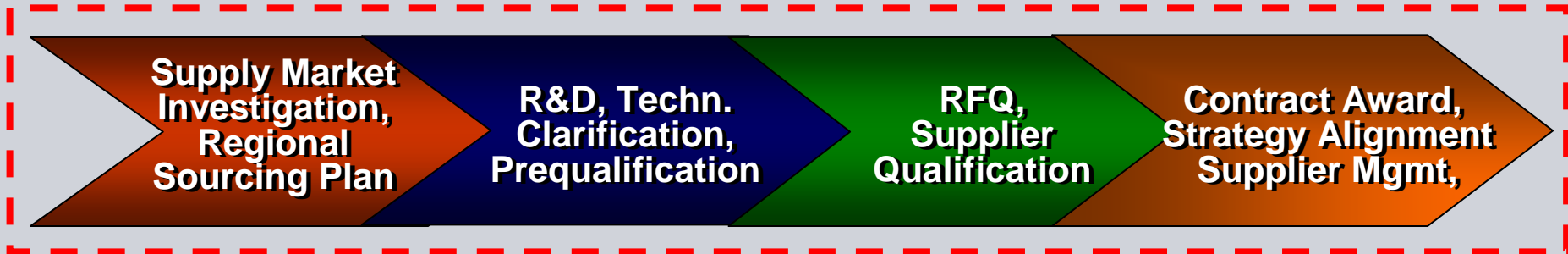
- 1) Keep Quality
- 2) Secure Capacity
- 3) Optimize TOTAL costs
- 4) Dual Sourcing
- 5) Currency interdependence
- 6) Supplier strategies
 - Partner/leverage
 - Bottleneck/efficiency

- ✓ Limited number of suppliers
- ✓ Grow globally with suppliers
- ✓ Process control at suppliers
- ✓ Rigid capacity control
- ✓ Partner and LTA's
- ✓ Supply base in Americas and China to optimize supply to plants and Market
- ✓ Increase \$ buy
- ✓ LCC buy
- ✓ Global procurement organisation

Mission SWP Procurement – Three Key Pillars



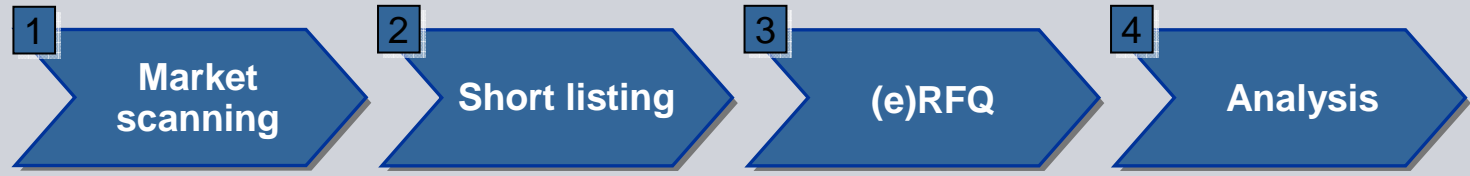
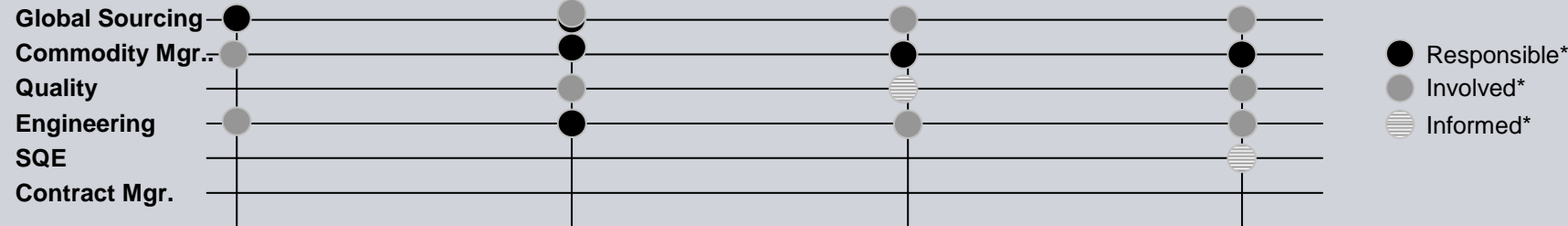
Supplier Integration in daily Supply Chain Process



Those process steps are jointly driven by preferred / key vendors and SWP

Confidentiality notice / Copyright notice

Supplier Selection Process



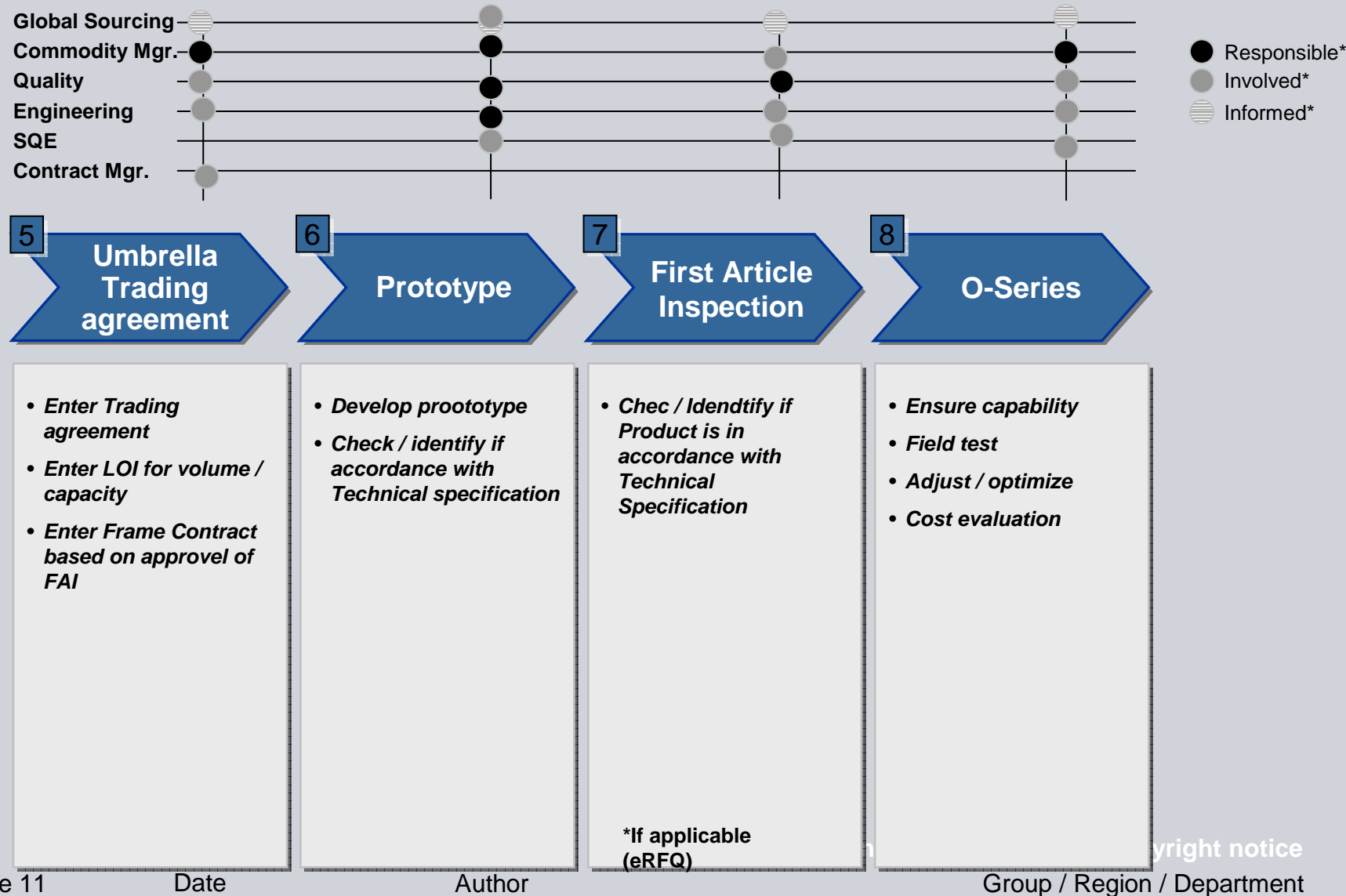
- *Identify demand*
- *Acquire market information*
- *Ensure availability of required internal resources*
- *Select potential supplier*

- *Discuss selection criteria and defined sourcing strategy*
- *Check / identify selection criteria for suppliers*
- *Fix milestones and responsibilities*
- *Scope freeze*
- *Get crossfunctional commitment*

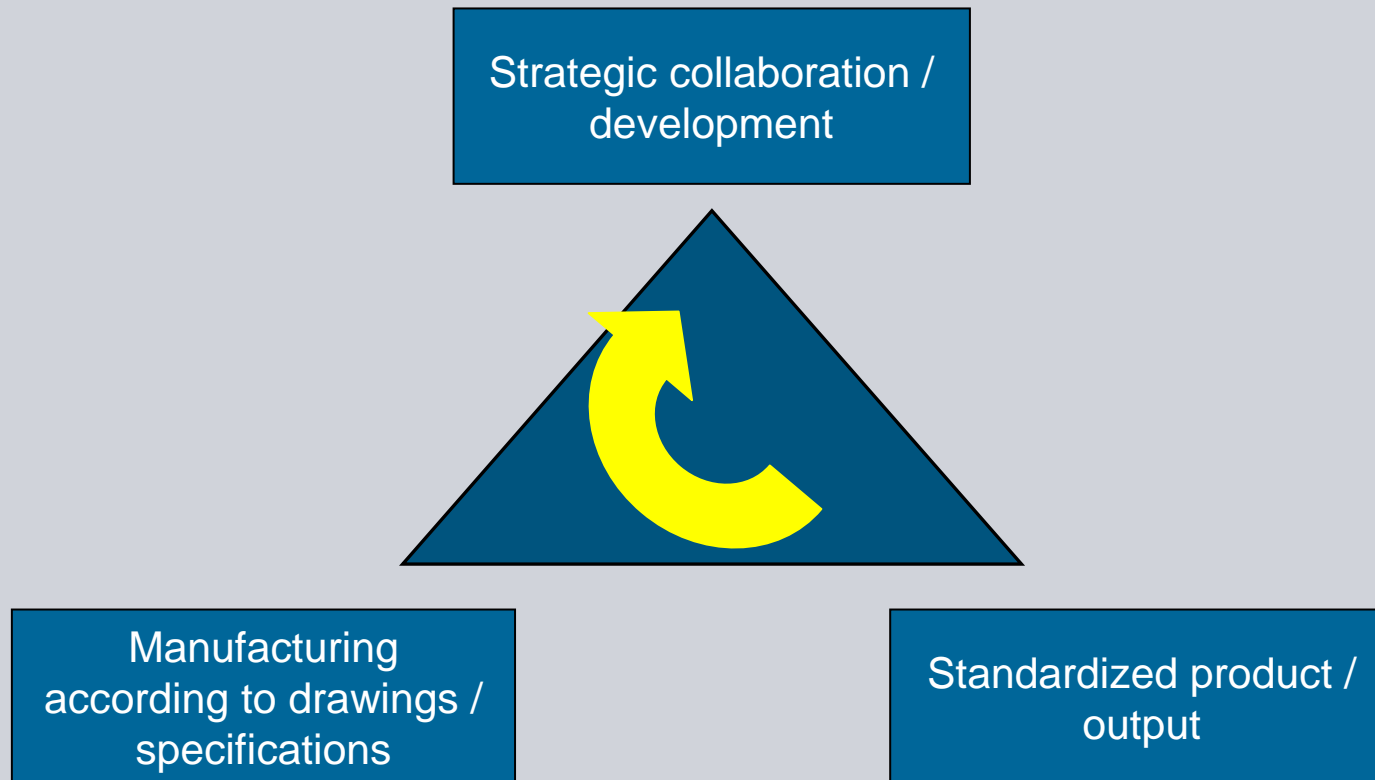
- *Get signed NDA from Supplier*
 - *Request suppliers to register in „Click for supplier“ **
 - *Set up RFQ*
- *If applicable (eRFQ)*

- *Analyse (e)RFQ results*
- *Analyse Total Cost*
- *Define final Selection criteria*

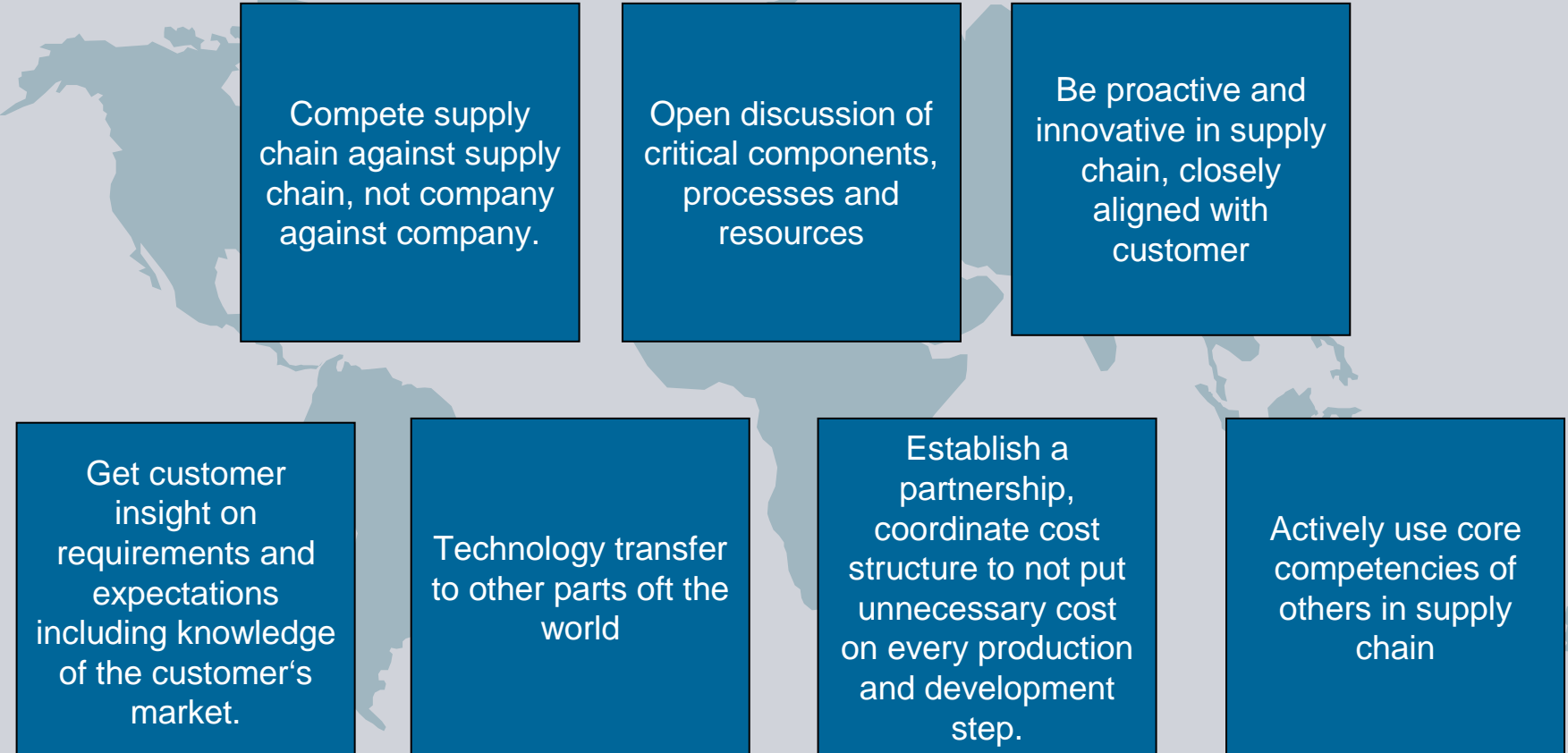
Supplier Selection Process



Expectations and roles



Key Statements

A faint, light blue world map is visible in the background of the slide, centered behind the key statements.

Compete supply chain against supply chain, not company against company.

Open discussion of critical components, processes and resources

Be proactive and innovative in supply chain, closely aligned with customer

Get customer insight on requirements and expectations including knowledge of the customer's market.

Technology transfer to other parts of the world

Establish a partnership, coordinate cost structure to not put unnecessary cost on every production and development step.

Actively use core competencies of others in supply chain

Key Statements

A blue rectangular box containing the text "Think: Quality".


Think: Quality

A blue rectangular box containing the text "Think: Environment and company culture / working environment".

Think:
Environment and
company culture /
working
environment

A blue rectangular box containing the text "Think: Code of Conduct".


Think: Code of
Conduct

A blue rectangular box containing the text "Strive for strategic partnership with the customer".

Strive for strategic
partnership with the
customer

A blue rectangular box containing the text "Think: Lean".

Think: Lean

A blue rectangular box containing the text "Think global act local".

Think global
act local

SOME GOOD ADVICE TO SUPPLIERS...

- ✓ Be careful when optimizing the product – co-ordinate with our Engineers
- ✓ Test and Quality Control through all processes
- ✓ Documentation
- ✓ Design lifetime 20 years
- ✓ Five years warranty – back to back

SWT-2.3-93 wind turbine

Main data:

IEC Class:	IIA
Rotor diameter:	93 m
Blade Length:	45 m
Swept area:	6800 m ²
Hub height:	60-80 m
Power regulation:	pitch regulated
Annual output at 8 m/s	8,800 MWh
Blade weight:	11 t
Rotor weight:	60 t
Nacelle weight:	82 t
80 m tower weight:	158.3 t

Experience data:

Prototype installed:	2004-2005
Serial production:	2005
Total number installed	- increasing daily



SWT-3.6-107 wind turbine - offshore

Main data:

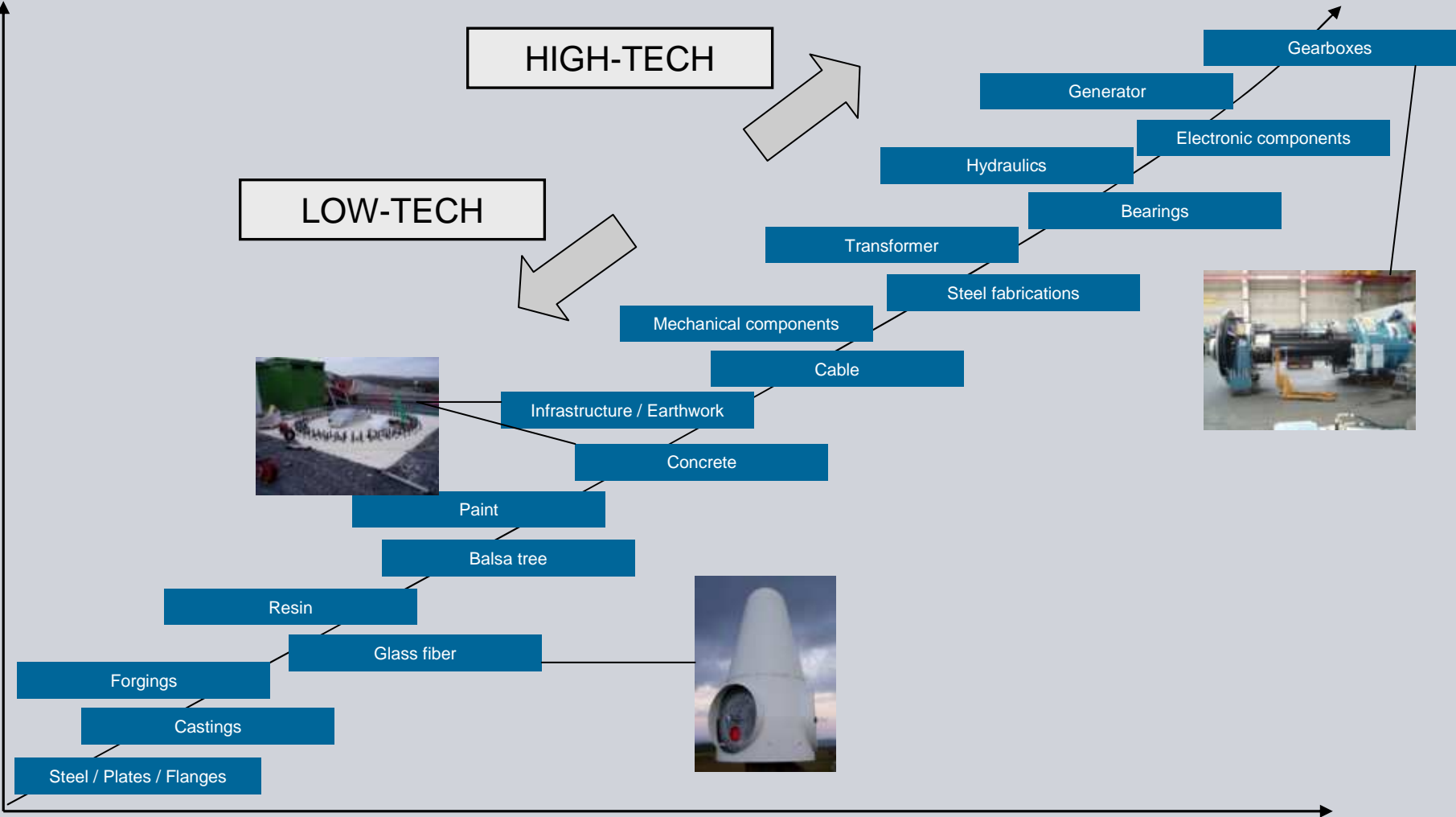
IEC Class:	I
Rotor diameter:	107 m
Blade Length:	52 m
Swept area:	9000 m ²
Hub height:	80–100 m
Power regulation:	pitch regulated
Annual output at 8 m/s	12,700 MWh
Blade weight:	16 t
Rotor weight:	95 t
Nacelle weight:	125 t
80 m tower weight:	250 t

Experience data:

Prototype installed:	2004
Serial production:	2006
Total number installed	Prototype + 5



Component groups



SIEMENS

