

SKF



Establishing an Effective Supply Chain

BWEA 30

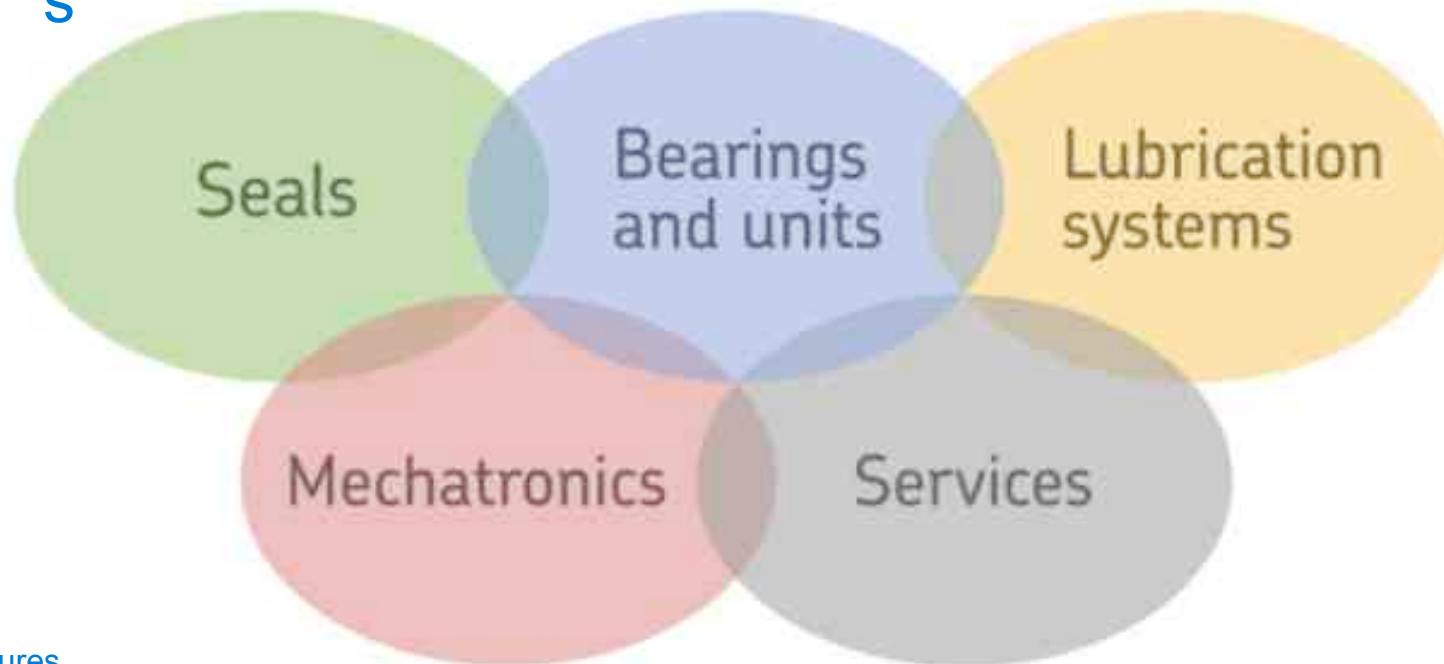
Anthony Richardson

2008-10-22

SKF®

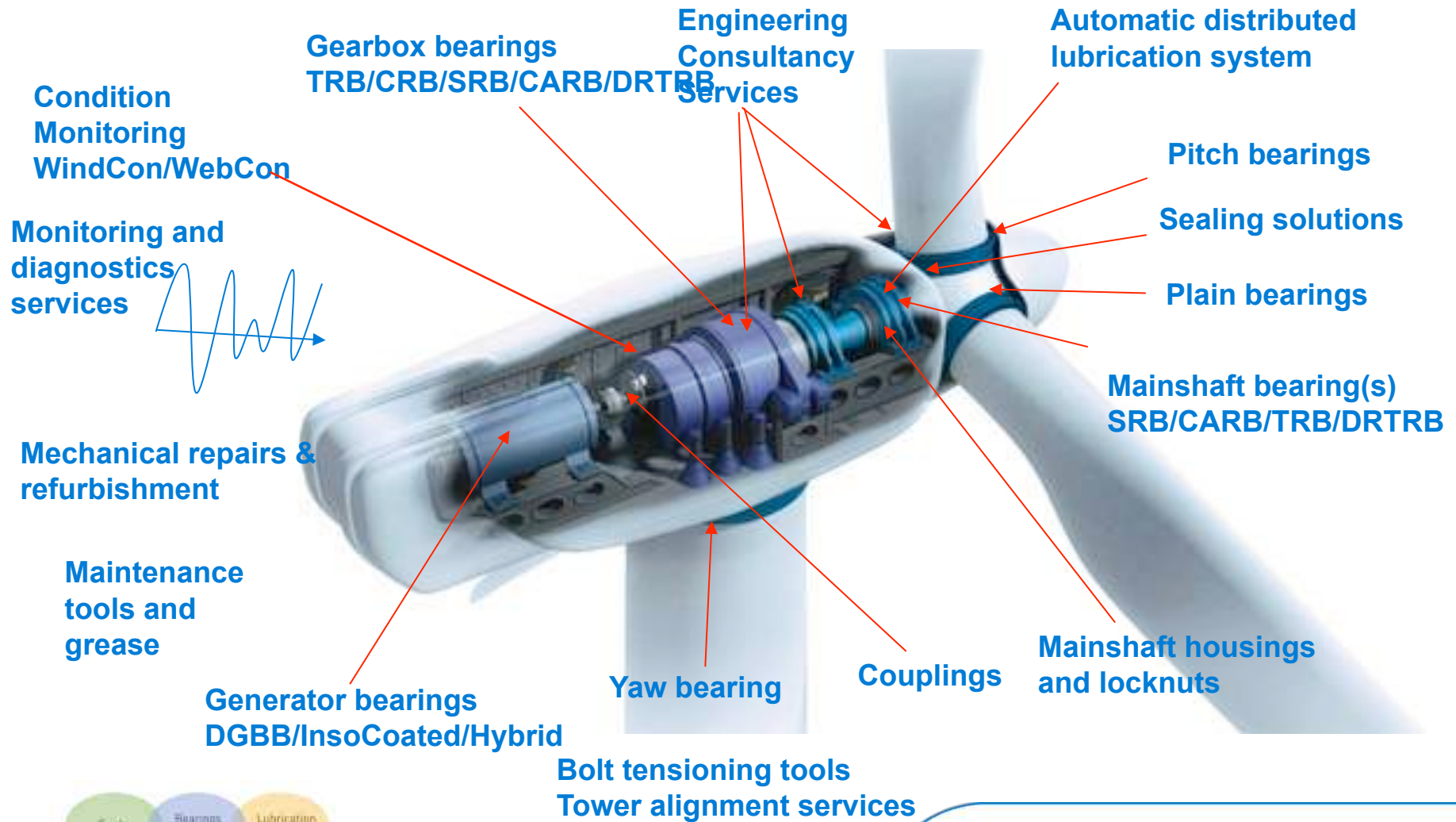
One Out of Six is an SKF Bearing

- 42,888 employees
- €6.3 Billion annual sale
- 125 production facilities in 25 countries



2007 figures

SKF Contribution to Wind Turbine Technology



Reality Check

- Exponential growth brings challenges!
- Wind farm owners often don't know what is in their turbines
- Wind farm owners may not know the condition of the equipment
- Financial accountability for funding decisions is now at a higher standard
- Supply / availability is a big issue for the industry

Today's Business Environment – A Reality Check

Hansen cautions on bearings suppliers

AUTOMOBILES

By Michael Kavanagh

Growing global demand for wind turbines prompted increased profits at Hansen Transmissions, the London-listed Belgian gearbox maker.

However, a bottleneck in supply of bearings required for its transmission systems hit production and deliveries during the year to March 31 as the company "continued to experience some unreliability by its bearings suppliers".

Ivan Brems, chief executive, said volatility in supply of bearings, prompted by competing demand in the mining and steel industries, was being tackled through long-term agreements with

existing and new suppliers.

Delays to British wind-power schemes have had only a minor effect on the company, which estimates a 22 per cent global market share in the gear-driven wind turbine segment.

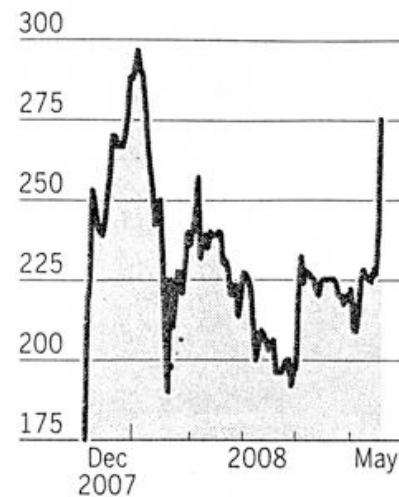
"We have a strong base in the world market, and the fundamentals of the business are stronger than ever," said Mr Brems.

Hansen was acquired by Suzlon, the Indian wind turbine maker, in 2006 for \$565m. It subsequently floated 25 per cent of its stock on London's main market in December when it raised €440m (£350m).

Its shares, which rose from 175p to 218p on their first day of trading, fell back to 190p in January but have since recovered to close up

Hansen Transmissions

Share price since flotation (pence)



Source: Thomson Datastream

34p yesterday at 275p, valuing the company at £1.58bn.

The company, with two plants in Belgium, is using the proceeds of the IPO to

finance expansion to India and China. Revenues from wind turbine sales rose 27 per cent to €339m (€267m) while revenue from other industrial gearboxes improved 18 per cent to €82m (€69m).

The company, which supplies four out of five of the world's leading makers of gear-driven wind turbines, including Suzlon, made profits of €31.3m (€24m) on revenues ahead 26 per cent to €421m, generating earnings per share of 5.8 cents (5 cents).

Mr Brems declined to give an estimate for the coming year but said profits at Hansen, trading on a price/earnings ratio of 60 times based on yesterday's figures, would "continue to steadily grow".

Supply Chain

The two-way flow of materials, resources and information that allows customer demand to be satisfied

To do so efficiently requires attention and answers in a number of areas

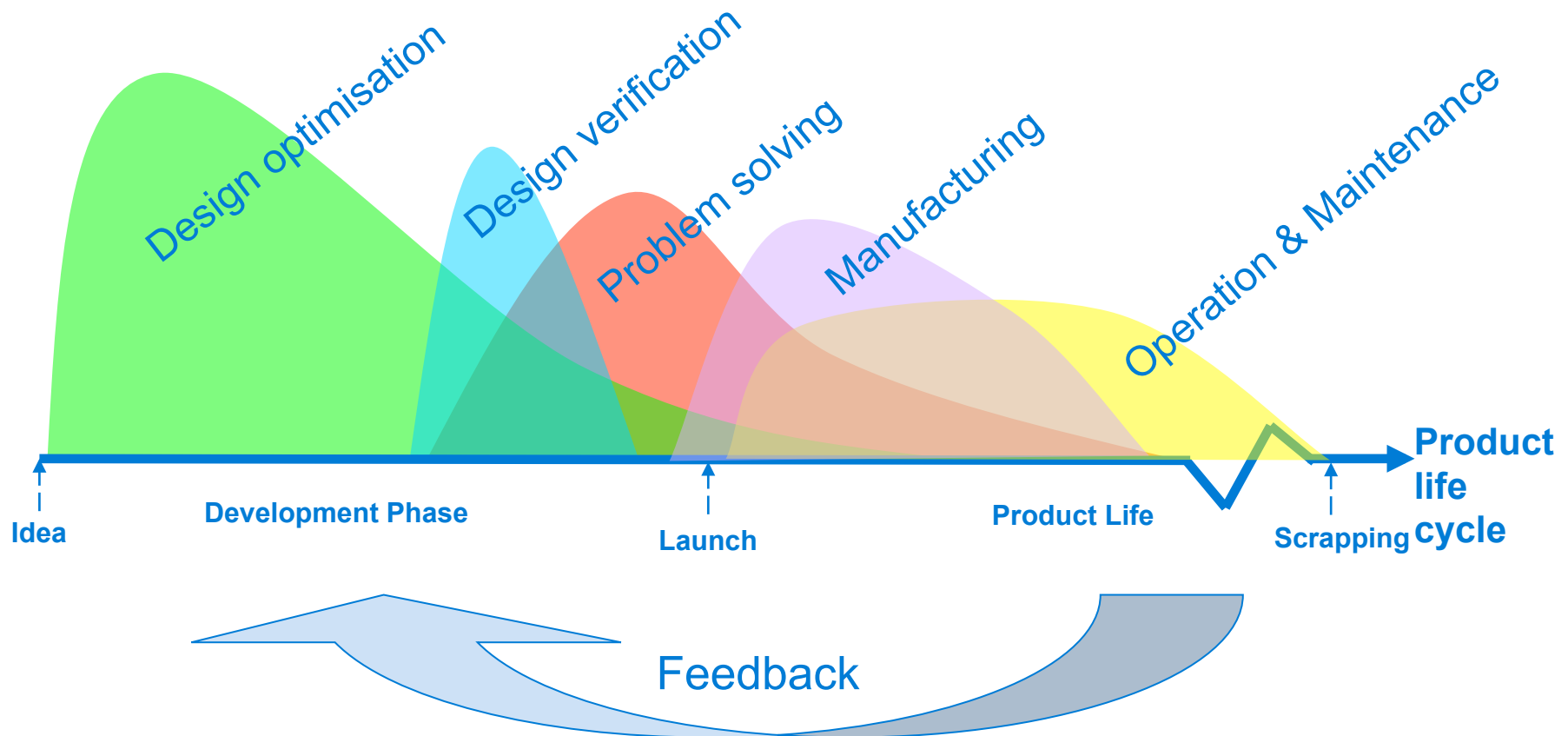
- What – components, resource, knowledge
- When – on what basis are parts and services required?
- Where – workshop or on site, onshore or offshore.
- Who – owners, operators, OEM's, developers, A/M suppliers
- How – what system coordinates and manages these elements?
- Why – Learning applied for future improvement

Efficiency is ultimately derived into some measures, eg, Turbine Uptime

Integrating the Supply Chain

- Spare parts
- Maintenance Management System (MMS)
 - Asset register, Vendor documentation - drawings, installation and maintenance manuals, instructions, spare part lists
 - Work orders, planning, maintenance and repair history
- Inspection / condition monitoring
 - Vibration, lubricant / lubrication, electrical, visual inspections
 - Using and responding to the data
- Repairs
 - Processes, procedures, tools and equipment
 - Availability of certified, skilled personnel
- Doing it better, lower Life Cycle Cost, feedback and improvement

SKF involvement in wind turbine life cycle



Learning and Improvement

- Raceway damage detected using SKF Condition Monitoring
- Bearing failed after 23 months of service
- What will happen if new bearing is installed?
- What should be done?



Remote Monitoring Services Agreements

One-stop solutions for wind parks and single wind energy plants



The new SKF Intelligence Center Wind

As in most branches of industry there is a fierce competition on the market in the field of wind energy production. Consequently, only those energy producers who utilize absolutely reliable equipment can produce successful results.

As a matter of fact, the high dynamic loadings encountered can easily lead to a defect which accordingly causes an expensive breakdown and a long period of downtime. Therefore, the decisive criterion is a reliability-oriented maintenance

The establishment of the new Intelligence Center Wind enables SKF to bring its many years of experience and its broad-based and extensive competence in the field of wind energy under one umbrella. It aims at providing our customers a decisive competitive edge by offering them access to the expertise and skills of more than 50 specialists.

SKF offers the whole range of extensive services:

Everything you need provided by one source:

- On-line and off-line condition monitoring systems
- Installation (hardware and software) and network integration of condition monitoring systems
- Comprehensive condition monitoring and analysis of wind power plants
- Analysis of data
- Repairs and part replacements on the spot
- Servicing and maintenance of rotating equipment
- Spare parts logistics
- Economic alignment
- Re-fitting of central lubrication systems
- Lubrication management oil and grease analysis
- Consulting Services
- Training
- Measurement services (among others: thermography, endoscopy, OHS, laser technology, ...)

SKF GmbH
Intelligence Center Wind
Cathariner Straße 7A
22349 Hamburg-Hausbruch

Please contact: Jörg Lange
Phone: +49 (0)423/84 99 48-0
E-Mail: joerg.lange@skf.com
www.skf.de

SKF

SKF®

SKF's knowledge – at work for the future



SKF 100 YEARS 2007

All we do
we do for future
generations

The Power of Knowledge Engineering

SKF[®]