SKF Capital Markets Day 2017









Agenda Capital Markets Day 2017

10.00	SKF Group	Alrik Danielson	Location: Floor 2
10.30	Finance	Christian Johansson	Location: Floor 2
11.00	Bearing Operations	Luc Graux	Location: Floor 2
11.45	Lunch		
	Group Blue	**Group Red**	**Group Green**
12.30	Meet at floor 1 for Factory visit	12.45 Floor 1 Connectivity and Innovation, Victoria Van Camp	12.45 Floor 2 Automotive and Aerospace Bernd Stephan
14.15	Floor 2 Automotive and Aerospace Bernd Stephan	13.50 Meet at floor 1 for Factory visit	13.50 Floor 1 Connectivity and Innovation Victoria Van Camp
	Coffee break	Coffee break	Coffee break
15.40	Floor 2 Connectivity and Innovation Victoria Van Camp	15.40 Floor 1 Automotive and Aerospace Bernd Stephan	15.05 Meet at floor 1 for Factory visit
16.45	Summary	Alrik Danielson	Location: Floor 2
16.55	Q&A	All	Location: Floor 2
17.30	Cocktail reception		Location: Floor 1
Ca. 18:15	Bus to Landvetter airport and city centre		

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SKF Capital Markets Day 2017

Alrik Danielson, President and CEO










It’s all about reducing friction

Why and what

SKF works to reduce friction, make things run faster, longer, cleaner and more safely. Doing this in the most effective, productive and sustainable way contributes to our vision of a world of reliable rotation. SKF Group is a leading global supplier of products, solutions and services within rolling bearings, seals, mechatronics, services and lubrication systems.

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SKF CMD 2015 – summary



Last year's focus

- Focus on the business around the rotating shaft
- Two value propositions
  - Rotating machine efficiency
  - Products
- Automotive turn around
- Simplified organization
- Clear targets and responsibilities

What we did

- Five divestments completed
- New business offers launched
  - SKF Enlight
  - Application specific products
- TAP delivered on time
- New and leaner organization in place

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Group strategy update

Group strategy

Priorities

1 Create and capture customer value

\+

2 Application driven innovation

\+

3 World class manufacturing

\+

4 Cost competitiveness

\=

5 Maximize cash flow over time

Value propositions

Rotating equipment performance



Product

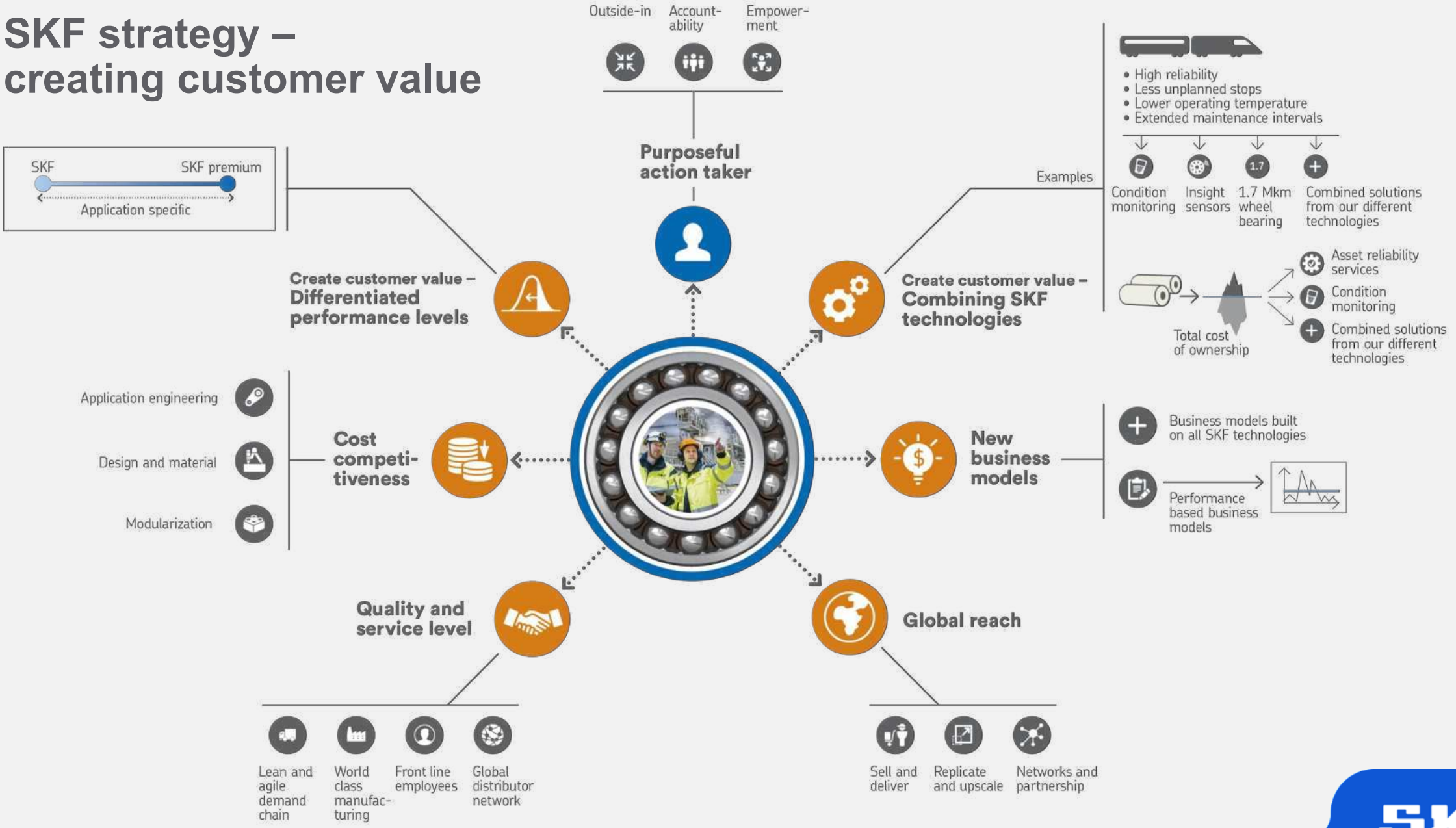


Creating customer value



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SKF strategy – creating customer value





Change drivers

Change drivers

Digitalization & connectivity



New manufacturing technology



Electric and connected vehicles



© SKF Group

Digitalization – for our customers, co-workers and in manufacturing



Connected condition monitoring



Connected co-worker



Connected manufacturing

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Digitalization – innovation in connectivity and condition monitoring





Remote Diagnostic Services



SKF Enlight Centre





HoloLens

SKF Enlight Collect



SKF Quick Collect



Data Collect app



SKF Quick Collect Sensor



Insight Apps



Wireless systems



Lubrication system



Grease Gun



On-line systems



Expert Portable devices

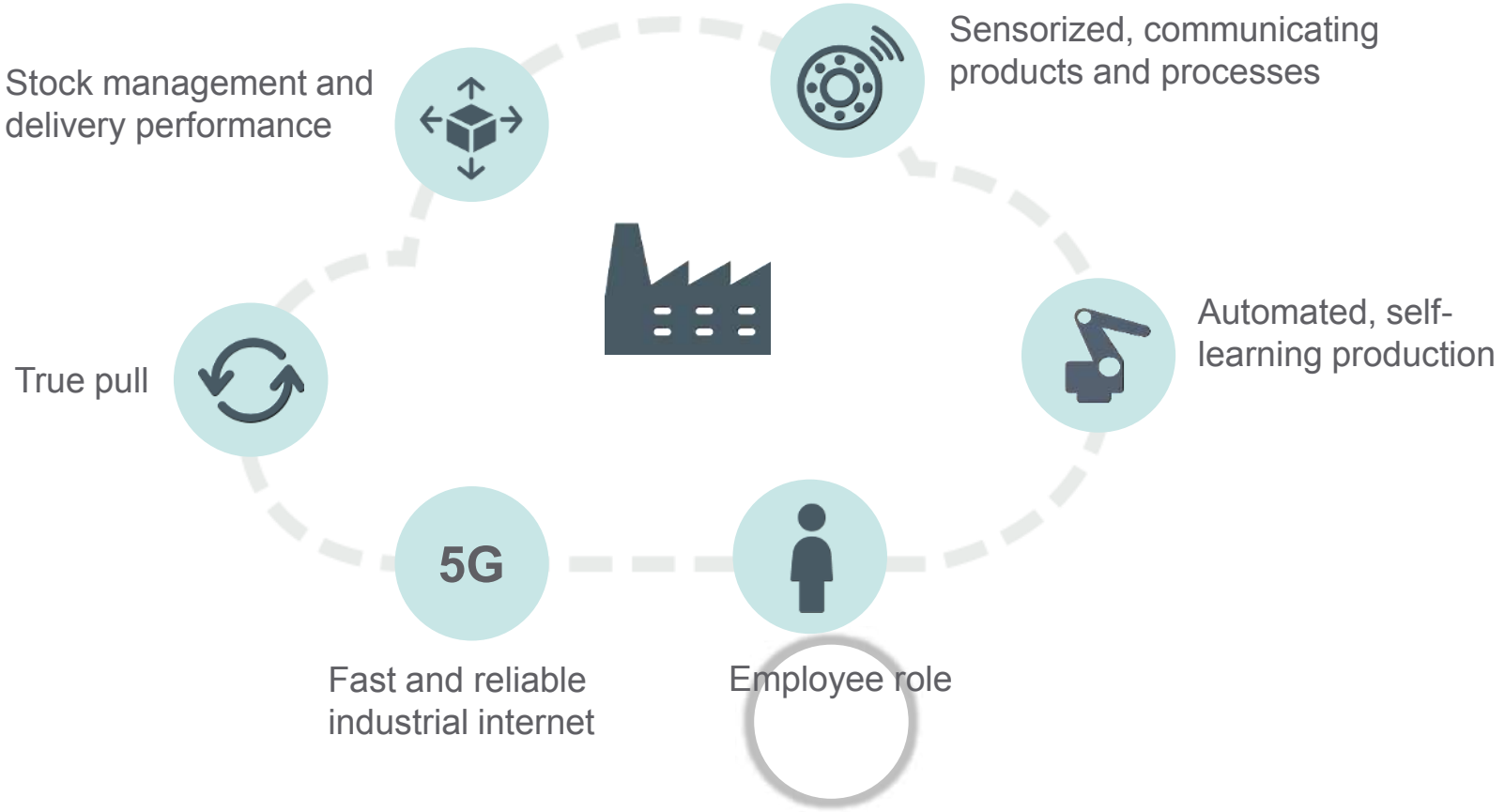
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HoloLens in reality

© SKF Group

Manufacturing – entering a new era



Investments:

- SRB Göteborg
- CRB Schweinfurt
- LSB Schweinfurt
- SRB Hanover/Flowery Branch
- SRB Nilai

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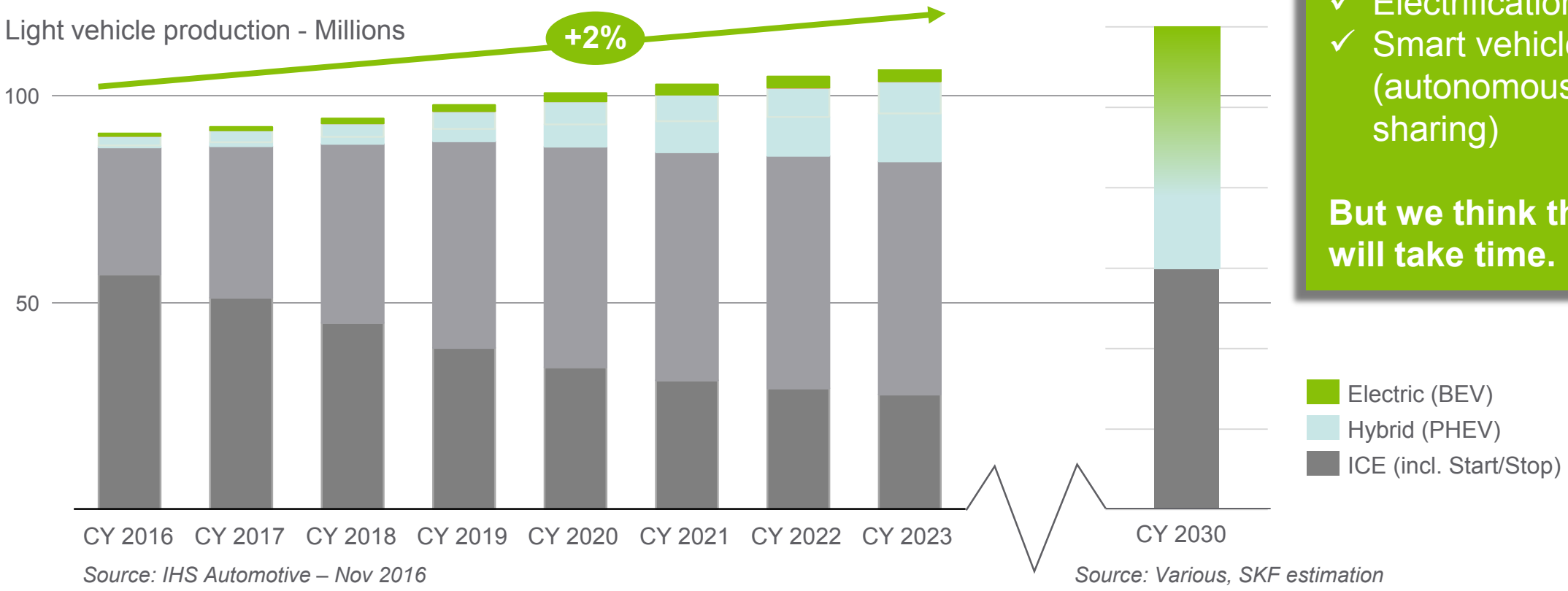
Manufacturing – implementing Industry 4.0 in Gothenburg

COME SEE FOR YOURSELF AFTER LUNCH!



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Powertrain electrification



Source: IHS Automotive – Nov 2016

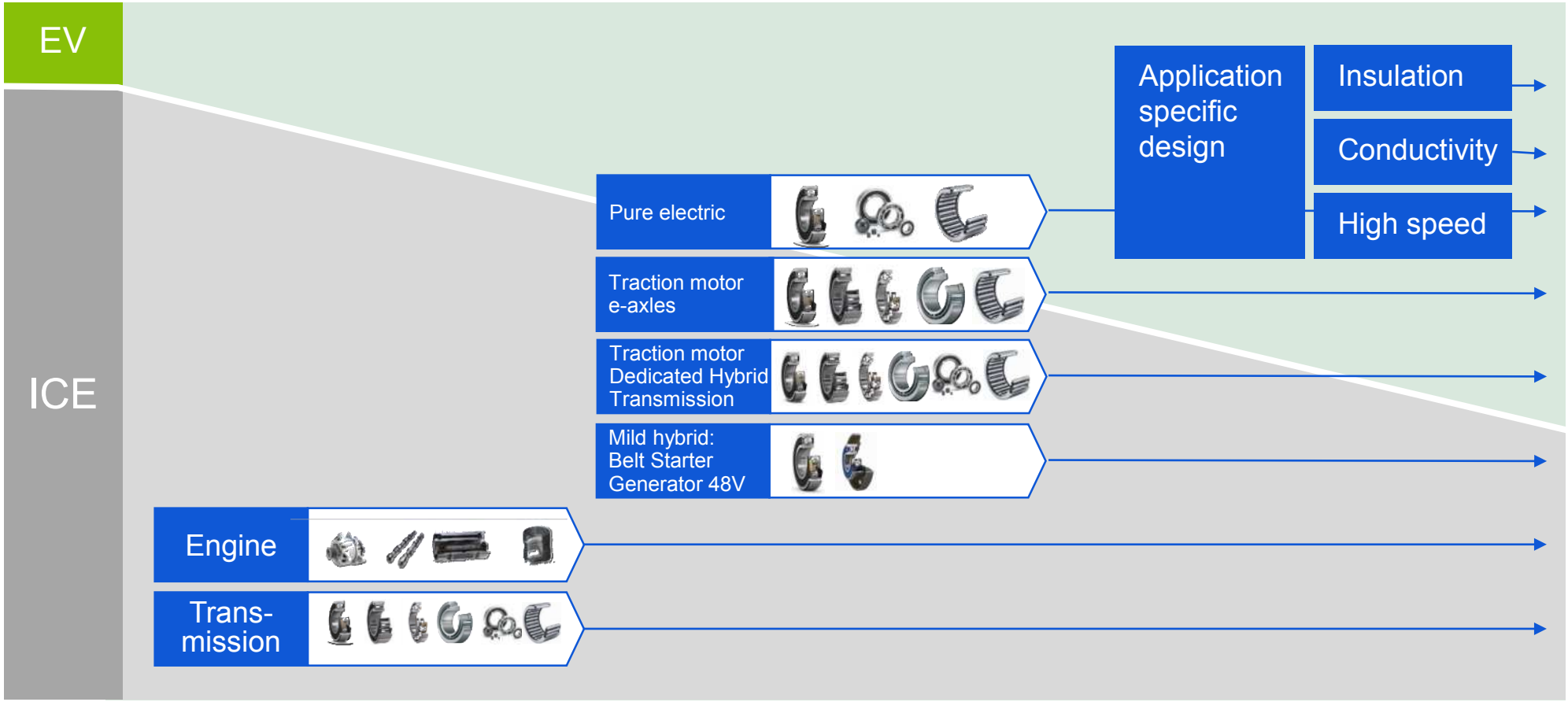
Source: Various, SKF estimation

The trend is clear:
- ✓ Electrification
- ✓ Smart vehicles (autonomous, sharing)

But we think that it will take time.

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Future powertrain component partner



Today → Tomorrow

© SKF Group

Market overview



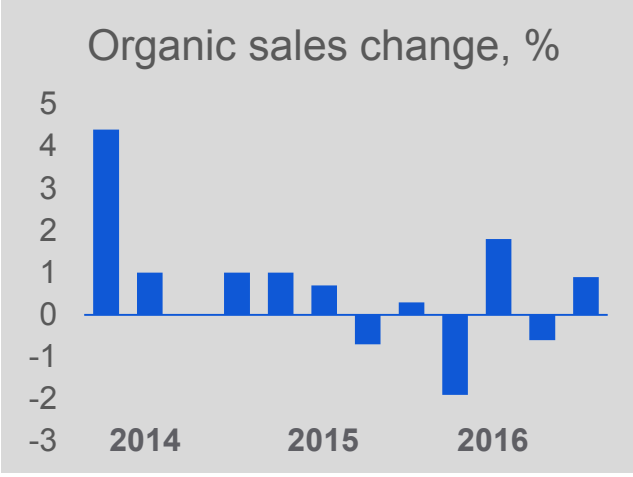
SKF in Europe

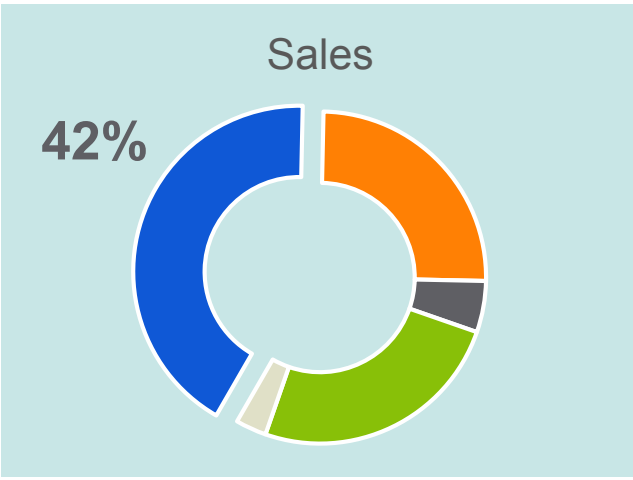
Industrial

- Market growth
- New 1.7 million km railway wheel bearing
- Investments in world-class manufacturing in Sweden and Germany
- Upgrade of Poznan site
- Modernization of distribution centres

Automotive

- Market growth
- New business with the Fiat Chrysler Group
- New low-friction truck hub unit offers 30% lower friction







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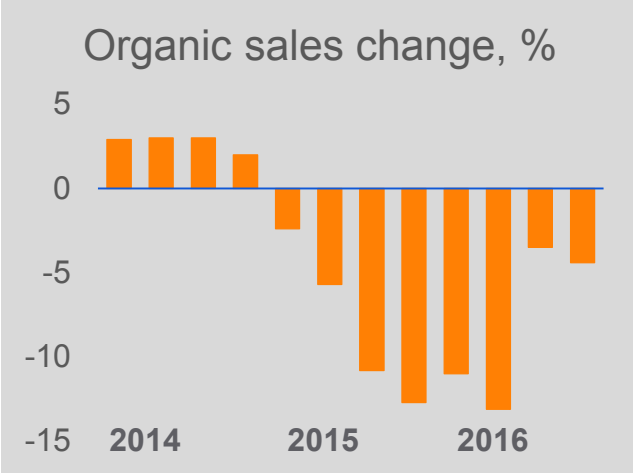
SKF in America

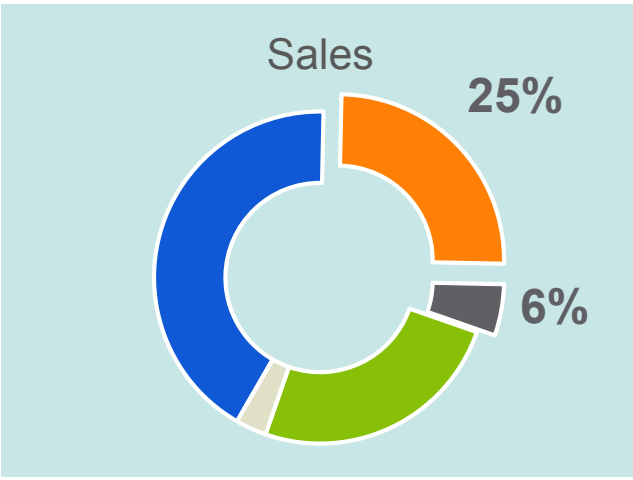
Industrial

- Tough market in 2016, growth expected in 2017
- New wind business with Gamesa do Brasil
- Manufacturing consolidation and investments for increased automation

Automotive

- Declining volumes in 2016
- New business with OEM should support volume growth in 2017
- Hebron warehouse closed, consolidation with Crossville







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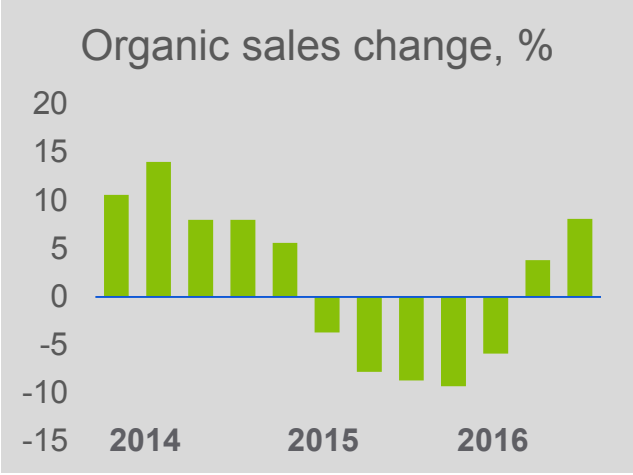
SKF in Asia Pacific

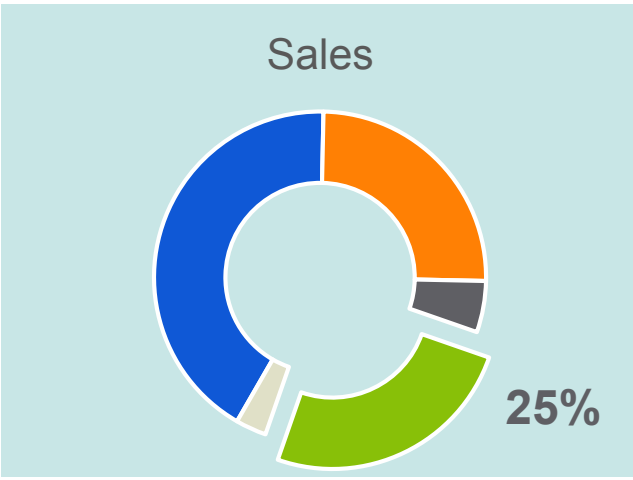
Industrial

- Market development
  - stable demand in India
  - recovery in China
- Strong development in distribution
- Additional business with the world's largest port crane manufacturer
- Increased localization – production of rollers in Dalian, China and spherical roller bearings in Nilai, Malaysia

Automotive

- Strong market since Q3 2016
- Strong development for both trucks and cars







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Summary



- Innovation
  - in products and services
  - in connectivity
  - in manufacturing
- Growth in all major markets
- Simplified organization with clear targets and responsibilities

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SKF Group mission



The undisputed leader in the bearing business

SKF Capital Markets Day 2017

Christian Johansson, Senior Vice President & CFO









Recap from SKF CMD 2015



Summary from CMD in November 2015

- Good performance with higher ambitions going forward
- Cost level is too high, cost reduction and focus activities across the Group
- Strong cash flow generation
  - Low PPE ratios
  - Working capital reductions focus
- Divestments
- Financial position improving
  - Cash flow to deleverage balance sheet

What we did

- Improved performance in Automotive
- Cost reduction activities in place – 3,000 fewer employees
- SEK 7.7 bn in cash flow in 2016
  - Strong free cash flow + divestments
  - Still more to do on NWC
- Five divestments completed
- Net debt ratio improved from 114% to 84%

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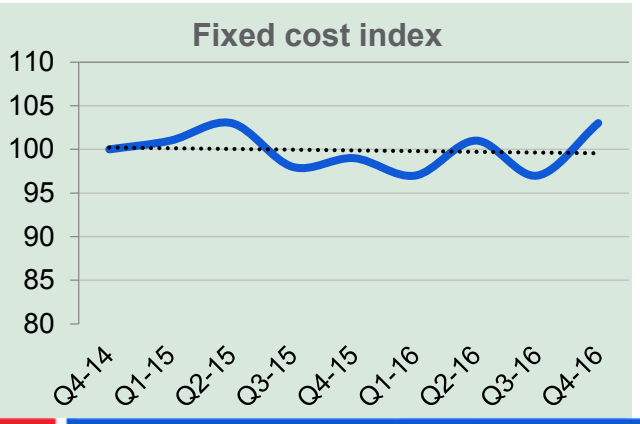
Improved cost competitiveness since November 2015

Framework in place to reduce our cost base in a structured way

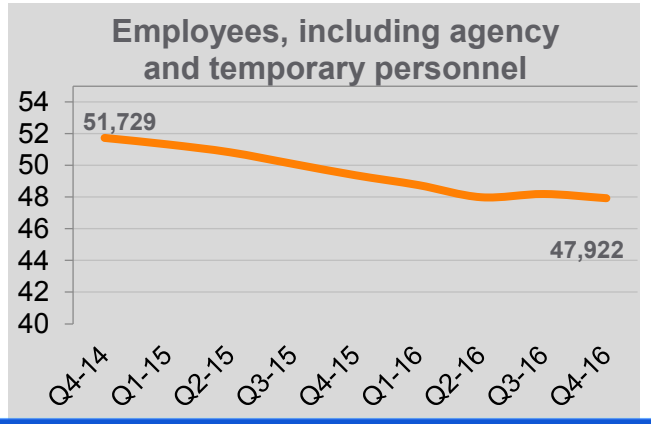
- Fixed cost index flat since Q4 2014
- Headcount reduced by 3,000 persons excluding structure, w/of 2,600 staff
- Activity based cost reductions continues

Product cost reductions achieved

- In addition to commercial, design and specification change supporting material and manufacturing cost reduction
- Manufacturing technology upgrade to reduce manufacturing costs

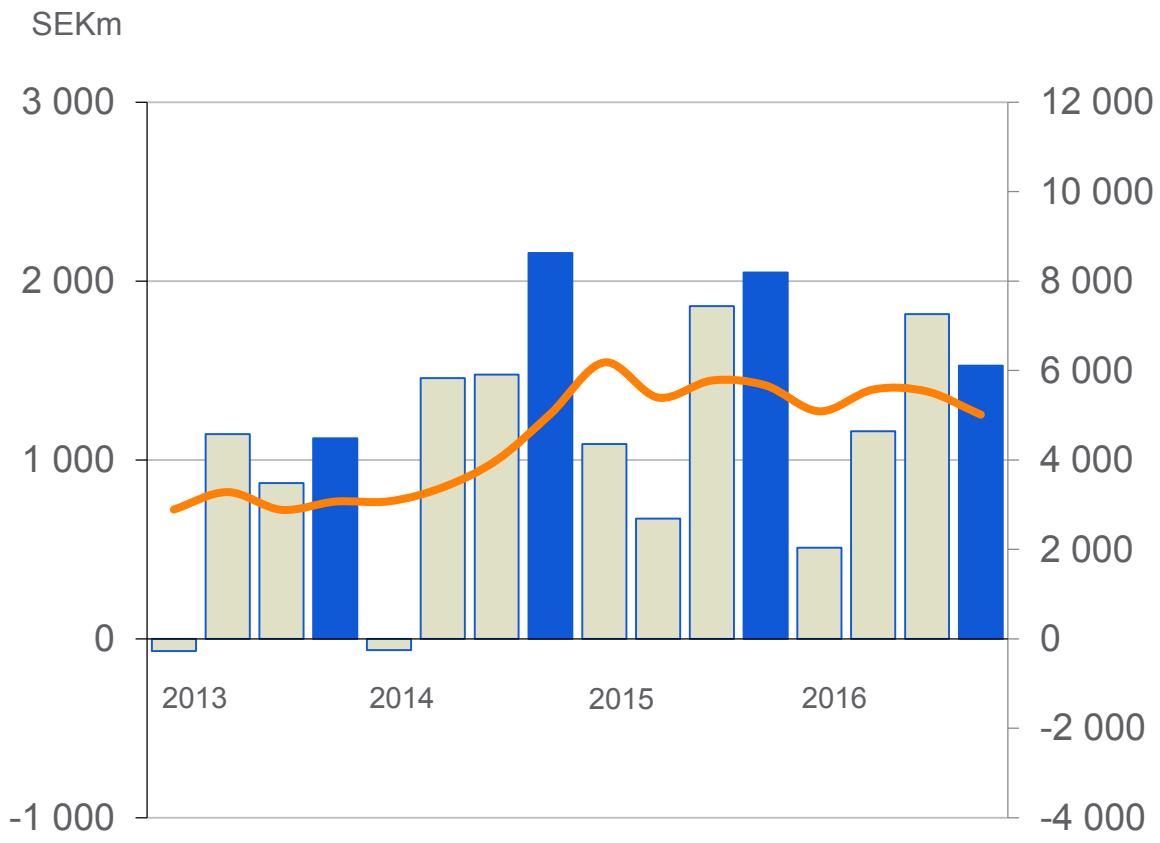








Improved financial position since November 2015



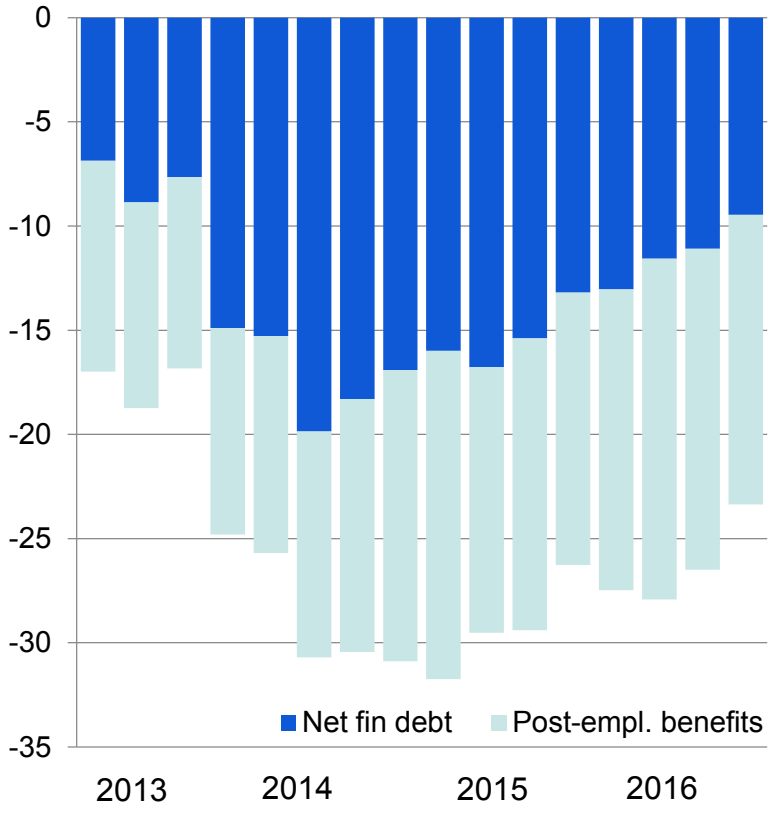
* After investments before financing (excluding acquisitions and divestments and EU payment in Q2 2014.) 2013 and 2014 are restated

- Free cash flow stepped up from 4 bn on 12 month rolling to 5 bn SEK
- Free cash flow conversion / net income in 2016 was 103%.

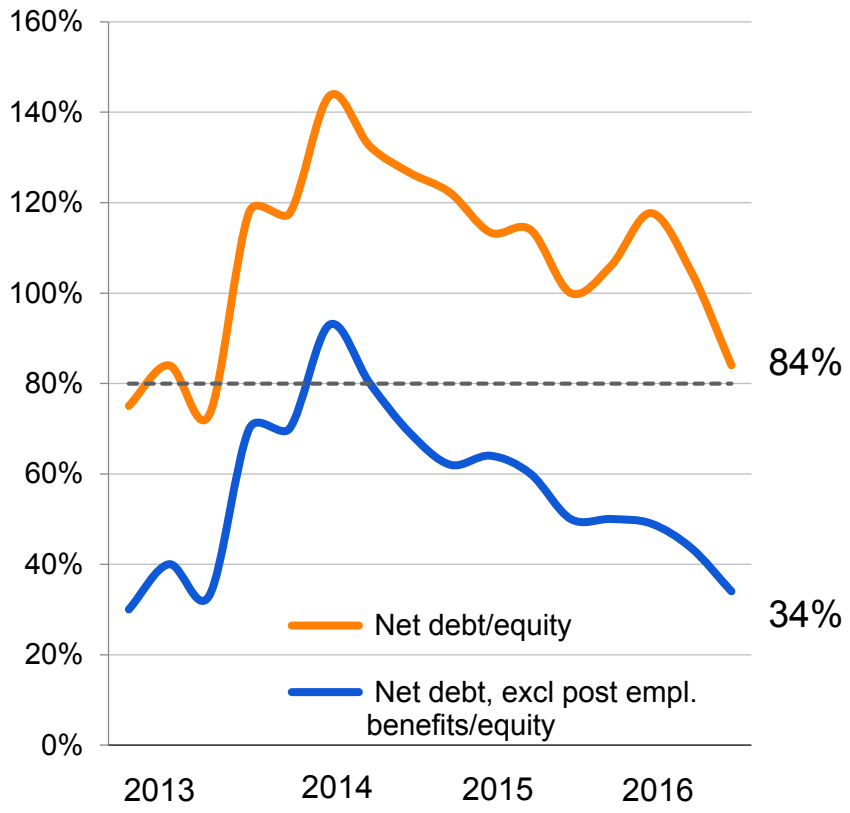
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Net debt reduced by 6 bn compared with Q3 2015

Net debt, SEK bn



Net debt/equity



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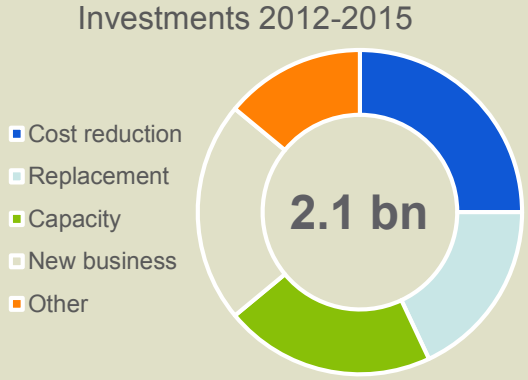
Improvements in cost base and financial position done with the future in mind

- 2.2 bn in R&D in 2016 or 3.1% of sales, vs 2.6% in average 2010-2015
- Increased resources in core technologies like digitalization and engineering software
- Output in terms of new product variants and new offers improved for product lines where it's measured
- Increased investments in PPE and clear investment strategy focused on cost competitiveness and upgrade manufacturing technology

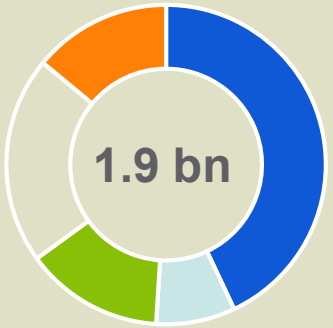
Rotation for life



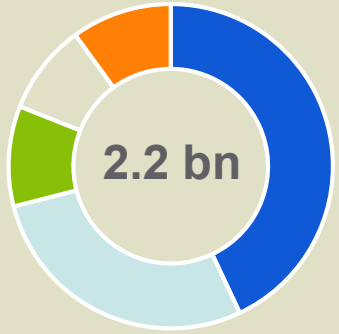
Investments 2012-2015

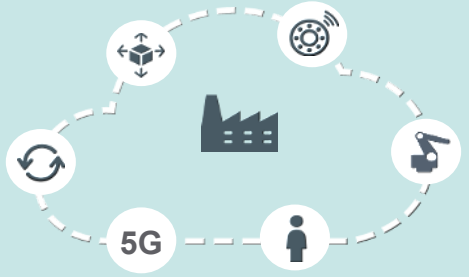


Investments 2016



Investments 2017->





Focused and efficient R&D, increased resources in core technologies like digitalization and engineering software

Manufacturing process development

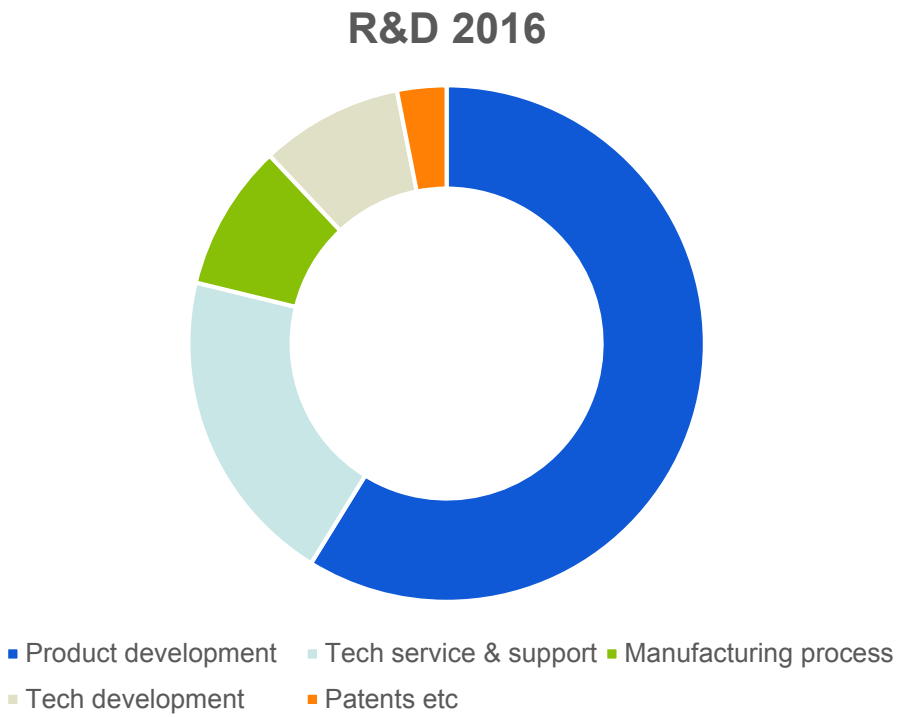
- World Class Manufacturing
- Flexible manufacturing channels
- Heat treatment
- Cold & Warm Rolling

Technical Service & Support

- Global Testing, including test rig, Schweinfurt
- Global Material Laboratories, Field Return Investigations & Calculation support

Technology development

- Ceramics & steel material
- Sealing & Polymers
- Tribology & Lubrication
- Sensors & MEMS



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Financial targets

- New financial targets from 2016
- Changed targets for:
  - Sales growth
  - Operating margin
  - Return on capital employed, ROCE
  - Net working capital

5% (-1.6)

Annual **organic sales growth** in local currencies

12% (10.3)

Reported **operating margin**

Excl Unite (11.2)

16% (11.9)

Return on **capital employed**

25% (29.9)

Net working capital as % of sales



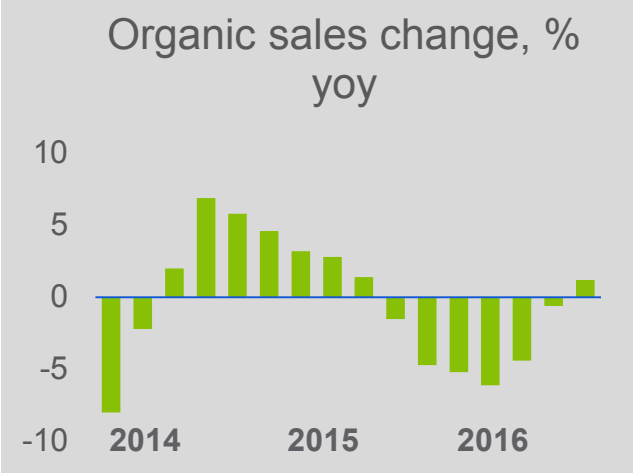
80% (84)

Net debt as % of equity

Business cycle management – a key success factor, now in upturn

- Manage production ramp-up
- Price management
- Manage supply shortages based on profitability
- Raw material prices and inflation by supplier switches and compensating sourcing activities in other categories

Don’t let the cycle take over the full agenda, keep on executing the strategic agenda





Market outlook Q1, yoy:

+ 2-4%

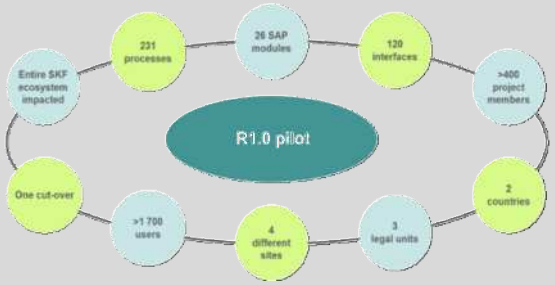
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Unite – SKF's new ERP system

- A global ERP programme to enable SKF's business objectives
- Covers all key business processes – sales & service, demand chain and logistics, finance, purchasing and manufacturing
- Unite program runs from 2013-2022 - Full scale SAP implementation, 26 modules
- Successful first large size go-live in Sweden & Finland on 4 January, 2017

Financial outlook 2017-2022

- Expected cash spend of about SEK 950 M in 2017.
  About 800 M expensed through the P&L, including amortization
- Total cash spend 2017-2022 for Unite remain at 0.8-1.2 billion per year, as previously communicated



Integrated processes, systems and data



© SKF Group

Unite - next steps

Status in Sweden & Finland 3 month after go-live

- Large scale user support activity during Q1
- All processes works ok but improvement areas defined
- Factory output close to normal, business upturn requires more

Next steps

- Ramp down hypercare support
- Lessons learned
- Design & build of next software releases
- Preparation for next implementations ongoing






Working capital – how we will reach 25% in 2017

Reduce inventory days

- Increase supply chain flexibility
- End-to-end forecasting and planning
- Throughput time optimization in focus in all activities

Reduce AR-days

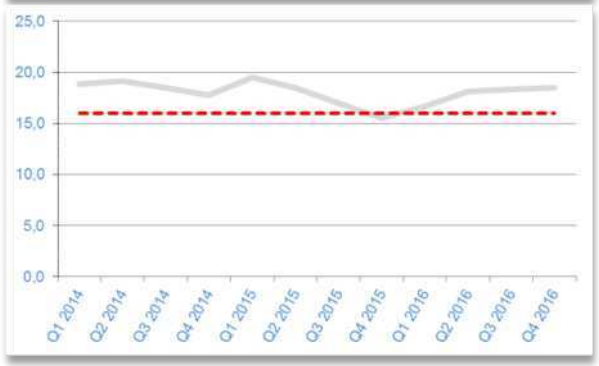
- Continue successful outsourcing of collection
- Process standardization and new credit policy
- Increased importance in sales incentive schemes
- Opportunity in upturn business cycle

Increase AP-days

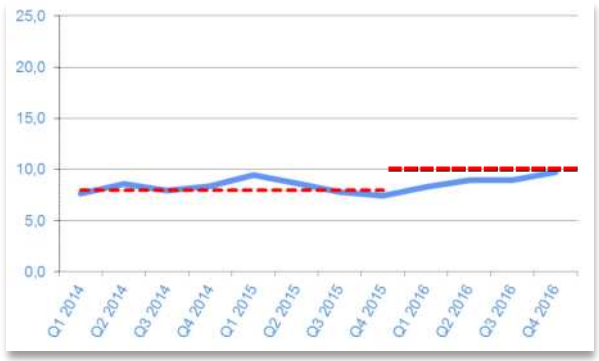
- Continue successful implementation of supply chain financing
- Improved payment terms through global purchasing



Target: 19%



Target: 16%

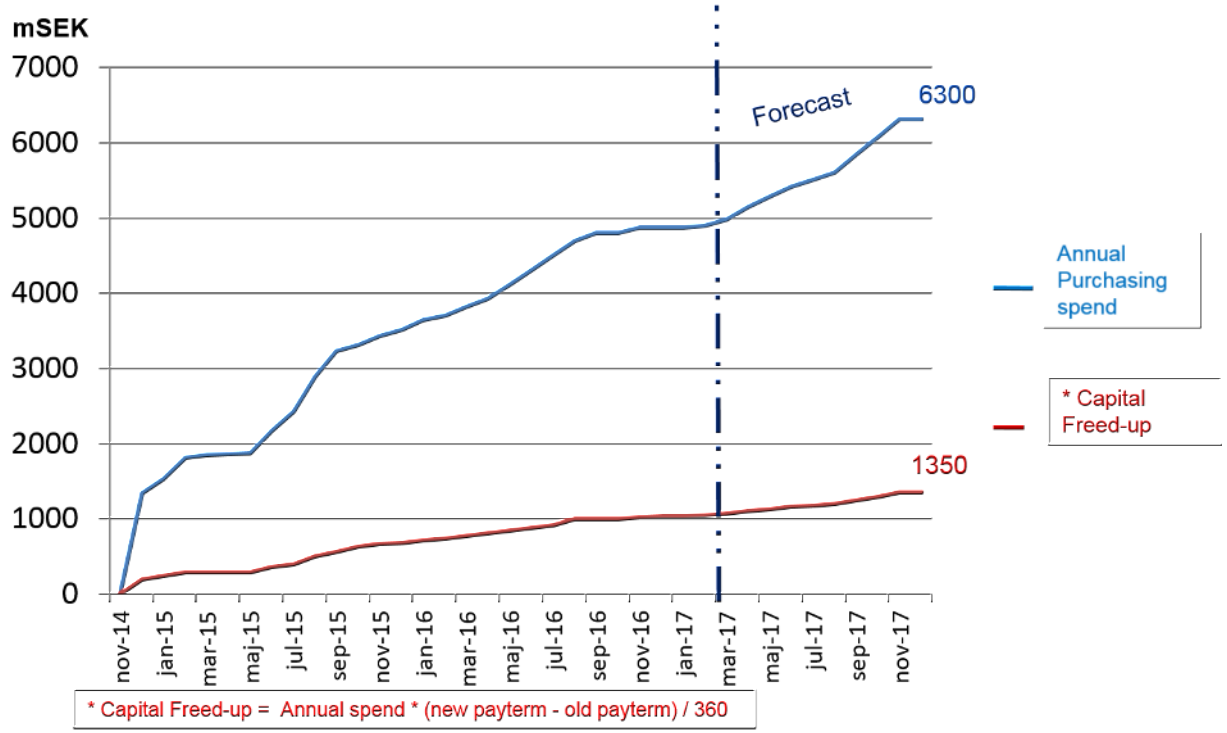


Target: 10%

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Increased AP days through focus and supply chain financing

SCF cash flow effect 2015: 417 MSEK
SCF cash flow effect 2016: 618 MSEK
Forecast 2017: additional 300 MSEK



Global and local purchasing



© SKF Group

AR-days – Outsourcing for improved collection process

- Implementation started in 2015
- Collection process for markets representing around 50% of the Group sales are now handled by an external party
- 19 markets are, fully or partly, included in the process
- A reduction of overdues in average of 35%, with some 200 MSEK in cash flow released
- Additional markets to be implemented in 2017 are defined which increase the coverage from 50% to 65% of the Group sales.



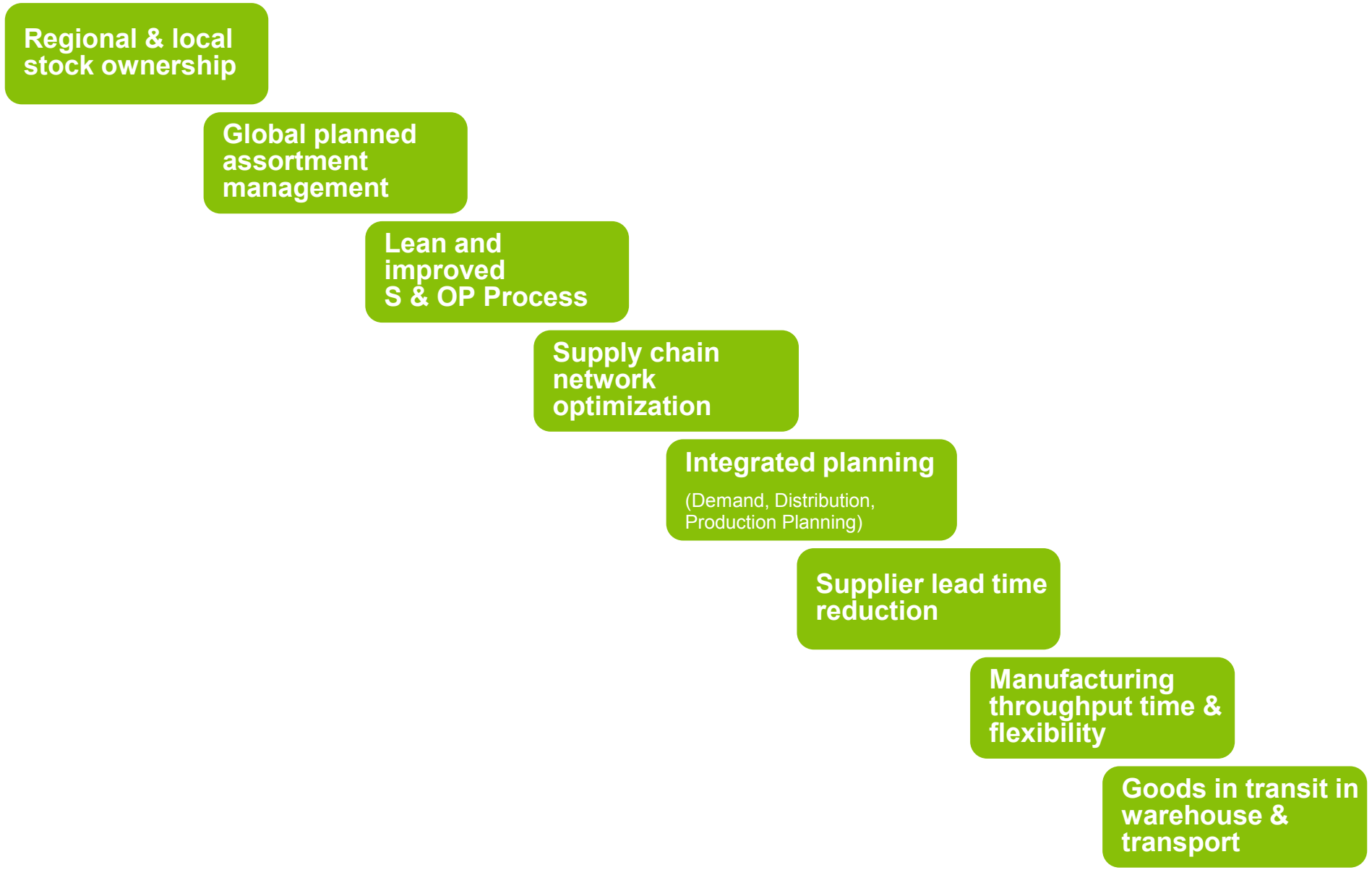
35%

reduction in overdues



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Inventory days - an integrated approach



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Active portfolio management

- Portfolio pruning activities are in focus since 2015 and still are

Completed transactions in 2015









- Opportunities to accelerate profitable growth within the defined two value propositions

Completed transactions in 2016



Fly-by-Wire: June 2016



Velocity Control: June 2016

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Two different value propositions in focus

Opportunities to accelerate profitable growth through acquisitions and/or partnerships

Rotating equipment performance



Rationale

- Identified opportunities to strengthen key industrial digitalization capabilities
- Possibilities to accelerate SKF digital strategy implementation through acquisitions or licensing partnerships
- Selectively pursue specific value added service providers

Product



- Possibility to close certain product gaps
- Opportunities to strengthening the core bearing business through product adjacencies to rotating applications

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Summary



- Focussed execution of strategic agenda during six quarters with declining market demand
- Improvements in Automotive and overall stable performance
- Free cash flow improved further in 2016 from already good level
- Financial position improved significantly
- Business cycle upturn gives new opportunities
- The Unite program is strengthening SKF competitiveness while being a sizable financial undertaking
- Further portfolio pruning and opportunities to support profitable growth within the two value propositions in focus for M&A

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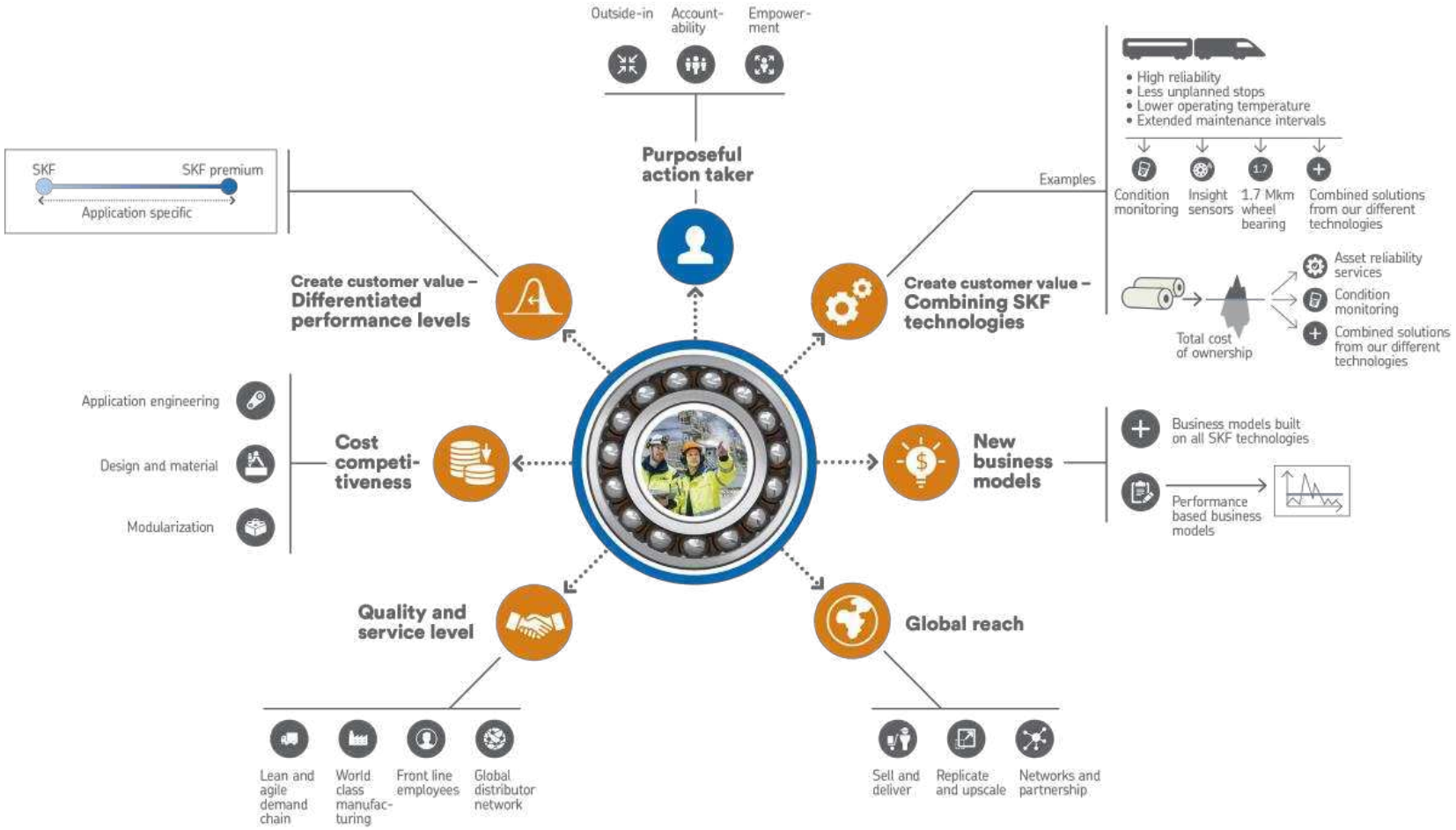
Bearing Operations

SKF accelerates for World Class Manufacturing



Group strategy

Creating customer value



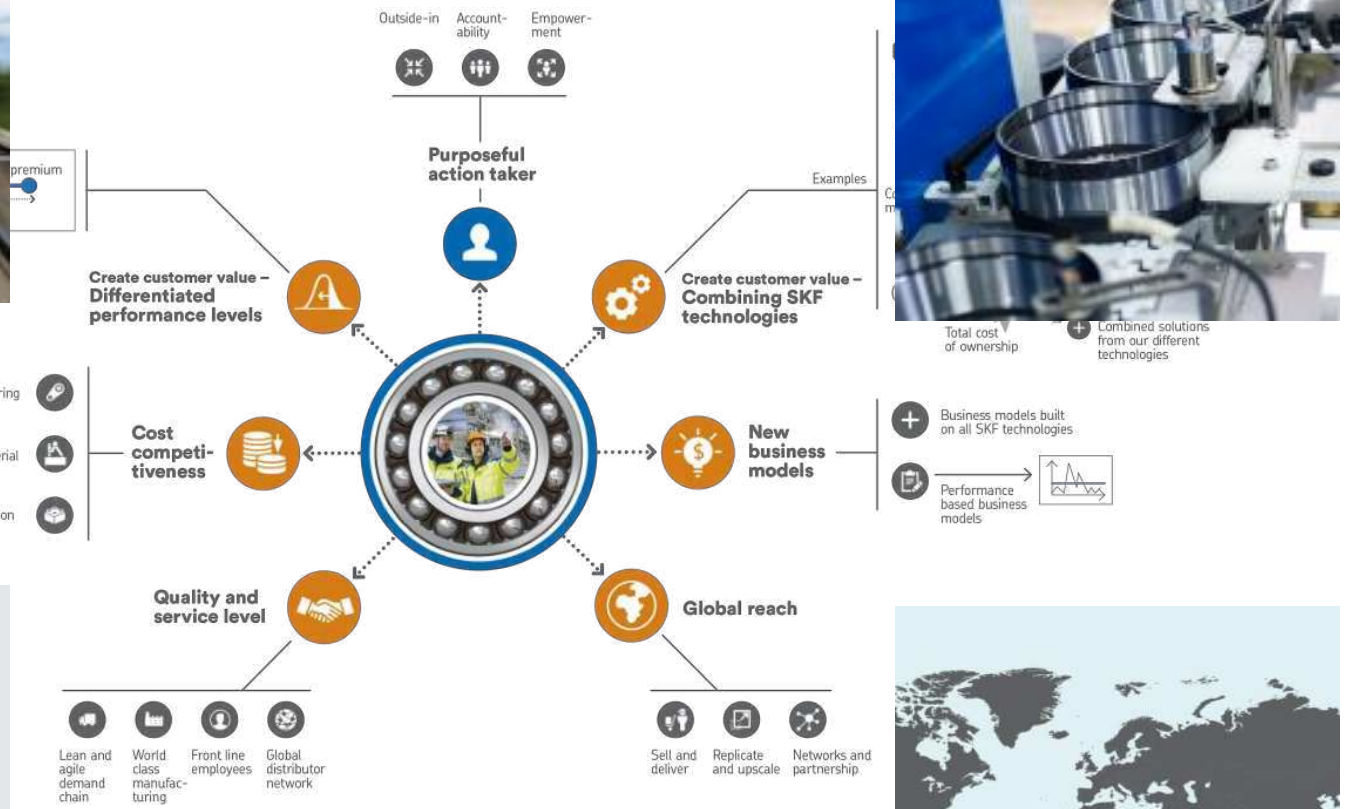
Strategic priorities

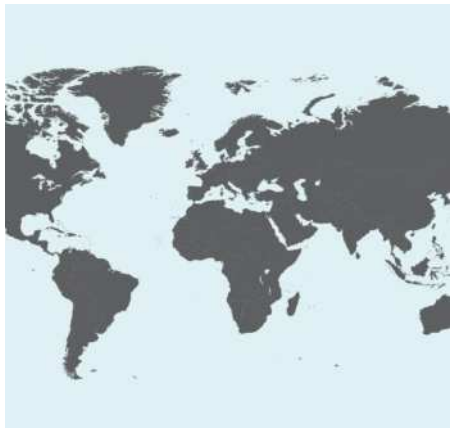
1. Create and capture customer value
+
2. Application driven innovation
+
3. World class manufacturing
+
4. Cost competitiveness
=
5. Maximize cash flow over time

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Introduction to
SKF Production System
SKF


Review technical solutions
ICR levers
Optimize sourcing
Review product specifications


Outside-in
Account-ability
Empower-ment
Purposeful action taker
premium
Create customer value – Differentiated performance levels
Application engineering
Design and material
Modularization
Cost competi-tiveness
Quality and service level
Lean and agile demand chain
World class manufac-turing
Front line employees
Global distributor network
Examples
Create customer value – Combining SKF technologies
Total cost of ownership
Combined solutions from our different technologies
New business models
Business models built on all SKF technologies
Performance based business models
Global reach
Sell and deliver
Replicate and upscale
Networks and partnership



© SKF Group

Bearing Operations strategy

S – Delivery – Cost – Working clim ent



SKF Production System



Technology step-up

WORLD CLASS

Input cost reduction





M nufactur
gistics

© SKF Group

SKF Production System



Safety
Quality
Delivery
Cost
Working climate
Environment

- Process for continuous improvement
- Base to World Class Manufacturing
- 45 units already implemented
- All bearing units to be completed by 2018
- Overall Equipment Effectiveness (OEE) improvements
- Waste elimination

Safety

Zero Accidents



Quality, delivery, cost, working climate

- Scrap reduced by 35%
- Resetting time reduced by 22%
- Net output increase by 25%
- Manufacturing stock reduced by 37%

Pilot channel in Pune over 18 months

Environment

Result 2016:
-14% energy reduction
-31% CO_2 for transportation

Climate targets 2025:
-40% CO_2 for manufacturing
-40% CO_2 for transportation



FROST & SULLIVAN INDIA MANUFACTURING EXCELLENCE AWARDS 2015 — SKF India Limited — Future Ready Factory - Platinum Award |Engineering Sector, Large Business

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Input Cost Reduction



- Integrated process for continuous improvement
- All product lines covered
- Drives
  - Standardization
  - Variant reduction
  - Volume and supplier consolidation
- Supported by category driven purchasing

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ICR and category driven purchasing model

Reducing cost with integrated cost reduction (ICR) and strategic sourcing waves.
Examples from recent achievements:

Direct material

-35% Extending use of plastic vs steel (e.g., pulleys, cages)

-30% Further optimizing rings soft machining operations



In-direct material/service

-34% Transport (selected routes)

-70% Telephony service (one country)

-40% Pallets

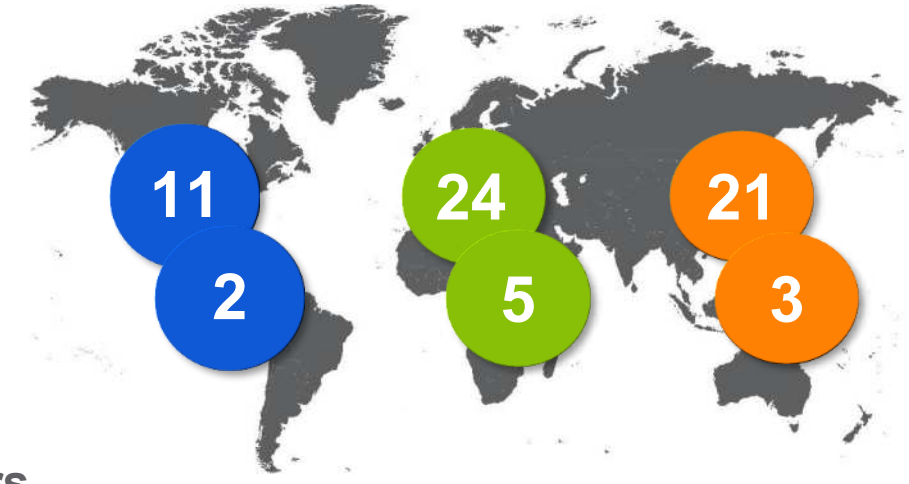
-21% Metal cutting tools



© SKF Group

Manufacturing and logistics footprint

Bearing Operations factories and warehouses



Suppliers
Region for region
85-90% local supply



Suppliers > Manufacturing > Logistics > Customers

© SKF Group

Footprint - Americas

11 bearing factories
2 major warehouses



1 - Closed Puebla Industrial Bearing operation, volume transfer to other sites
- Announced June 2016
- Completed October 2016

2 - Closed Hebron warehouse, consolidation with Crossville
- Announced January 2016 in USA
- Completed June 2016

3 - Consolidation Hanover / Flowery Branch / close Baltimore
- Announced June 2016
- On-going

Footprint - Europe

24 bearing factories
5 major warehouses



4 - Upgraded and optimized operations in Villar Perosa, Italy

- Completed November 2016

5 - Upgrade and restructure Poznan, Poland

- Ongoing

6 - Outsource cage operation in Lutsk, Ukraine

- Ongoing
- External supply starting in April 2017

7 – Consolidation and modernizing distribution centres across Europe

- Announced December 2016

© SKF Group

Footprint - Asia

21 bearing factories
3 major warehouses



8 - Consolidated Pinghu factory, China, volume transferred to Zhejiang and Solution Factory Shanghai, China
- Completed June 2016

9 - Consolidated stocking locations and invested in a new India Distribution Centre in Pune, India.
- Inaugurated December 2016

10 - Expanding Asia local capabilities by investing in:
- Roller manufacturing Dalian, China
  - Announced January 2017
- Spherical roller bearing manufacturing Nilai, Malaysia
  - Announced March 2017

Technology step-up



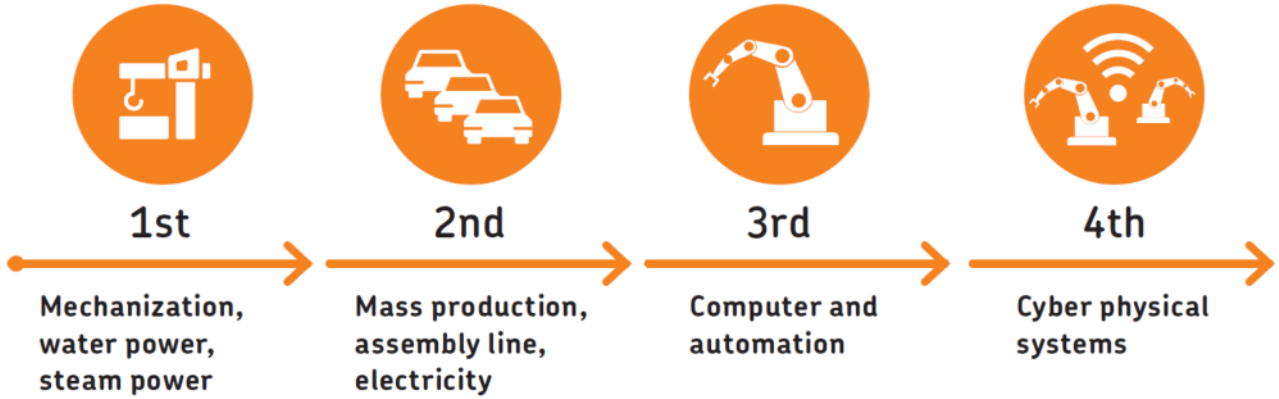
Standardize

Maintain

Digitalize
(Industry 4.0)

© SKF Group

4th industrial revolution – From strategy to reality



- ✓ Shorter lead-times
- ✓ Increased flexibility
- ✓ Higher efficiency

© SKF Group

World Class SRB Gothenburg

Inaugurated April 5, 2017

- Low cost, high output, flexible
- Zero resetting machines
- Automated assembly
- Automated Guided Vehicles
- RFID tagging (Radio frequency identification)
- Traceability
- Energy efficient machines, sensorized LED lightning
- Condition monitoring for machine health and learning
- Mobility tools for action-taking in real-time
- Reduced from 4 channels to 2 with improved capacity
- Reduced number of employees with 80%

Zero defect delivery with

- ✓ Shorter lead-times
- ✓ Increased flexibility
- ✓ Higher efficiency











© SKF Group

Transformation – the way forward

World class investments: **900 MSEK**

- SRB Goteborg - Inaugurated April 5 2017, PR April 2015 (190 MSEK)
- CRB Schweinfurt - PR November 2016 (150 MSEK)
- LSB Schweinfurt - PR January 2017 (145 MSEK)
- SRB Hanover/Flowery Branch - PR June 2016 (150 MSEK, technology step-up as part of consolidation)
- EDC Tongeren, Belgium - Inaugurated May 2016
  IDC Pune, India - Inaugurated December 2016
  (225 MSEK, including stocking location consolidation)



”Smart refurbishing”

Established Machine Center of Excellence network for ”smart refurbishing” of equipments

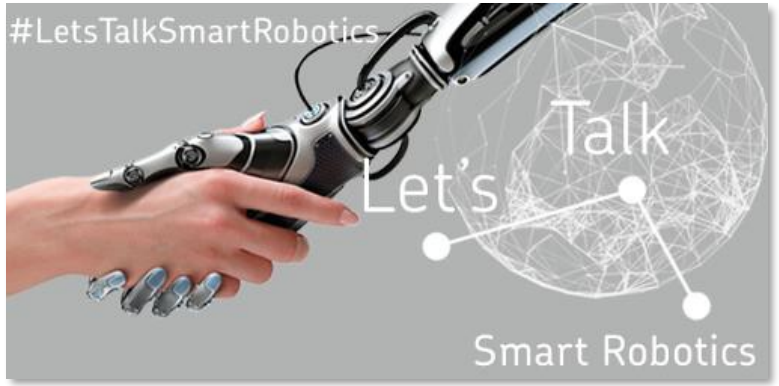
- Existing machines into new technology with readiness for IoT and I4.0 connections
- Driving machine standardization
- First 15 machines under ”smart refurbishing”



© SKF Group

A digital transformation for smart manufacturing

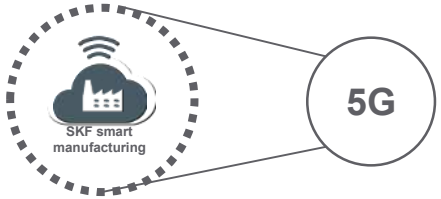




© SKF Group

AGV = automated guided vehicle

Industrial internet



Chalmers University, Ericsson and SKF take the lead in developing 5G technologies for achieving world-class manufacturing

2016 February 08, 08:30 CET

Gothenburg, 8 February 2016: Chalmers University, Ericsson and SKF today announces the launch of 5G Enabled Manufacturing (5GEM), a two-year project aimed at combining the next generation mobile technology, 5G, with manufacturing technologies to increase the sustainable competitiveness of Swedish industry.

5GEM is being supported by Vinnova, a part of the Swedish Ministry of Enterprise. As part of the project, a pilot production system for world-class spherical roller bearing manufacturing, making use of 5G technologies, will be developed at SKF's factory in Gothenburg.

Johan Stahre, 5GEM Project Manager says: "The project's vision is to create a world-class manufacturing system that demonstrates enhanced performance through improved efficiency, increased flexibility and traceability. A key component of the project is ensuring these technologies are easily transferable to other manufacturing industries."

Being delivered in four phases, 5GEM will address the four main life-cycle phases of a manufacturing system: design, deployment, operation and maintenance. In each phase, best practice use of mobile ICT infrastructure, connectivity tools, sensors and operator-system interaction will be developed to ensure consistent and integrated information flows.

Aktiebolaget SKF
(publ)

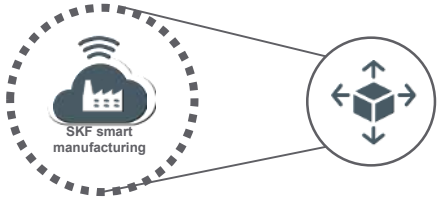
Collaboration to drive industry development
Chalmers University, Ericsson and SKF



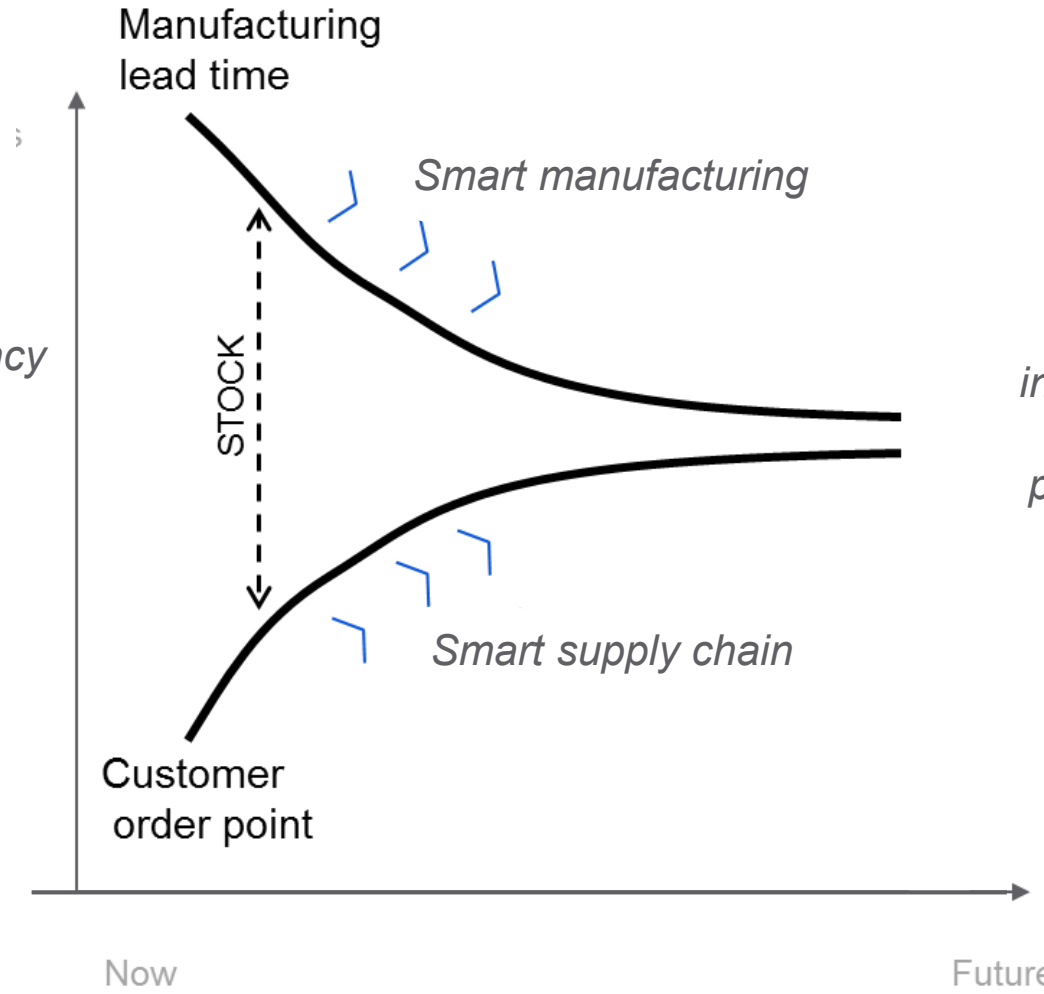
- 4 demonstrators built, ready for testing
  - Stationary connectivity
  - Mobile connectivity
  - Network and cloud
  - Factory radio design
- Full 5G standard and industrialization expected for 2019/2020

© SKF Group

Digitalization end-to-end enables stock reduction



Information transparency ("big data") enables improved demand information



Real-time transparent demand information with smart manufacturing and smart supply and demand planning, will enable ***less inventory and better service***

© SKF Group

World Class Bearing Operations
- From strategy to reality!









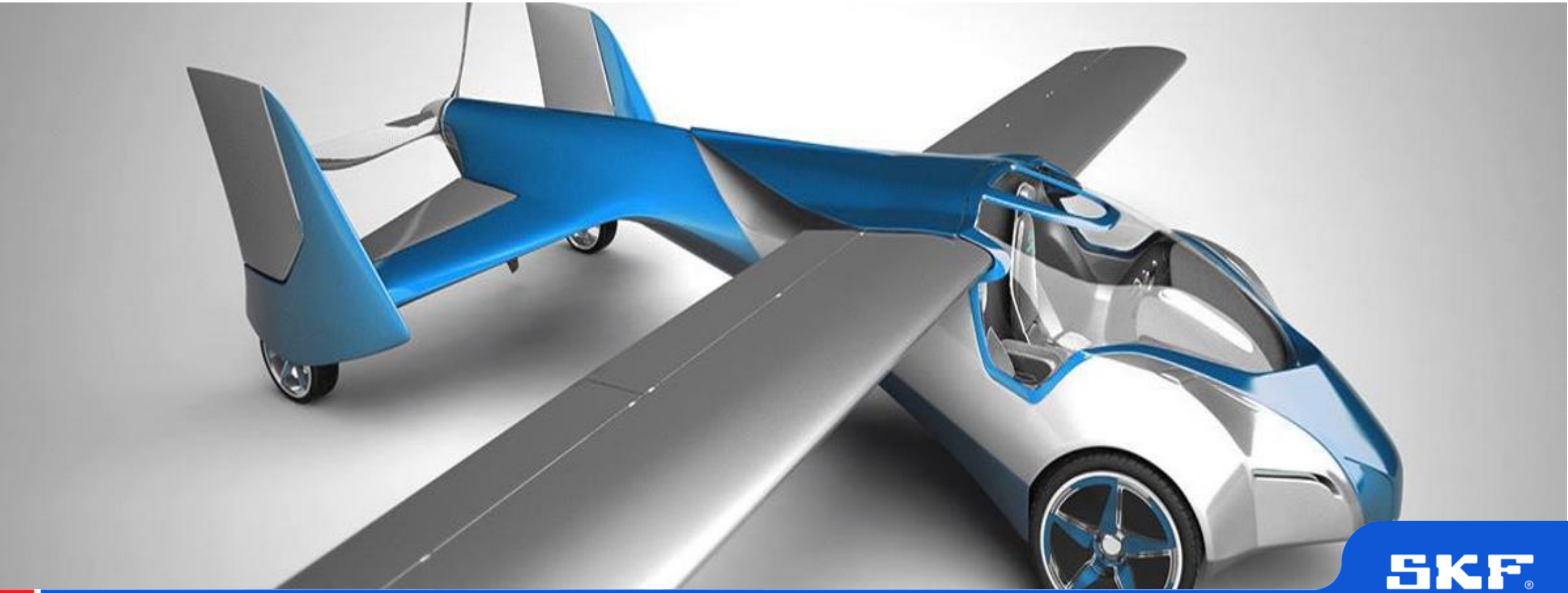


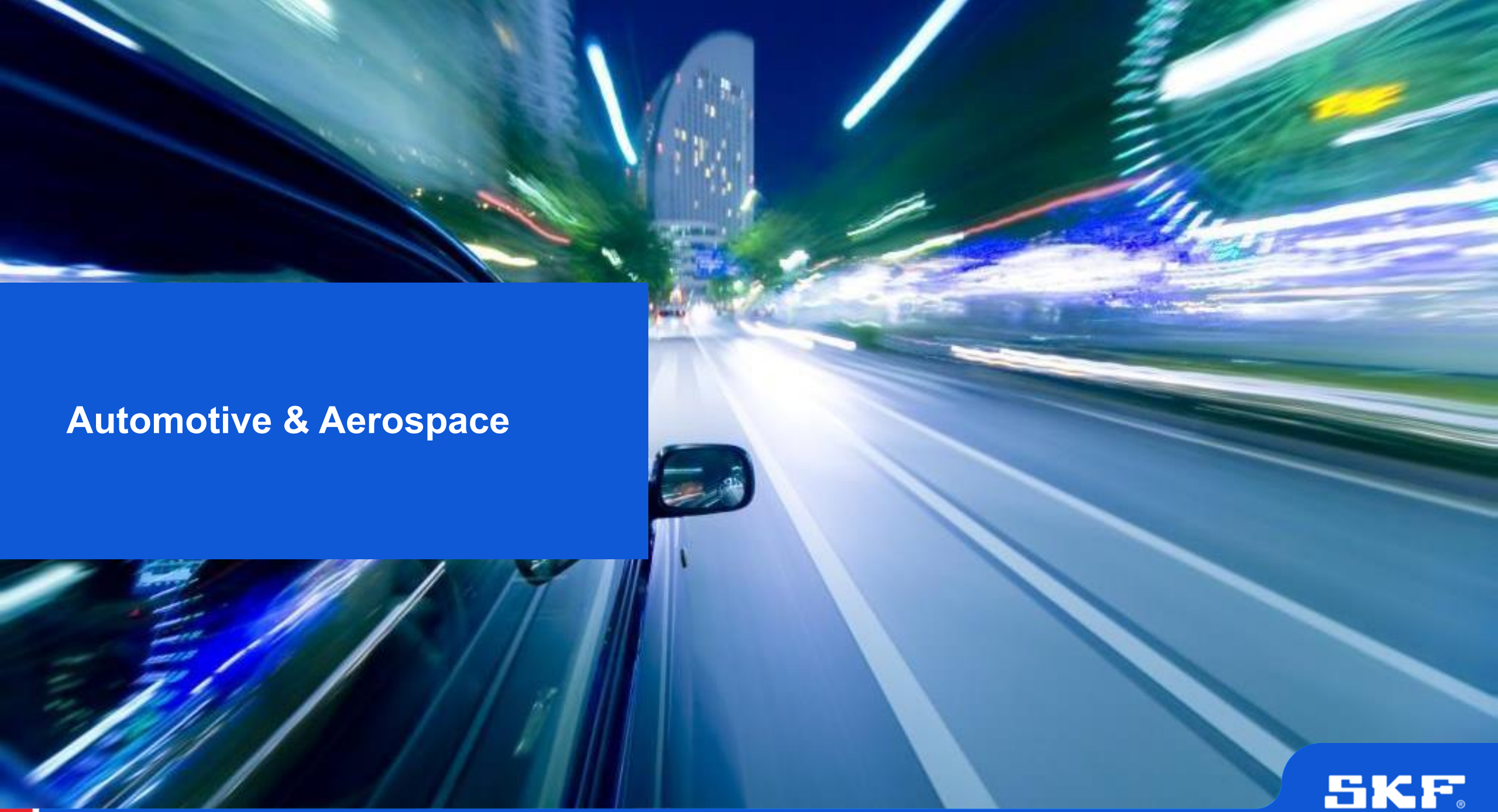




Automotive & Aerospace

Capital Market Day April 2017

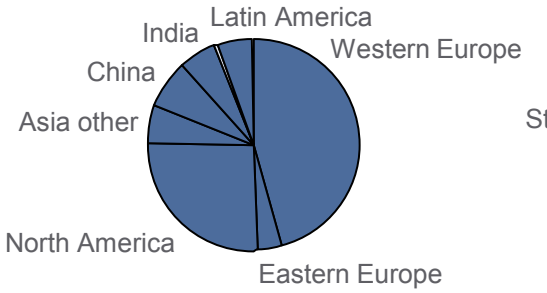




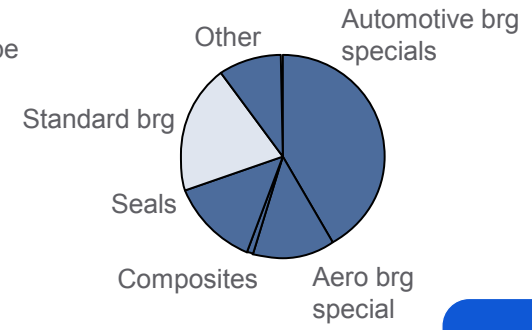
Automotive & Aerospace

SKF Automotive & Aerospace

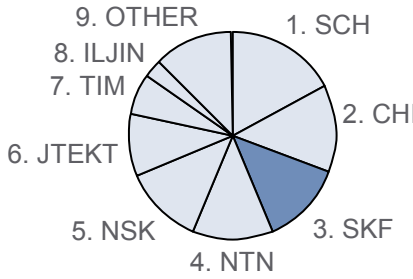
A&A Sales by region



A&A Product portfolio

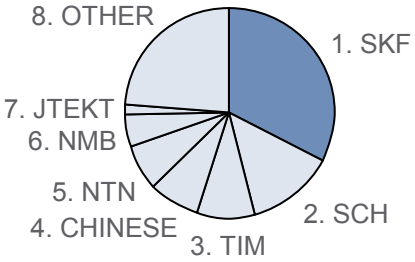


Auto bearings market shares



- **Nr.1** in HBU
- **Nr.3** in Auto brgs
- **Nr.6** in Seals

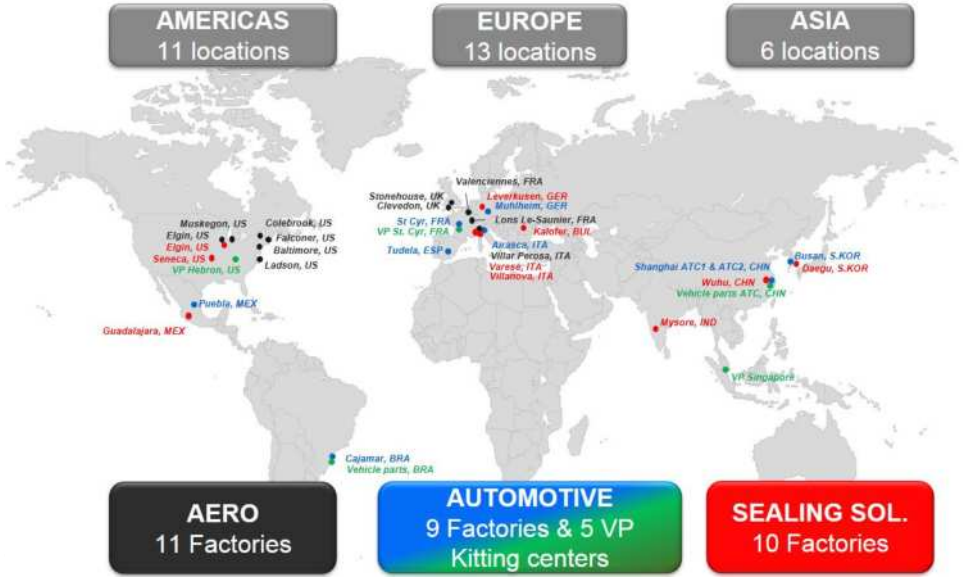
Aero bearings market shares



- **Nr.1** in Aero brgs
- **Top 3** in Composites
- **Nr.5** in PED & seals

Revenue	Employees
26 BSEK	10.000

A&A footprint



Top customers

FCA, Volkswagen, NAPA, Scania, Ford, Volvo, GM, Daimler, ATR, Ducati, ZF, PSA Peugeot Citroën, Great Wall, Groupauto, Tesla, Airbus Group, Safran, Boeing, Comac, Rolls-Royce, Sikorsky, Avio Aero, GE Imagination at work, Leonardo, Bombardier, Pratt & Whitney, UTC Aerospace Systems, Embraer, Bell Helicopter



Concluding the SKF Automotive turn around plan

Automotive Turnaround plan 2015

Key points

1. Addressing market requirements with the right cost/performance positioning

2. Refocusing product portfolio to fewer product lines aligned with core capabilities

Activities

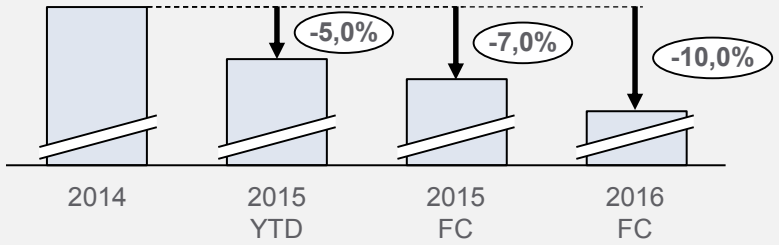


Turn Around Plan – All programs delivering on plan

TAP program contribution 2016 > 500 MSEK

1 Productivity

Staff reduction vs end 2014



2 Manufacturing footprint

On-going restructuring	Closed
• Component factory, France	end 15
• Kit operation, Sweden	end 15
• Seals plant, US	end 16

Further restructuring under development

3 Application specific performance

- Differentiated material and specification
- Aftermarket wheel bearing material

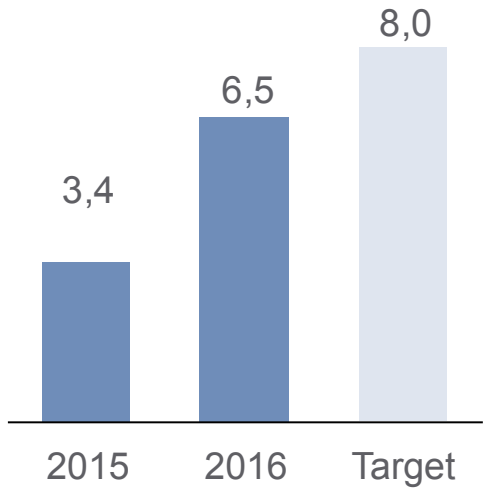
4 Supplier optimization

- Vehicle aftermarket resourcing program
- New suppliers approval program
- Inbound transport project
- Global indirect material consolidated purchasing

5 Manufacturing technologies

- Cold rolling
- Intelligent grinding
- Operational improvements

Operating margin[1]



*1) Automotive business

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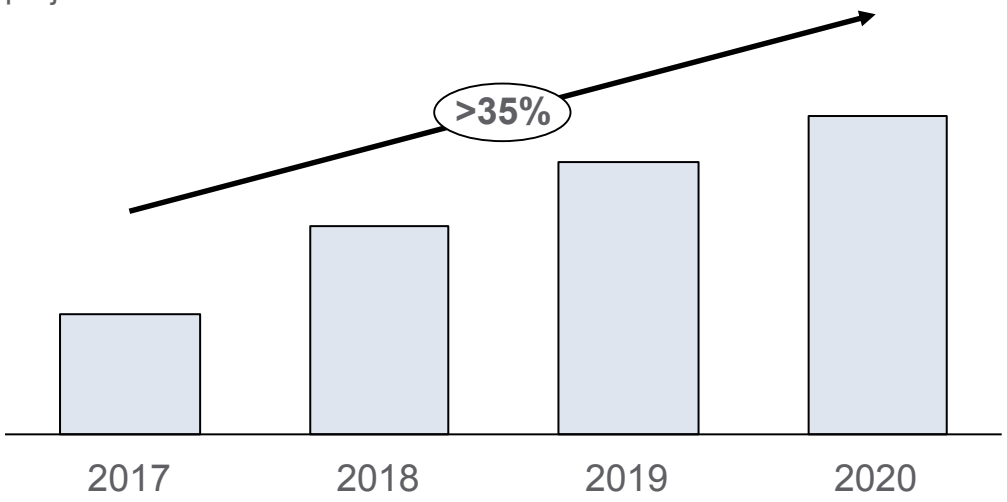
Strategic repositioning

Turn Around Plan

1. High tech, cost competitive component supplier
2. Focus on chassis business

Growth

Car and Truck wheel hub units
Cumulated impact of new launched projects on 2016 business base line



Leadership



#1 Global

- Robust customer confidence in car wheel bearing units, further growth expected



#1 Global

- Strong leadership position in suspension bearings continuing



#1 Europe

- Truck hub unit market not yet at its peak in Europe, further growth expected

© SKF Group



SKF Automotive & Aerospace next steps

Automotive & Aerospace next step focus areas

1	Cost 	• Component cost reduction – Purchasing • Manufacturing efficiency and productivity
2	Pricing 	• Selective price increase to mitigate inflation and material price increase
3	Innovation 	• Innovation to secure competitive leadership • Closing gaps in next generation powertrain

© SKF Group

A&A innovation drivers

Reduced emission

- Light weighting → New materials
- Mechanical system efficiency → Friction reduction
- Electrification → Application specific solutions

System reliability, safety and comfort drives

- Condition monitoring → Sensor systems
- Autonomous vehicles → New features

Competitiveness

- Cost efficient solutions → Design and material
- Differentiated solutions → High tech, high performance







© SKF Group



Competitive wheel end offering

Maintaining leadership in core

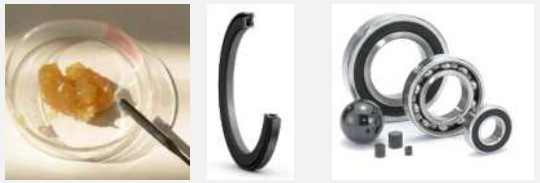
Focus areas to secure future leadership:

Cost innovation	Competitiveness	Design, spec, sourcing	New manufacturing process enabled designs
Application driven Innovation	Incremental development	Performance features	
	Game changing development	Mega trends → Future market needs	

© SKF Group

Aligning portfolio with market needs

Driver	Innovation focus	Examples
Friction reduction	• Design • Seals, grease • New materials	• Low friction grease • Low friction seals • Ceramics
Weight reduction	• Design / Architecture • New materials	• Polymers/ Composites • Light alloys • Functional integration
Reliability and performance	• Feature enhancement • Structural integrity • Sensors integration • Surface treatment	• Anti-corrosion coatings • Preload control • Load sensing







© SKF Group

Seals - a key differentiator

Application requirements

- Lowest possible friction
- Excellent seal-ability
- Longer service life

Innovation focus

- Friction
- Performance
- Magnetic encoders



Low friction wheel seal
- 50% less friction



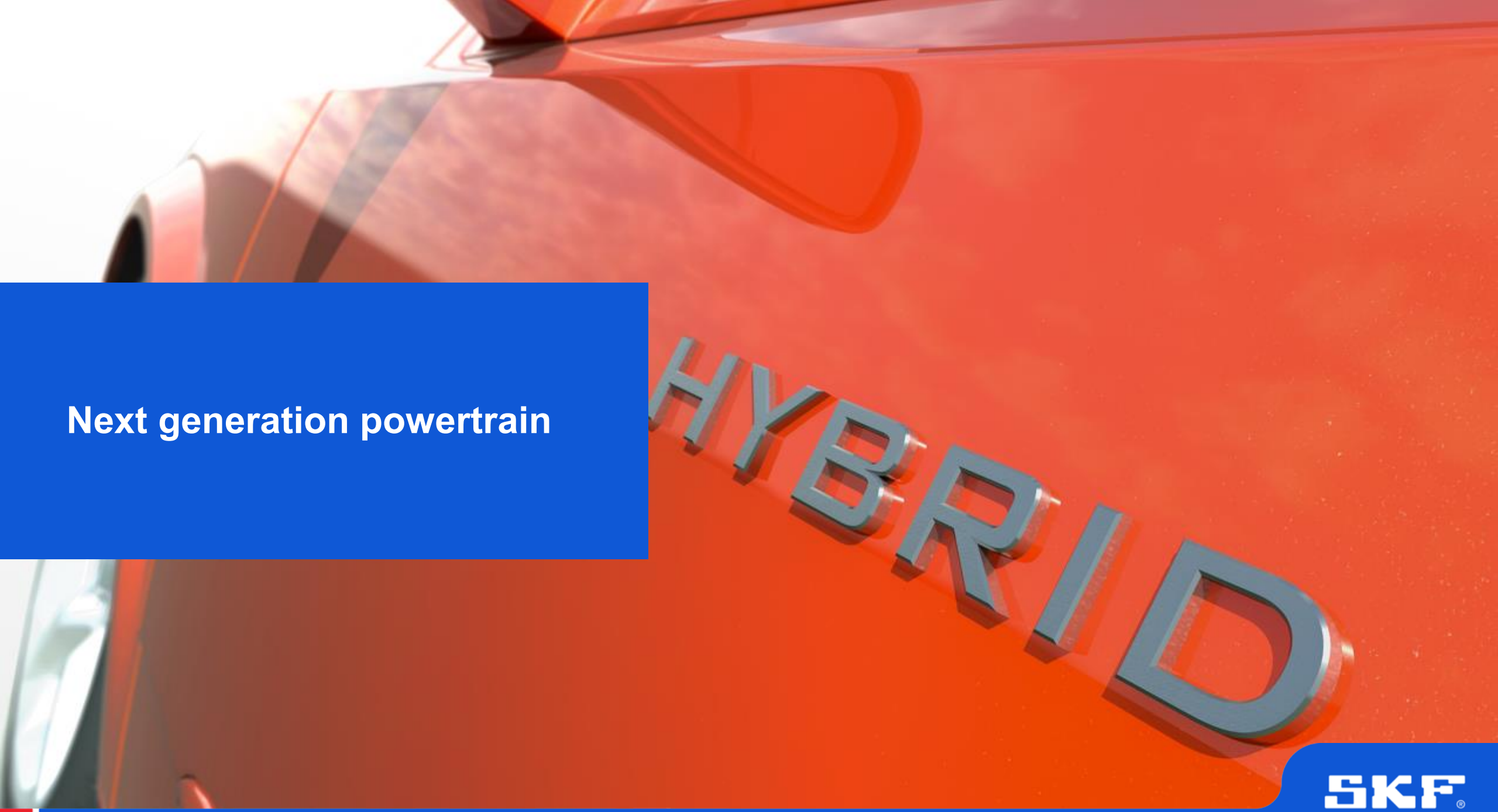
SKF Scotseal
- Extending service life



Magnetic encoders
- Accurate signal to sensors

© SKF Group

Next generation powertrain



ICE conventional mechanical powertrain efficiency

Internal Combustion Engine

Applying core competence

- Friction management
- Weight reduction
- Optimized design
- Advanced materials

Component focus

Internal Combustion Engine




Accessories Drives


Engine shaft brgs


Turbo Boosting


Injection systems

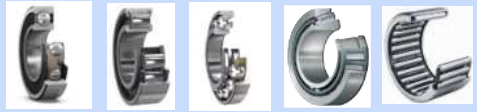

Shaft seals


Valve stem seals


Rotostat

Transmission




DGBB CRB ACBB TRB NRB


Hybrid bearing


Bearing carrier


Bonded pistons

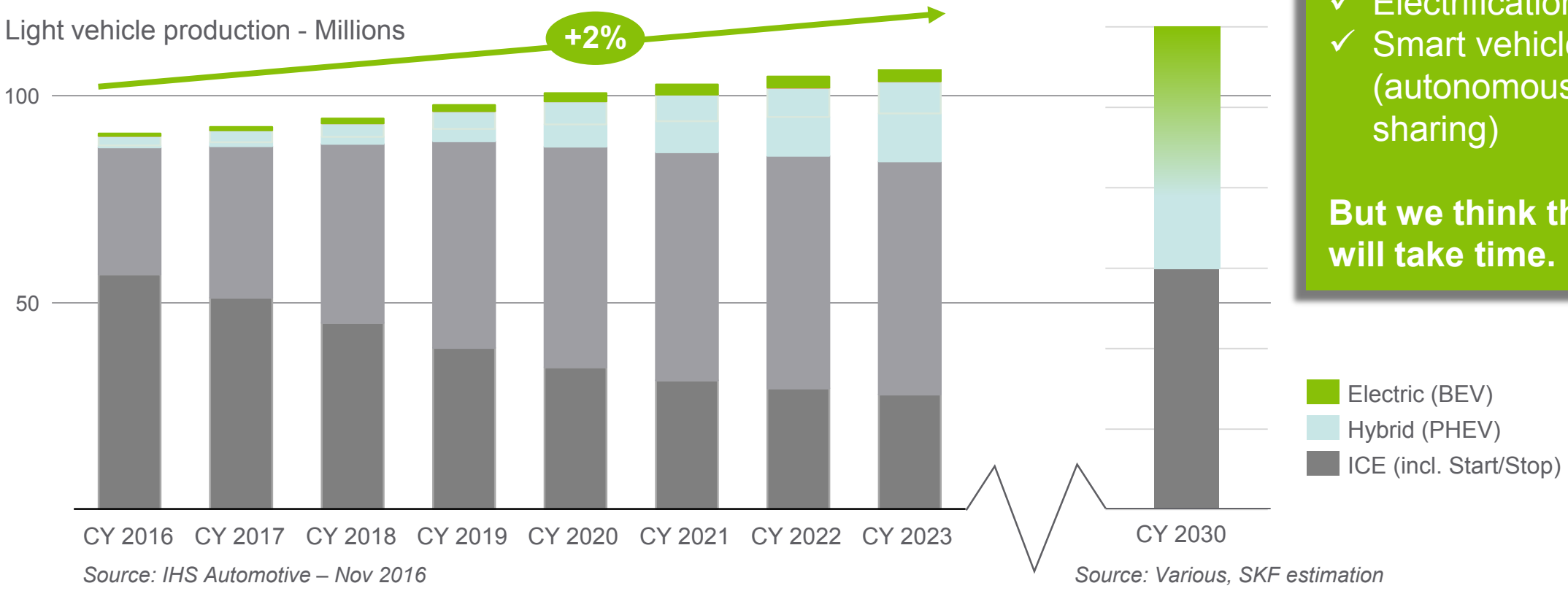

Shaft seals

Optimizing mechanical system efficiency

- Power density
- CO2 reduction
- Fuel consumption
- Cost of ownership

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Powertrain electrification



Source: IHS Automotive – Nov 2016

Source: Various, SKF estimation

The trend is clear:
- ✓ Electrification
- ✓ Smart vehicles (autonomous, sharing)

But we think that it will take time.

© SKF Group

HEV, PHEV, FCEV, BEV business and portfolio

Hybrid Electric Vehicle, Plug-in Hybrid Electric Vehicle, Fuel Cell Electric Vehicle, Battery Electric Vehicle

Today
Present in current technology



SKF Hybrid Bearing



SKF Rotor Positioning Bearing



Deep groove ball bearings



Seals

New RFQ
Growing with all e-systems

Mild Hybrid 48V Belt Starter Generator



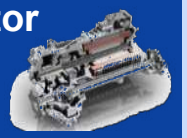


DGBB



RPB

Traction Motor Dedicated Hybrid Transmission





DGBB



CRB



ACBB



TRB



Hybrid



NRB



Seals

Traction Motor e-axles





DGBB



CRB



ACBB



TRB



Hybrid



NRB



Seals

Pure Electric





DGBB



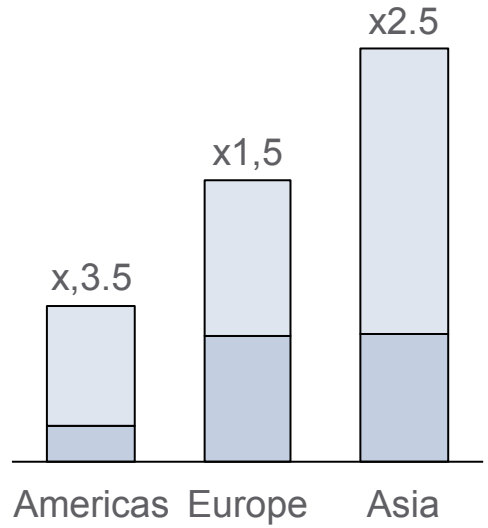
Hybrid



NRB

2025
Well positioned to capture future market

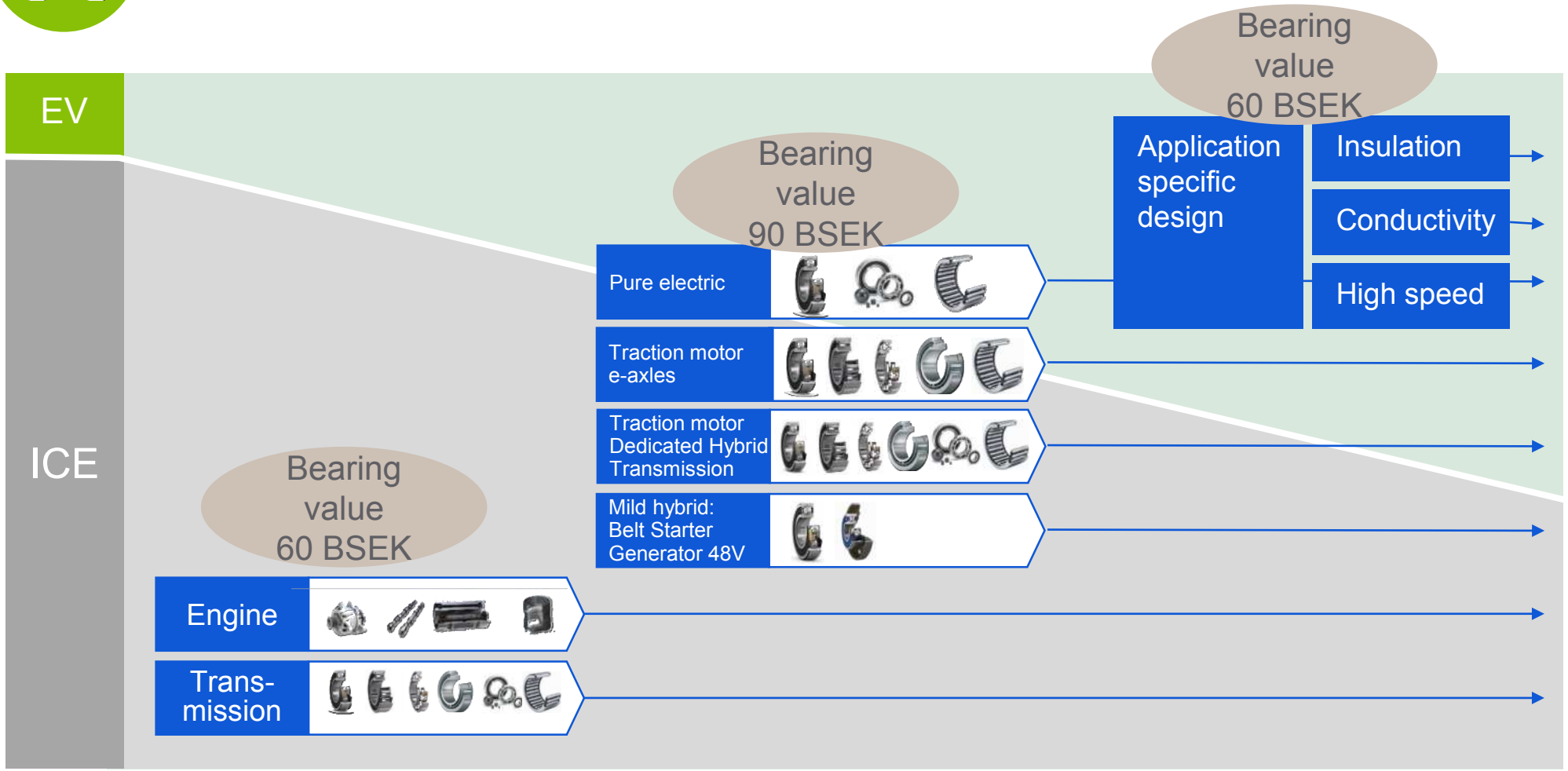
Growth electrification market 2017→ 2025



Source: IHS Automotive – Nov 2016

© SKF Group

Future powertrain component partner



Today → Tomorrow

© SKF Group



Vehicle aftermarket

Customized production & sourcing

Aftermarket needs

- High availability
- Fast and flexible deliveries
- Speed to market of new products
- Value for money





SKF initiatives

- Flexible manufacturing process for hub bearing units
  - Reduced resetting lead times 8h → 30 min
  - Smaller batches 10 000 → 100
  - Reduced stock levels
  - Same design and product validation process and quality control approach
- Broadened supplier base
- First on shelf → first to market

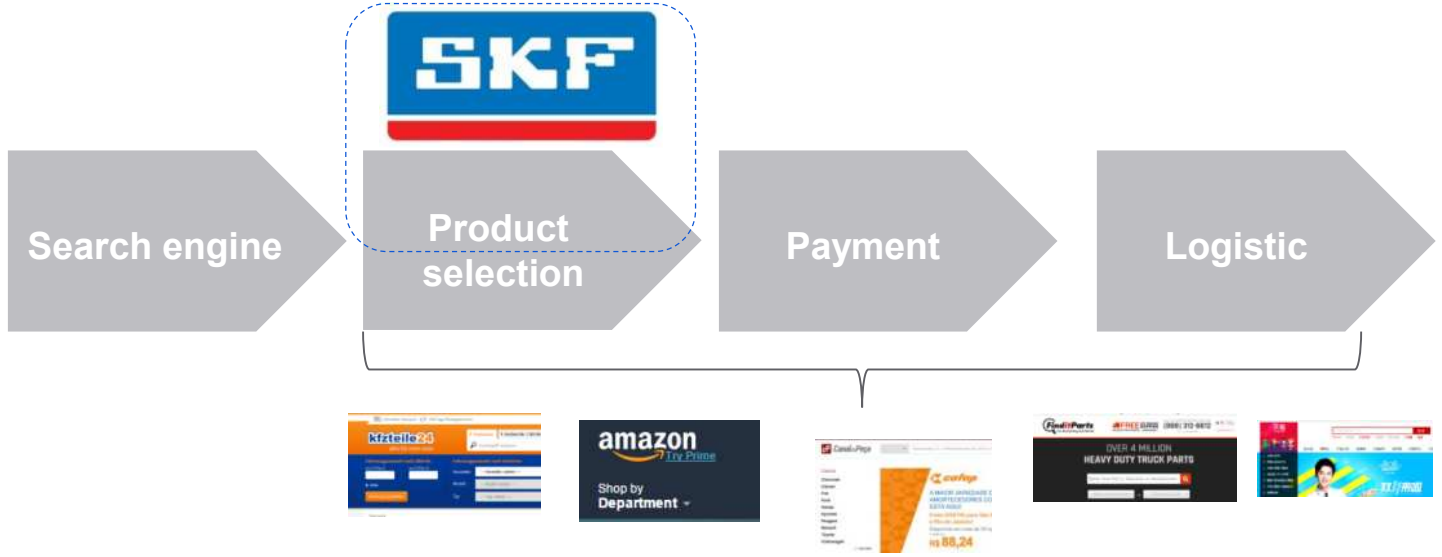
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E-commerce enabling better service for aftermarket

Why e-commerce

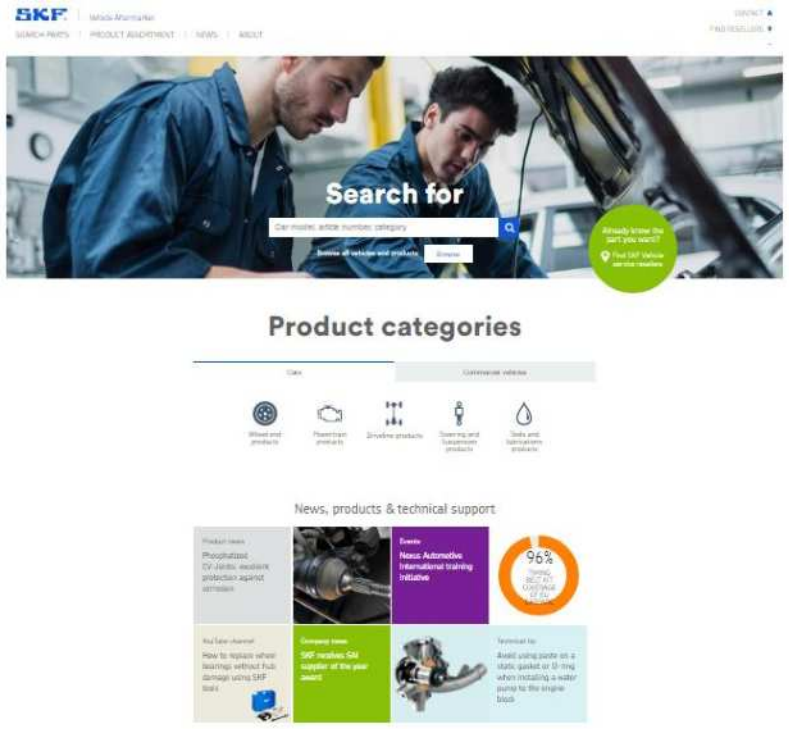
- Grow with growing sales channel
- Strengthen SKF brand
- Offer better customer experience and service
- Promote our products
- Help end-customers, reseller and garages find SKF parts to buy

SKF first steps



© SKF Group

New Product Hub launched

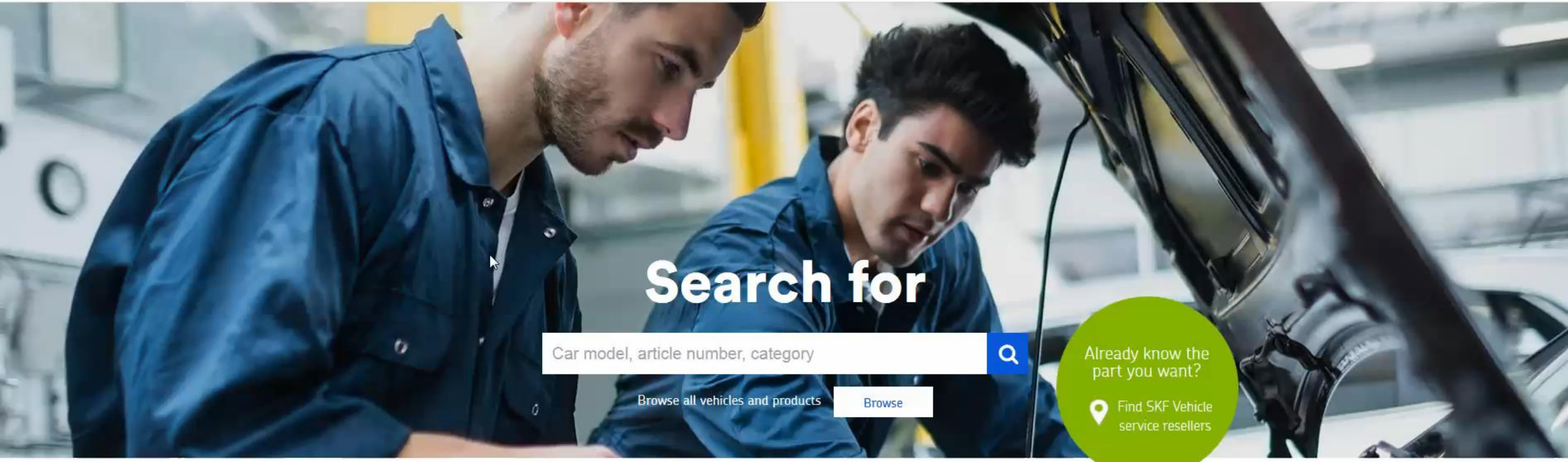


Key points

- Present products and show where to buy
- Technical support material: installation guides, videos etc.
- Technically adapted to all devices: smartphone to desktop
- Optimized for e-marketing and search engine optimization

https://www.vsm.skf.com/uk/en

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Product categories

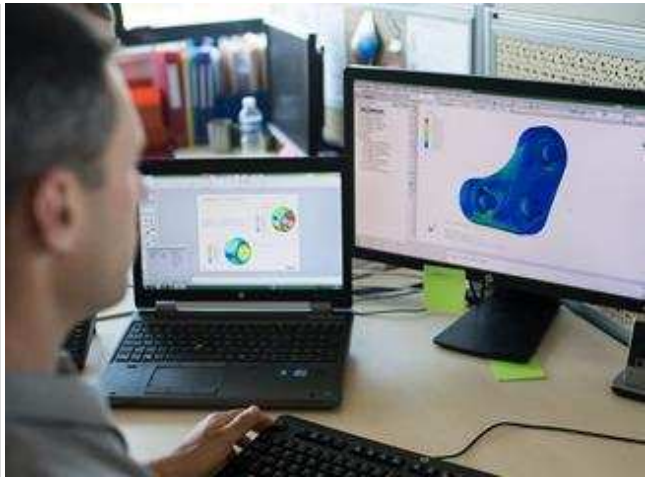
Cars | Commercial vehicles

SKF Aerospace

Customized range of ball, roller, plain and elastomeric bearings, rubber and carbon seals and composite solutions.

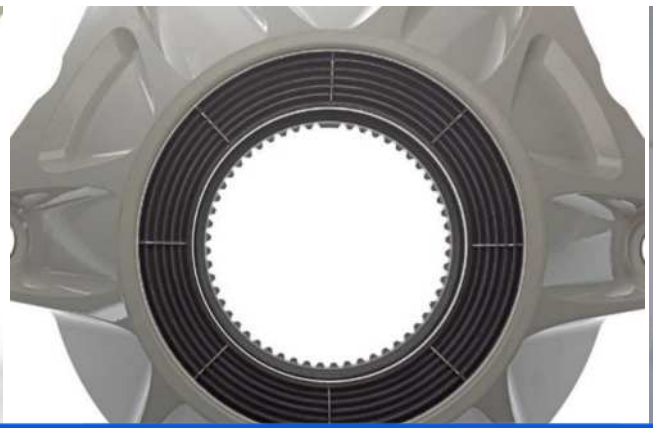
















SKF Aerospace

2016 achievements

- Grew business despite decline in helicopter market
- Divested Fly-by-Wire as non-core business
- Massive investments in new processes
- Integrated Kaydon Ring and Seals
- 3rd consecutive double digit growth in China
- Major contracts with Airbus and major engine manufacturers
- ~50 M EUR innovation revenues awarded

2017 outlook

- Outgrow the market
- Strong demand
  - driven by new aircraft and engine programs
- Helicopter business hit trough
- Higher governmental spend in the US

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A key player in Aerospace industry

A worldwide presence

To serve all major Aerospace customers

With highly engineered and customized solutions

For aircraft, helicopter, engine, system manufacturers and end-users



© SKF Group

Aerospace market and technology trends

Mega trends	Technology	Market
Demographic changes 	Lightweight - green and efficient	Strong passenger traffic growth
Energy prices 	Electric systems	Aircraft versatility
Climate change 	Prognostics & health management	Green aircraft

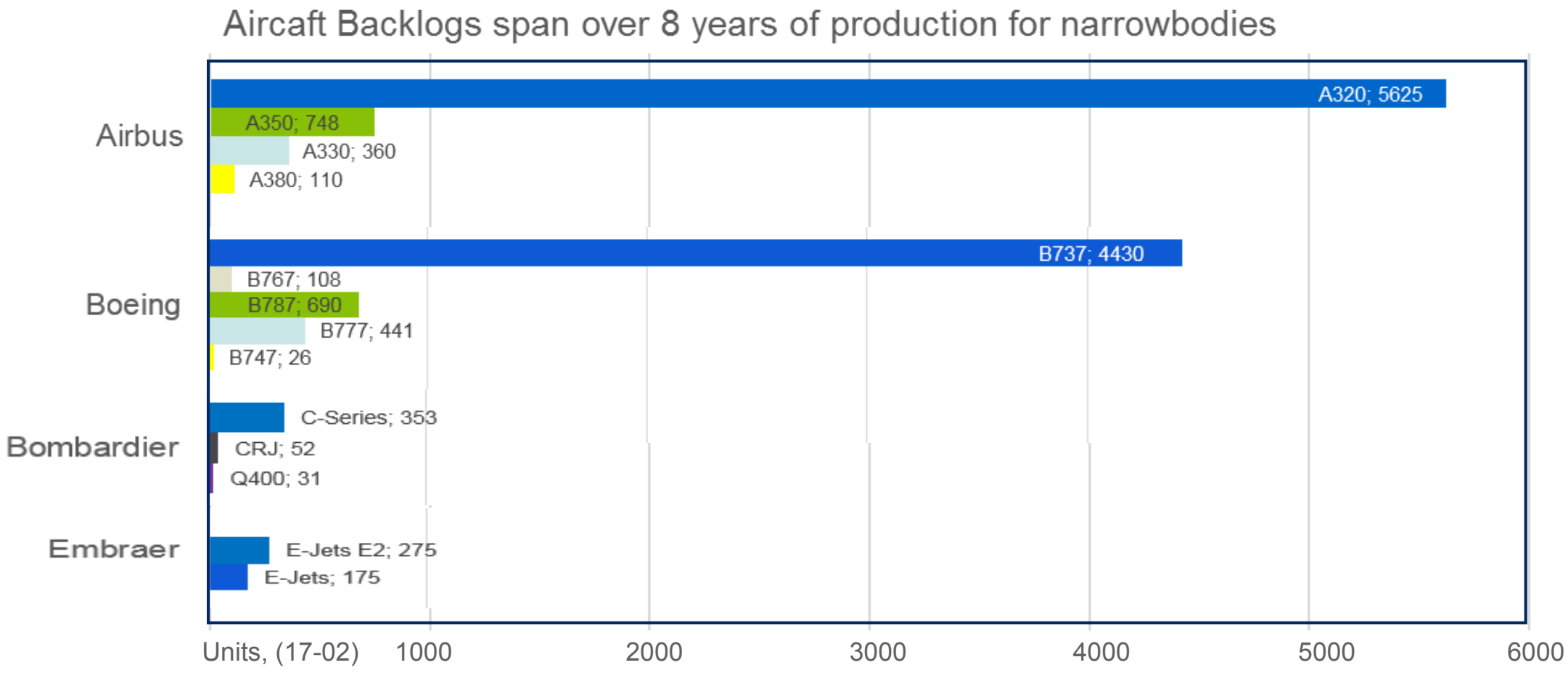
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Strategic direction

1. Outgrow the market
2. Engineering & innovation power
3. Operational excellence
4. Employee development

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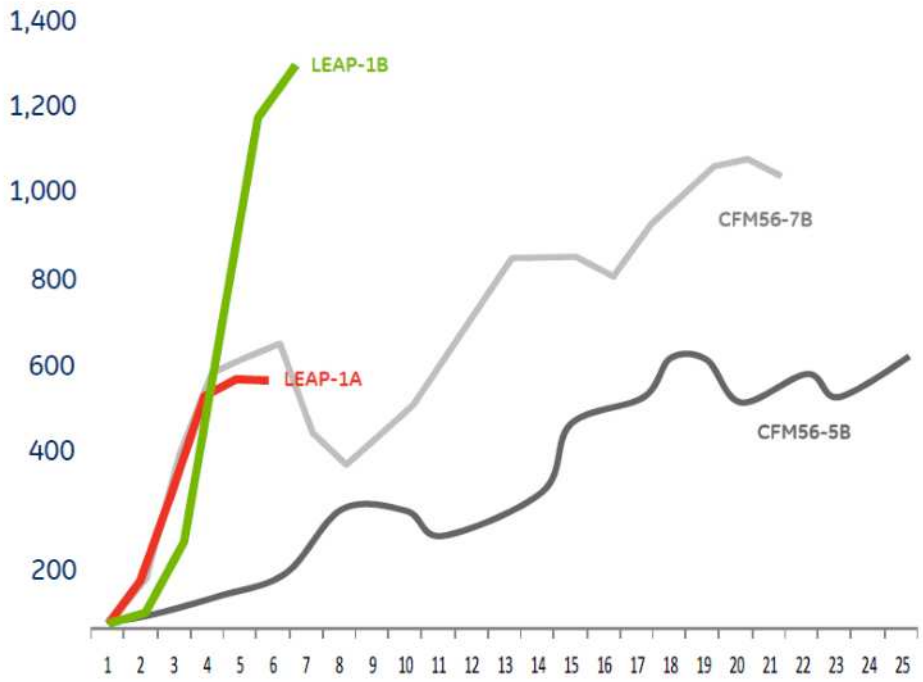
Commercial Airliners enjoy record backlogs



© SKF Group

SKF very well positioned on new programs

CFM LEAP production ramp



- LEAP will achieve rates in 4 years that took 20 years for CFM56
- The engine is on the critical path with the aircraft manufacturers
- No room for error!!

SKF has massively increased market shares on:

- new aircraft such as A320neo, A330neo, A350
- new engine programs such as LEAP, GTF, XWB

All having impressive ramp up

Two Aerospace Development Centers



US Development Center,
Falconer (US)
Partnership with PSU



EU Aerospace Development Center,
Valence (Fr)
Partnership with INSA Lyon

Aerospace Development Center

Production site

© SKF Group

Innovation programs for new business

Engine attachment

- Connection between engine and pylon
- Up to 500°C Operating temperature
- Safety structural part

Key technologies & Programs

- Nickel & Cobalt based alloys
- A320neo, A330neo, A350





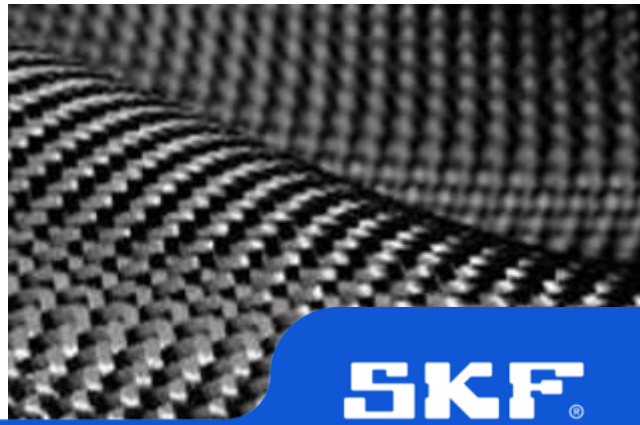
Materials: Composite, Ceramic, Steel

Coatings & Surface Treatment

Processes: ALM, Fiber Placement, NDT

Black Design and modeling

Business Remodeling: IP Licensing



© SKF Group

Synergies from Kaydon acquisition





KAYDON KaydonRing&Seal

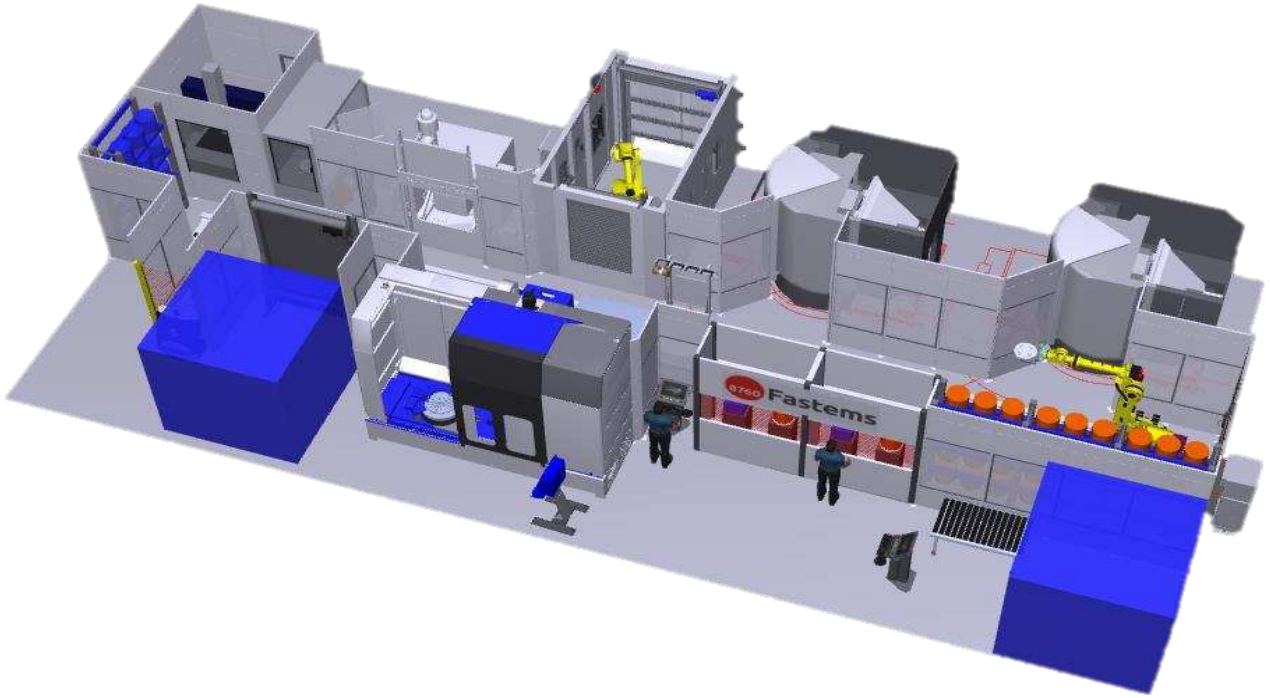
Integrated design
reduces weight &
increases performance

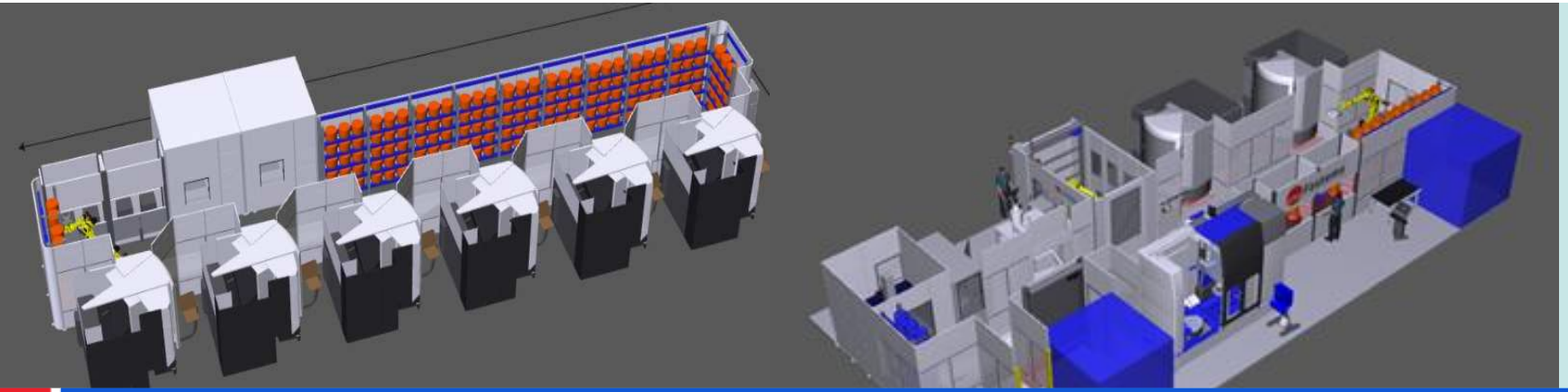
Energy efficient solution
Fuel savings
CO2 reduction

Ease of installation
Enables unique servicing/
repair options

© SKF Group

Investment in new manufacturing 4.0 processes





First fully automated and integrated channel in Valenciennes, France

Aerospace highlights

- Aerospace industry is expected to grow at 3% CAGR by 2020
- SKF is well positioned thanks to successful market share gain on new programs and introduction of new innovative solutions
- SKF is making large investments for next generation manufacturing in Europe and continuing in US to meet both capacity and cost reduction







Innovation and Business Development

SKF Capital Market Day 2017
Robert Wiktoren, Victoria Van Camp



SKF vision and mission



A world of reliable rotation

The undisputed leader
in the bearing business

© SKF Group

We and our customers are facing new challenges

- ***Original Equipment Manufacturers*** *differentiate between performance and value offers*
- *Original Equipment Manufacturers enter service business for new revenue*

Value creation by ***distributors and dealers*** *migrate from mainly logistics to include added value around products and services*

End-users *want to further increase efficiency and quality and need their suppliers to provide performance not goods*



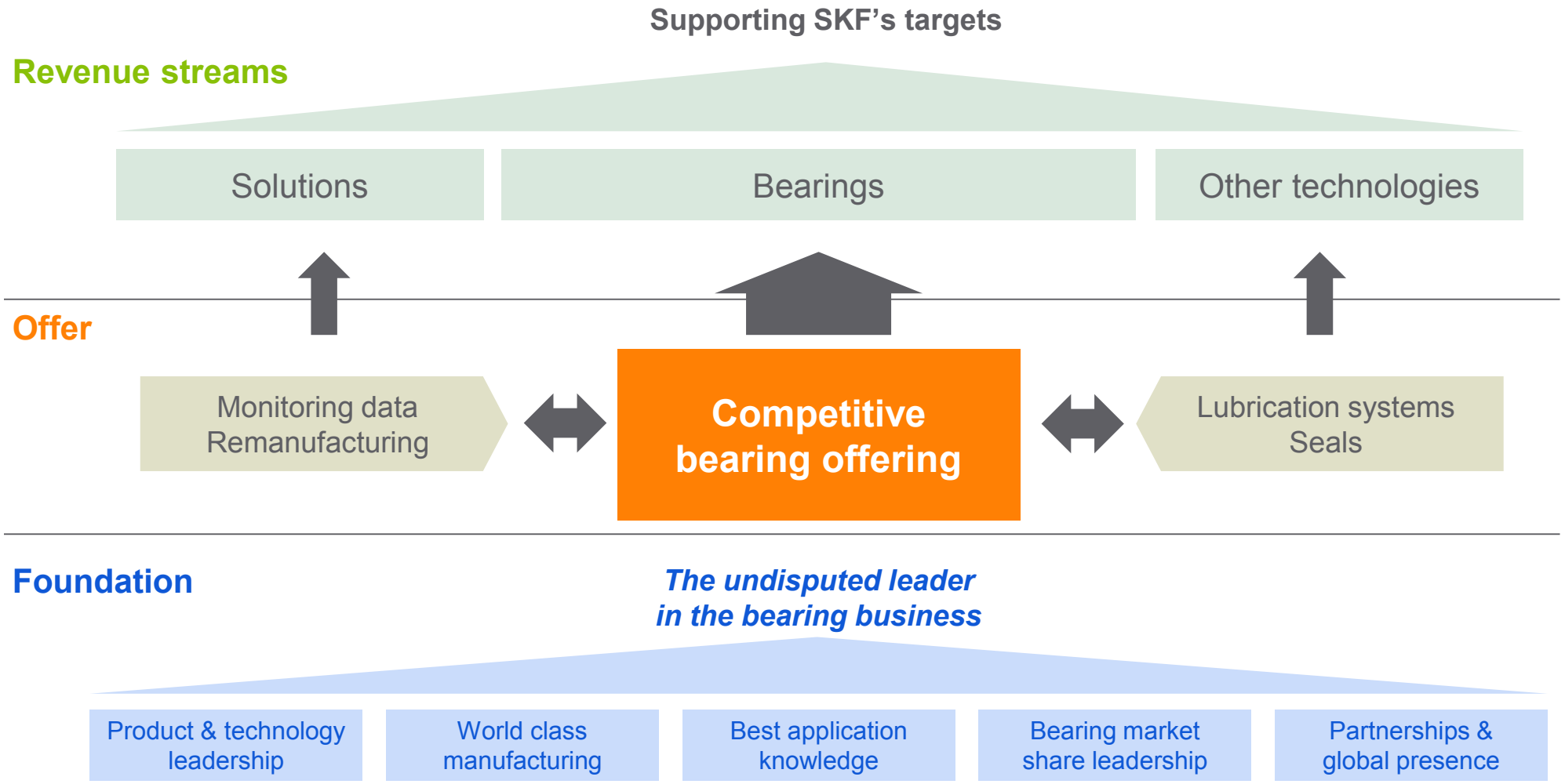
OEM / OES

DD

End-user

© SKF Group

Growth strategy to be built on business models



© SKF Group

Product value proposition

Product



RIGHT PRODUCT

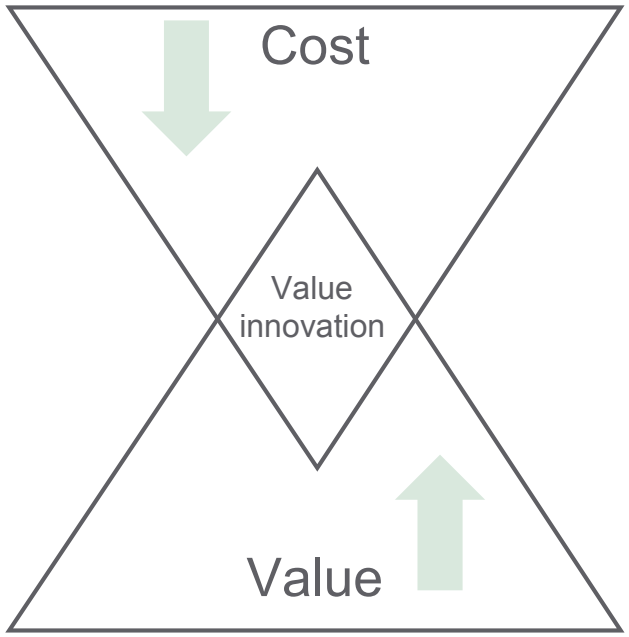
RIGHT COST

RIGHT TIME

© SKF Group

The key is our application knowledge and expertise in bearing design





© SKF Group

Application driven innovation – example

4-row cylindrical roller bearings in metals industry







Highly demanding applications

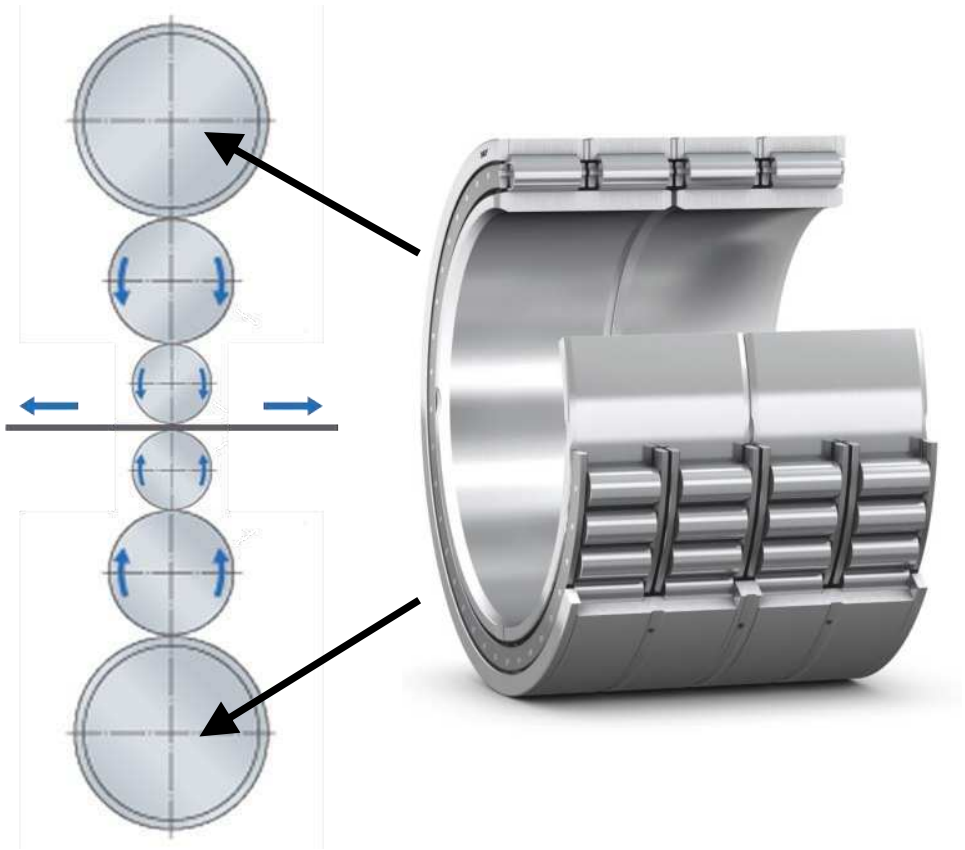
- Cold rolling mills for automotive steels
- High speed Aluminum mills

Customer needs:

- Increased output (high rolling speed)
- Reduced maintenance costs
- No unplanned production stops

© SKF Group

4-row cylindrical roller bearings in metals industry



Optimized to drive customer value

Increase service life & robustness through

- Reduced friction by
  - optimized surface topographies
  - optimized contact profiles
- Coating solutions for different problem areas
- Higher load ratings
- Lower maintenance costs

SKF managed to reduce product cost by

- Utilization of new manufacturing technologies
- Elimination of design cost drivers

© SKF Group

Application driven innovation – example

Frac pumps bearings in Oil & Gas industry





Highly demanding operating conditions

- High loads
- Contaminated environment
- Poor lubrication conditions

Customer needs – Reduced Cost of Operation

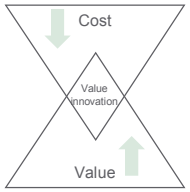
- Reduced maintenance costs
- No unplanned production stops





© SKF Group

Large single row CRBs for Frac pumps





Optimized to drive customer value

Increase service life & robustness through

- High quality steel
- Optimized internal design
- High load ratings

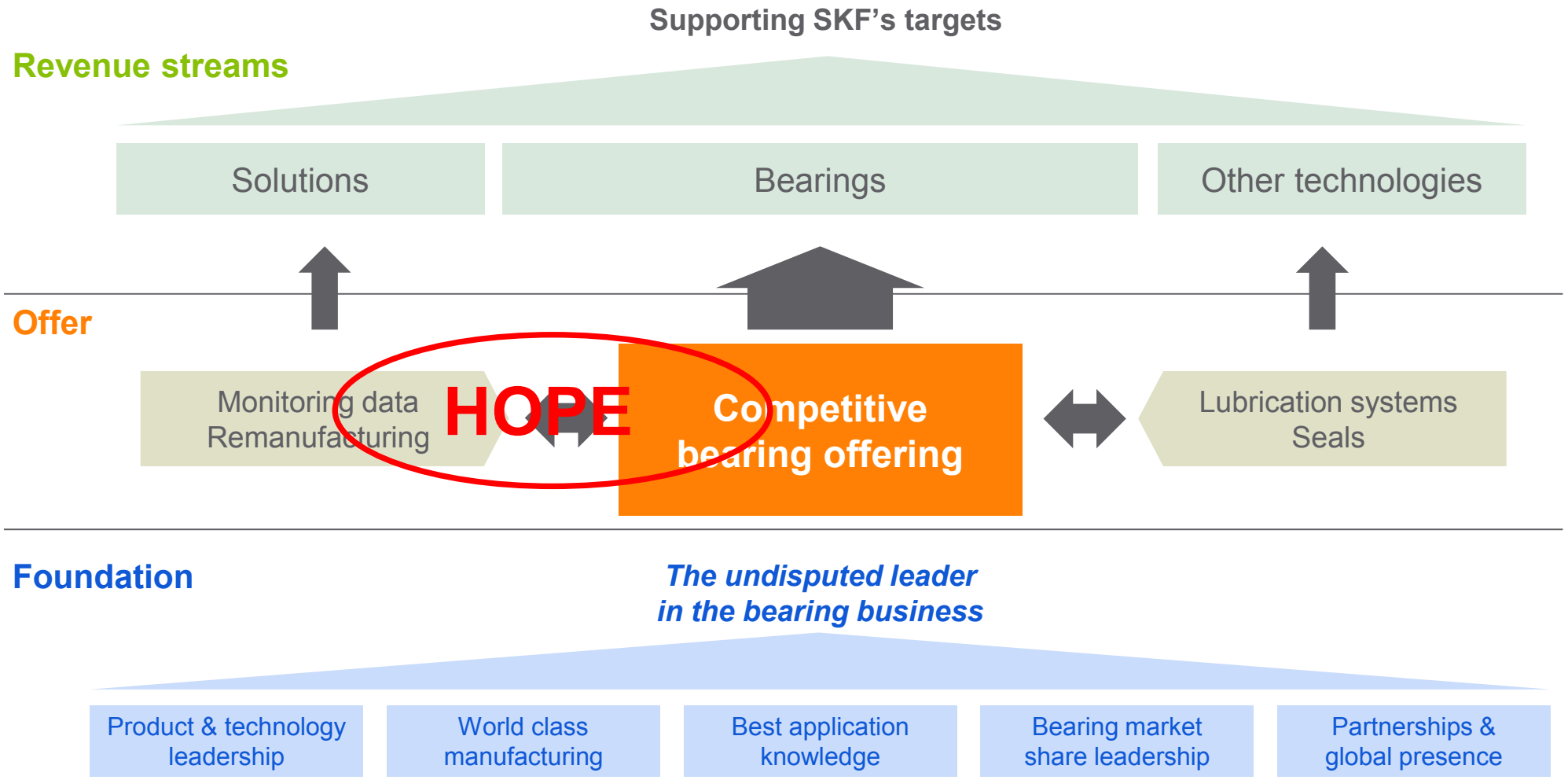
SKF managed to reduce product cost by

- Utilization of global footprint
- Design for purpose



© SKF Group

Growth strategy to be built on business models



© SKF Group

~~‘We sell services and condition monitoring, seals and lubrication systems and bearings’~~

‘We **provide** services, monitoring, IoT, seals and lubrication **to provide reliable rotation to customers,** and therefore **grow our bearing business**’



What is ‘reliable rotation’, and how does ‘digitalization’ fit in?



SKF business models

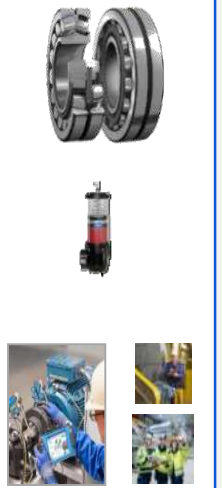
Products

Transactional

Products & Services



SKF Smart Supplier 4.0



Rotating Equipment Performance

SKF Premium

Transactional

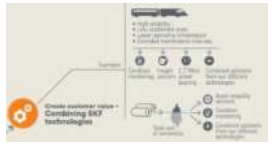
Monthly Fee

Product + added value Services





Long term contract/project









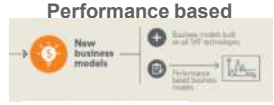


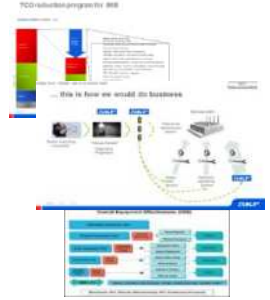
3-5 years long term bearings supply

SKF Rotation For Life

Monthly Fee - Performance based

Performance based





Cost/ton



Transactional → Performance based

© SKF Group

Rotation For Life (RFL)

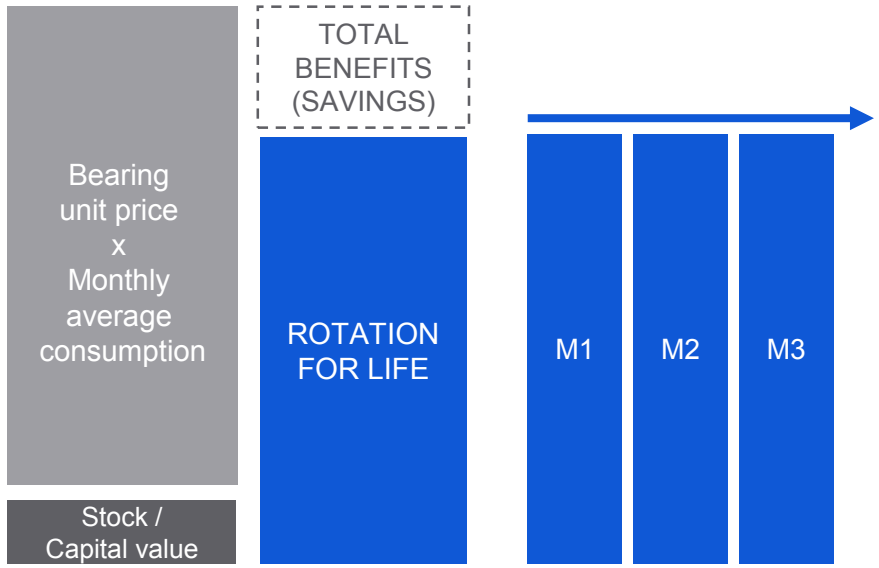


Objective

RFL is a rotating equipment performance program with focus on reliability.

Benefits

- Lower cost of operation
- Total Cost of Ownership reduction
- Improve Rotating Equipment Performance
- Lower capital employed
- Monthly fee based on productivity targets
- Integrated Engineering



© SKF Group

SKF/Momentum RFL contract – Zinkgruvan Mining

- 5 years Rotation for Life contract (non transactional business model)
- SKF revenue is based on performance,
- Additional business: lubrication system and equipment
- Press release

Key decision factors

- Close relationship
- SKF knowledge and skills from documented Mining Services
- Performance based

Zinkgruvan Mining
a subsidiary of lundin mining



Press release

SKF

För information, kontakta:
Gösta Andersson presschef SKF Sverige AB, +46 31 337 30 60, +46 705 98 68 99, epost: gosta.andersson@skf.com

SKF levererar prestationsbaserat underhåll till Zinkgruvan Mining i Zinkgruvan

Göteborg, xx februari 2017: Zinkgruvan Mining i Zinkgruvan har slutit ett prestationsbaserat avtal med SKF och Momentum Industrial AB i Örebro för leverans av ett helhetskoncept av övervakningstjänster och produkter. Avtalet innehåller online övervakning på de fyra produktionskritiska kvarnarna i anrikningsverket och även produkter anpassade för kvarnar.

- Avtalet som omfattar fem år är prestationsbaserat mätt i antal producerade ton och syftar till att öka driftsäkerheten och därmed förutsättningarna för att ökad produktion, säger Magnus Backe, chef för SKF Solution Factory i Kiruna.

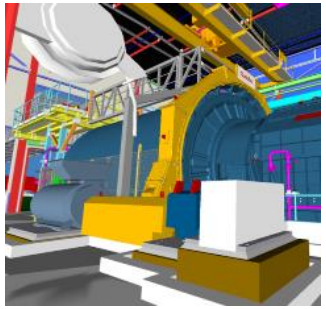
Gruvan som anrikar zink och koppar är belägen cirka 15 km från Askersund och innefattar en djup underjordisk gruva, bearbetningsanläggning och tillhörande infrastruktur och avfallsanläggning. Malmen transporteras via lastbil till närliggande hamn för transport till smältanläggning.

Fjärrövervakningen av kvarnarna sker från SKFs serviceanläggning, SKF Solution Factory, i Kiruna.

- Vi har lång erfarenhet av produktionsstödjande åtgärder i anläggningar världen över och är glada att få vara delaktiga i att förbättra tillgängligheten i den roterande utrustningen och produktiviteten på Zinkgruvan Mining, säger Magnus Backe chef Solution Factory i Kiruna.

Aktiebolaget SKF
(publ)







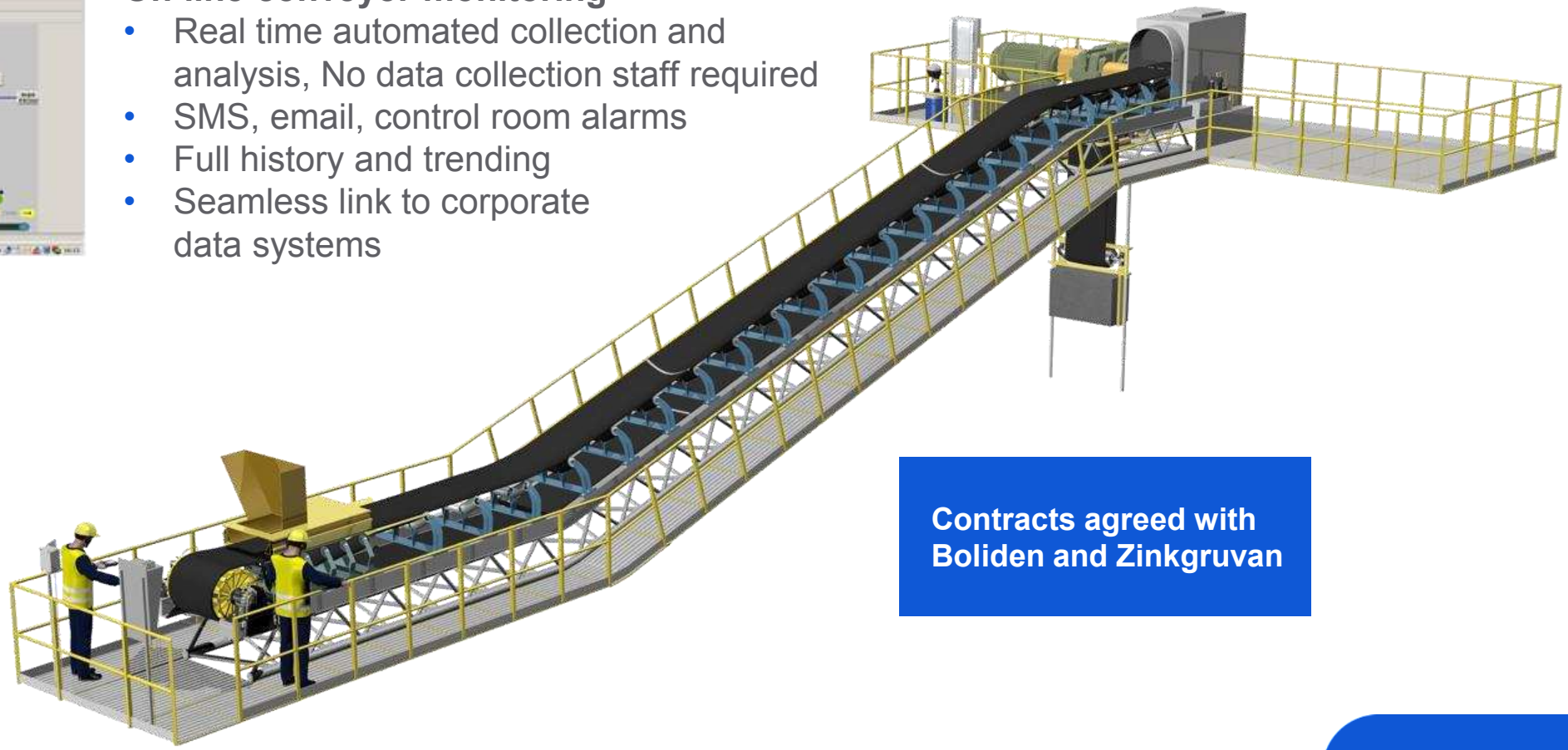
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Conveyor of the future – Rotation for Life
On-line condition monitoring systems



On-line conveyor monitoring

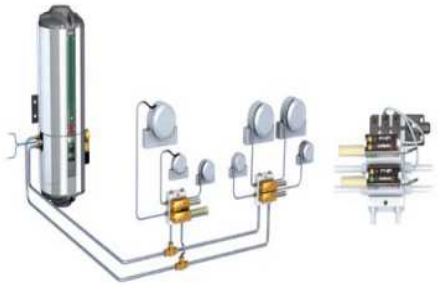
- Real time automated collection and analysis, No data collection staff required
- SMS, email, control room alarms
- Full history and trending
- Seamless link to corporate data systems



Contracts agreed with Boliden and Zinkgruvan

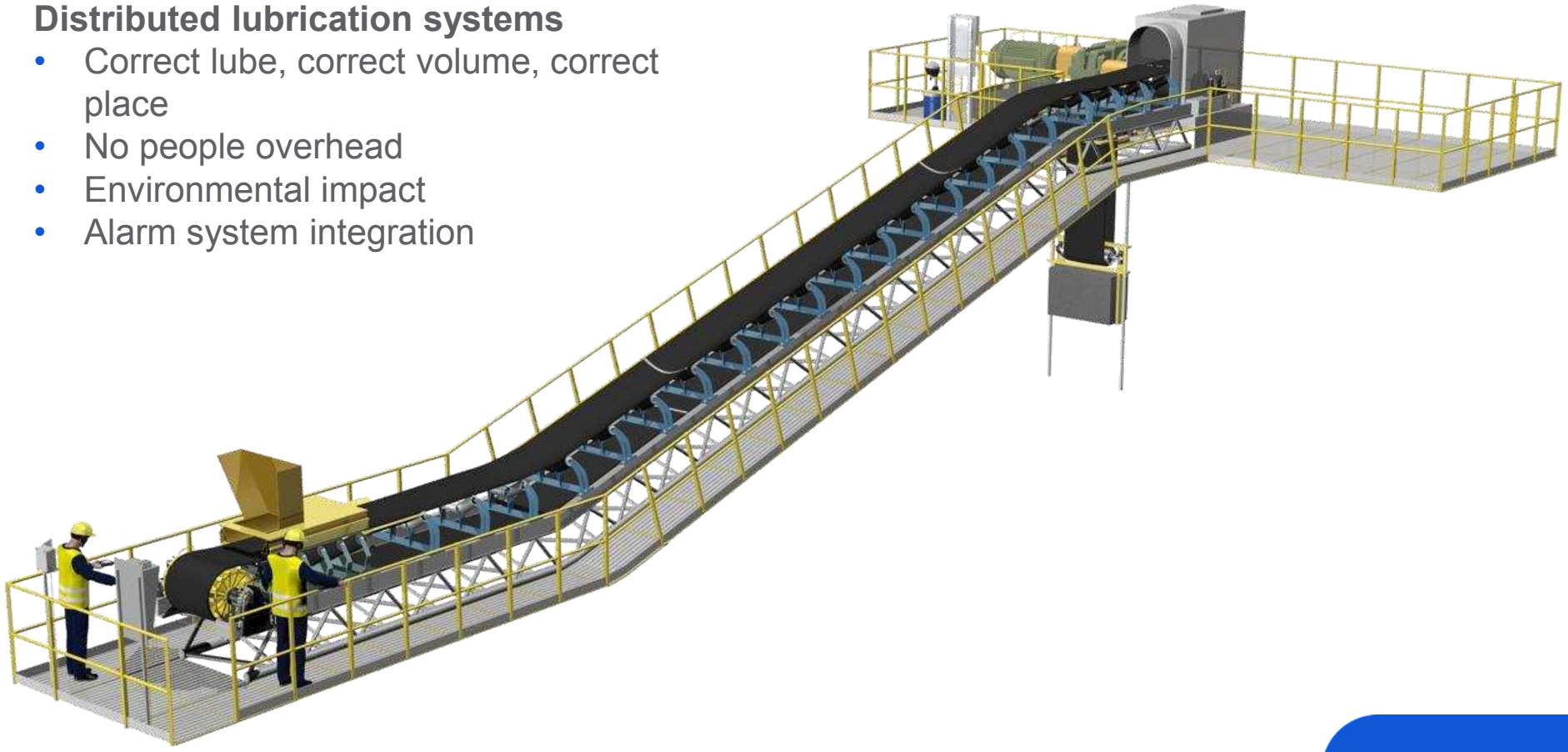
© SKF Group

Conveyor of the future – Rotation for Life
Centralized lubrication systems



Distributed lubrication systems

- Correct lube, correct volume, correct place
- No people overhead
- Environmental impact
- Alarm system integration



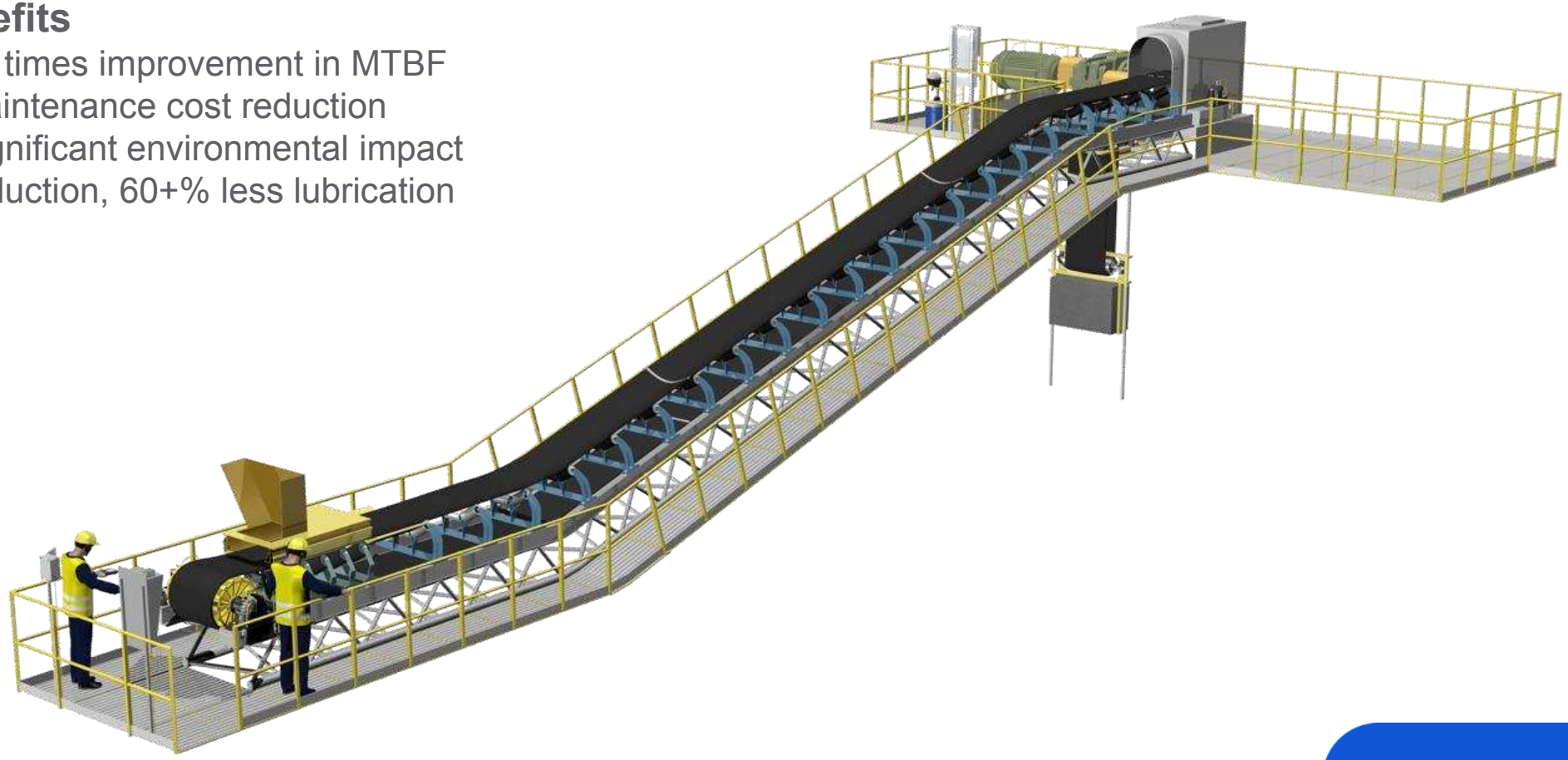
© SKF Group

Conveyor of the future – Rotation for Life
Sealed spherical roller bearings (SSRB)



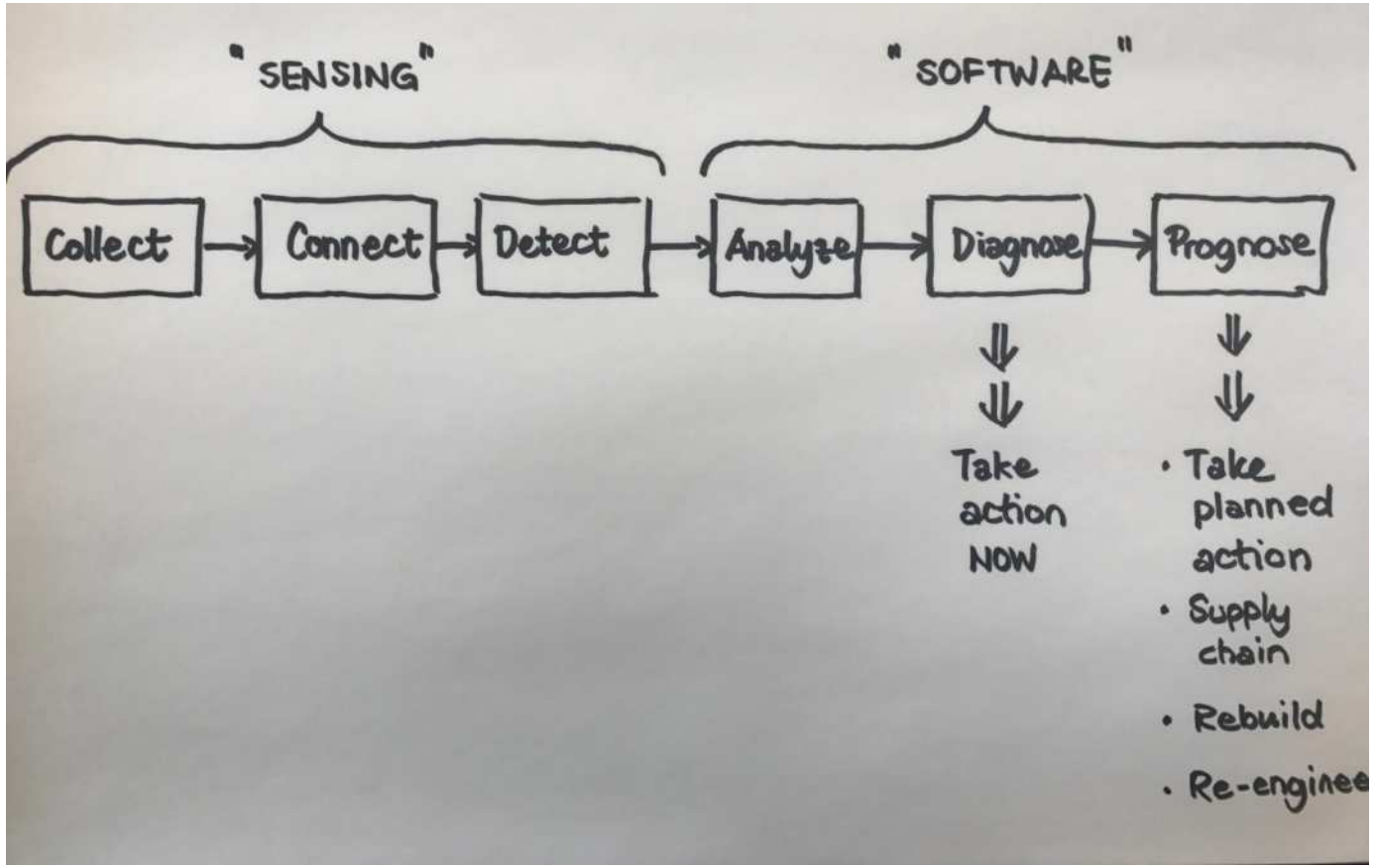
Benefits

- 3+ times improvement in MTBF
- Maintenance cost reduction
- Significant environmental impact reduction, 60+% less lubrication



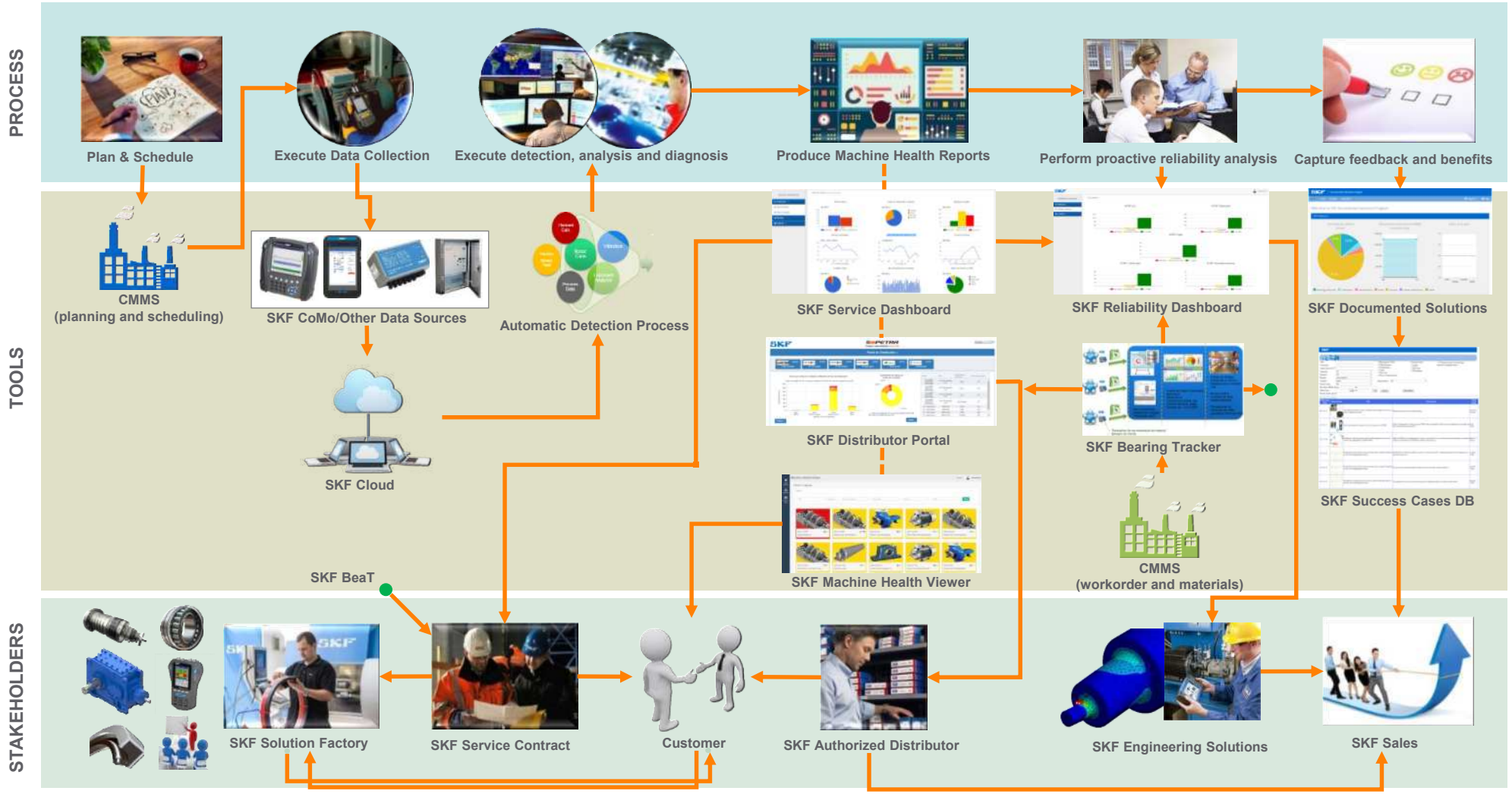
© SKF Group

What is ’industrial digitalization’?



© SKF Group

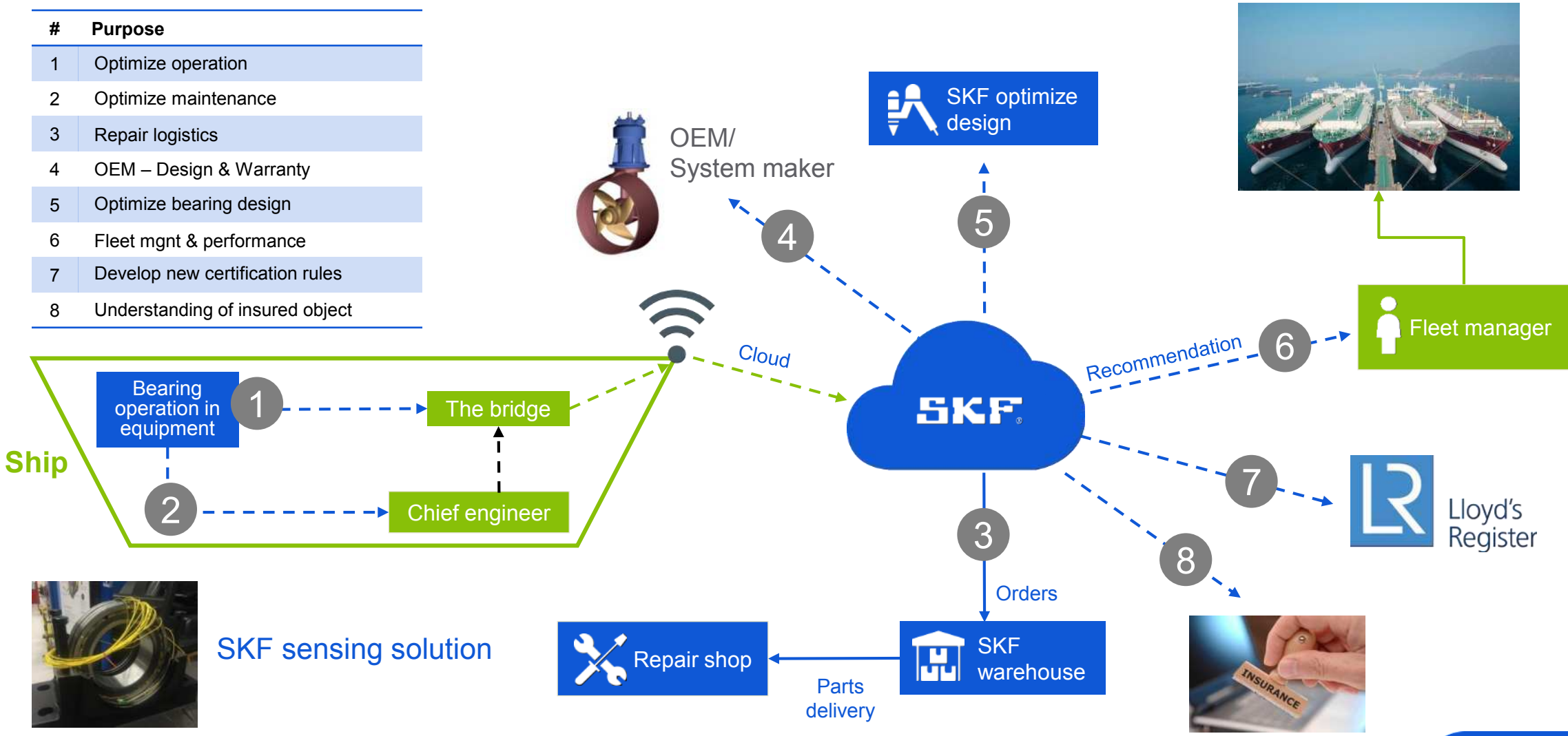
What does this mean in a typical process industry?



© SKF Group

Digitalization with a purpose

#	Purpose
1	Optimize operation
2	Optimize maintenance
3	Repair logistics
4	OEM – Design & Warranty
5	Optimize bearing design
6	Fleet mgnt & performance
7	Develop new certification rules
8	Understanding of insured object



© SKF Group

Technology required to digitalize with purpose

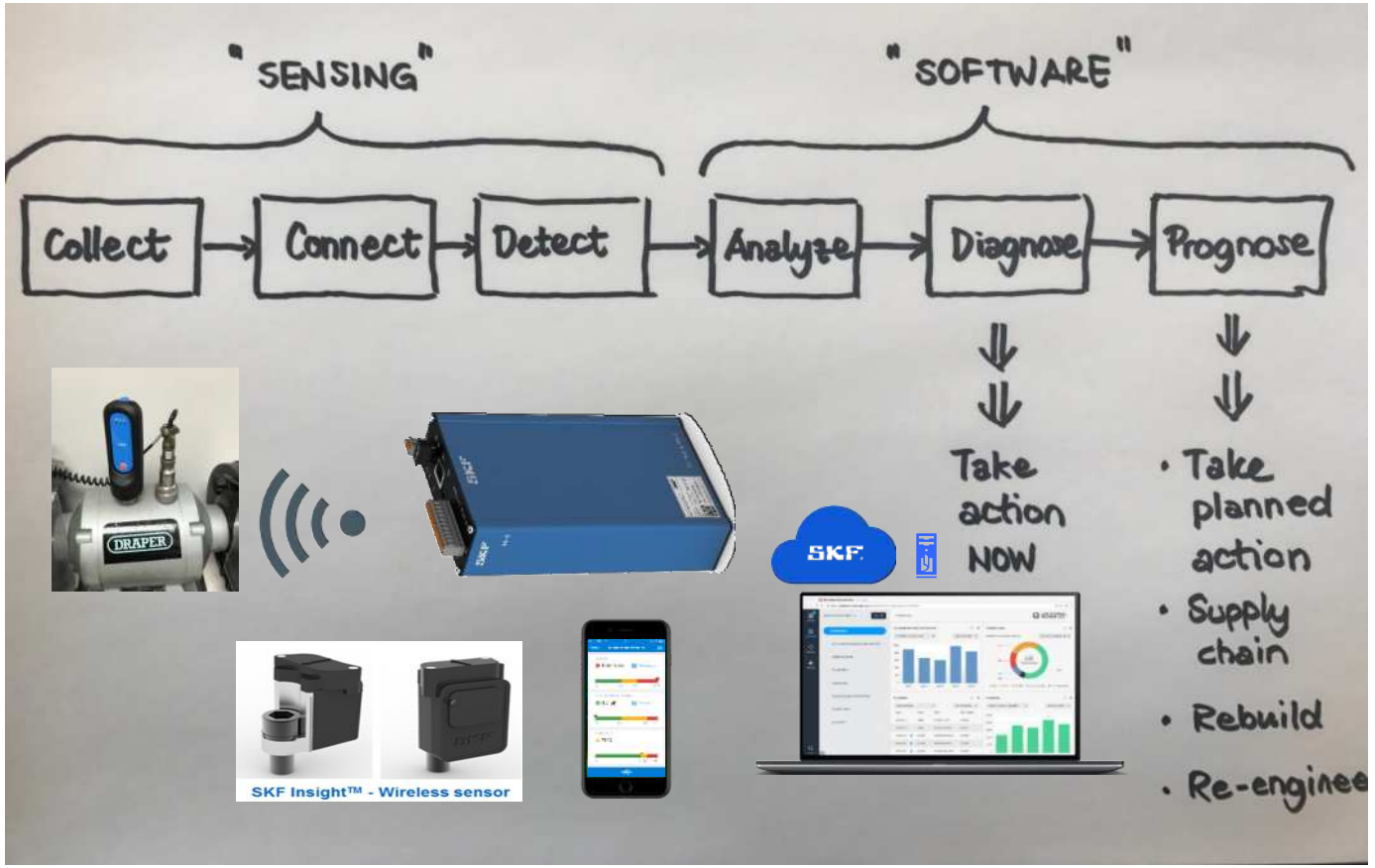
Collect – connect – detect:
Low-cost sensing, connection to CMMS /ERP

Analyze – diagnose – prognose:
Software with user-tailored reporting and recommended actions;
automated diagnostics

SupplyChain 4.0 and World Class Mfg:
Fully flexible manufacturing and automated supply chain

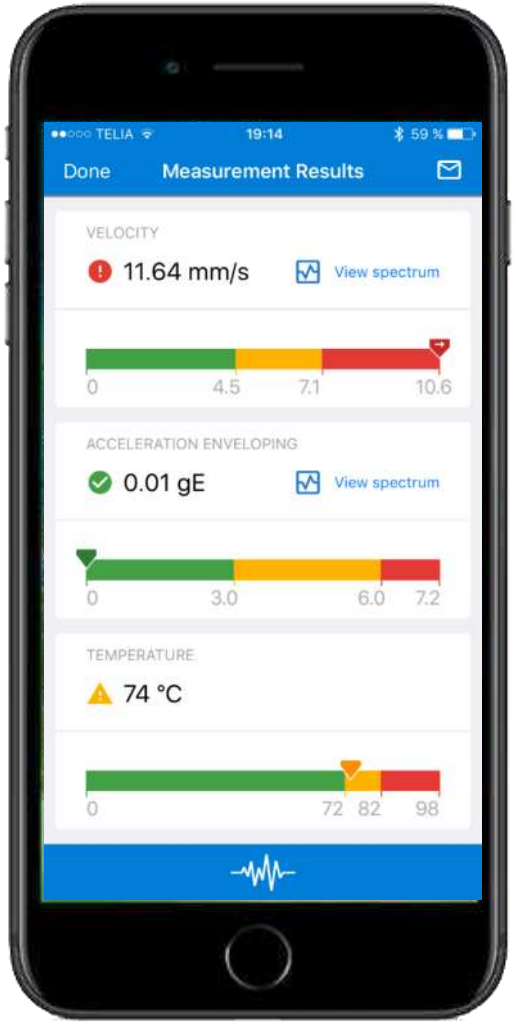
© SKF Group

Technology required to digitalize with purpose



© SKF Group

Big Data in your pocket: Enlight Collect



- Easy to use
- Portable
- Created with customer and distributor in mind
- IoT *before* all Things have Internet
- Part of Smart Supplier 4.0 program

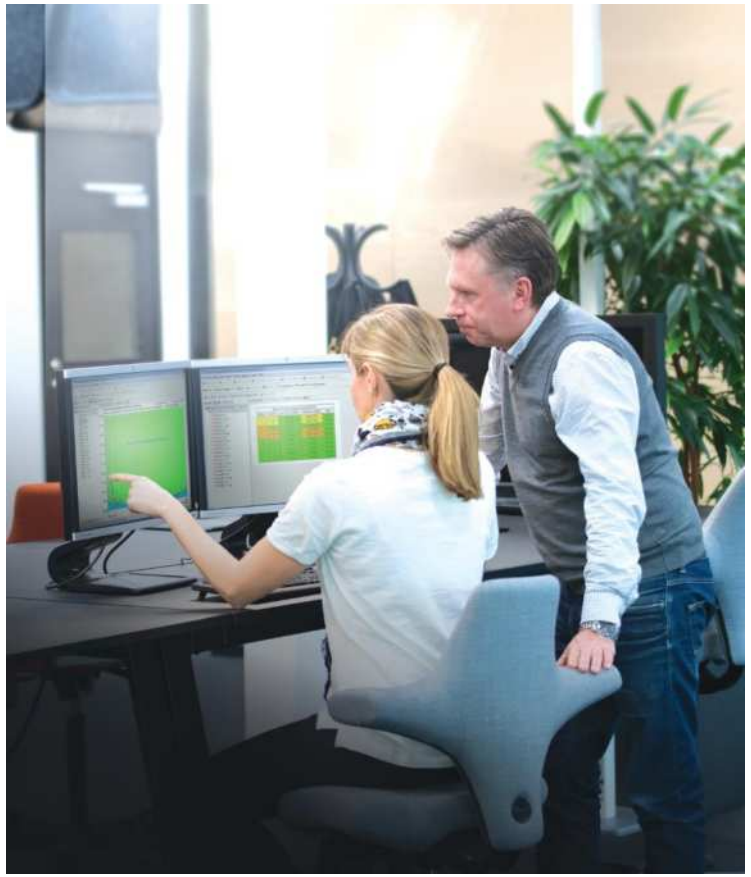


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Smart Supplier 4.0 Program

Step 2: [Preparation]

1. Customer subscribes to the program **via SKF Distributor**
2. Customer provides completed Asset Data Sheets
3. SKF sets up reliability program
4. SKF creates rotating equipment database on the Cloud and data collection Route
5. Data collection responsibility is agreed, its recommended customer collects data
6. SKF/Distributor trains the customer



© SKF Group

Smart Supplier 4.0 Program



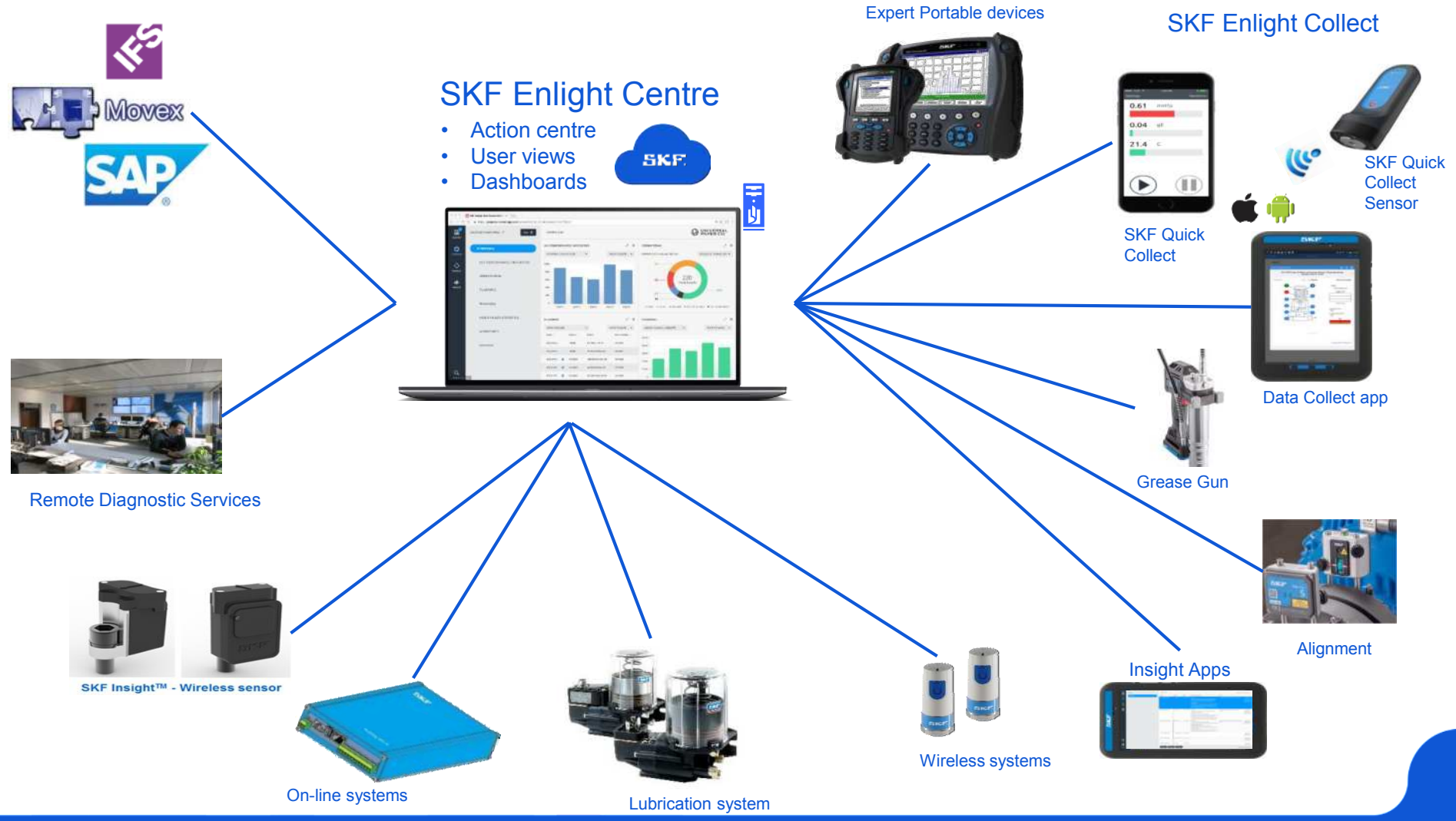
Step 3: [Execution]

1. Distributor/customer collects data as per the program schedule/route
2. Distributor/customer uploads the data to SKF cloud
3. SKF experts provides exception report with basic maintenance recommendations
4. Distributor discusses with customer the maintenance plan and organises bearings and other parts

Note: Detailed diagnosis or prognosis is not included in the scope

© SKF Group

The SKF Enlight Ecosystem – final state



© SKF Group

SKF–Honeywell cooperation today

Facts

- Customer - World's largest copper producer
- Comprehensive modernization program
- SKF was enlisted 2 years later to provide predictive maintenance
- Honeywell Remote Diagnostics Centre = mission control

Results

- Reduced production losses and maintenance costs significantly



The Remote Diagnostics Centre at Honeywell's Chilean headquarters in Santiago

"Before, a failure meant a downtime for the equipment," says Francisco Amiama, automation manager at the mine. "Today, with this technology, we can schedule downtime safely without production losses. Several possible failures have been detected in time."

© SKF Group

SKF–Honeywell cooperation today

Honeywell



Process data giving insights on operational performance



SKF



Condition monitoring data giving insights on mechanical performance

Honeywell SKF



Combined process and CoMo data to prognose asset reliability and risk of failure to take informed business decisions

© SKF Group

SKF Enlight Software plugs in to user or partner

User operations control system

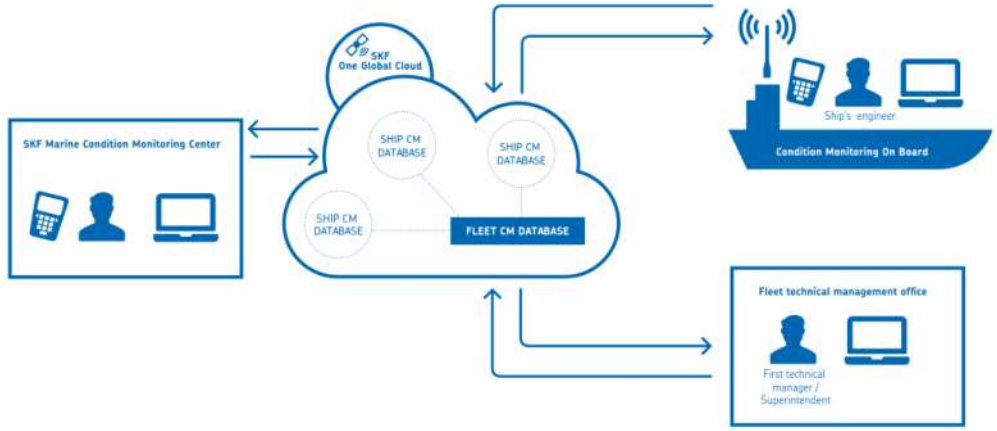


Reliable rotation by SKF

© SKF Group

Enlight Centre: Web based software for condition based maintenance

- Simple interface - for **defined user roles**
- **One interface**, one single web login
- One Global Cloud; **reduces IT cost and centralises data**



Result

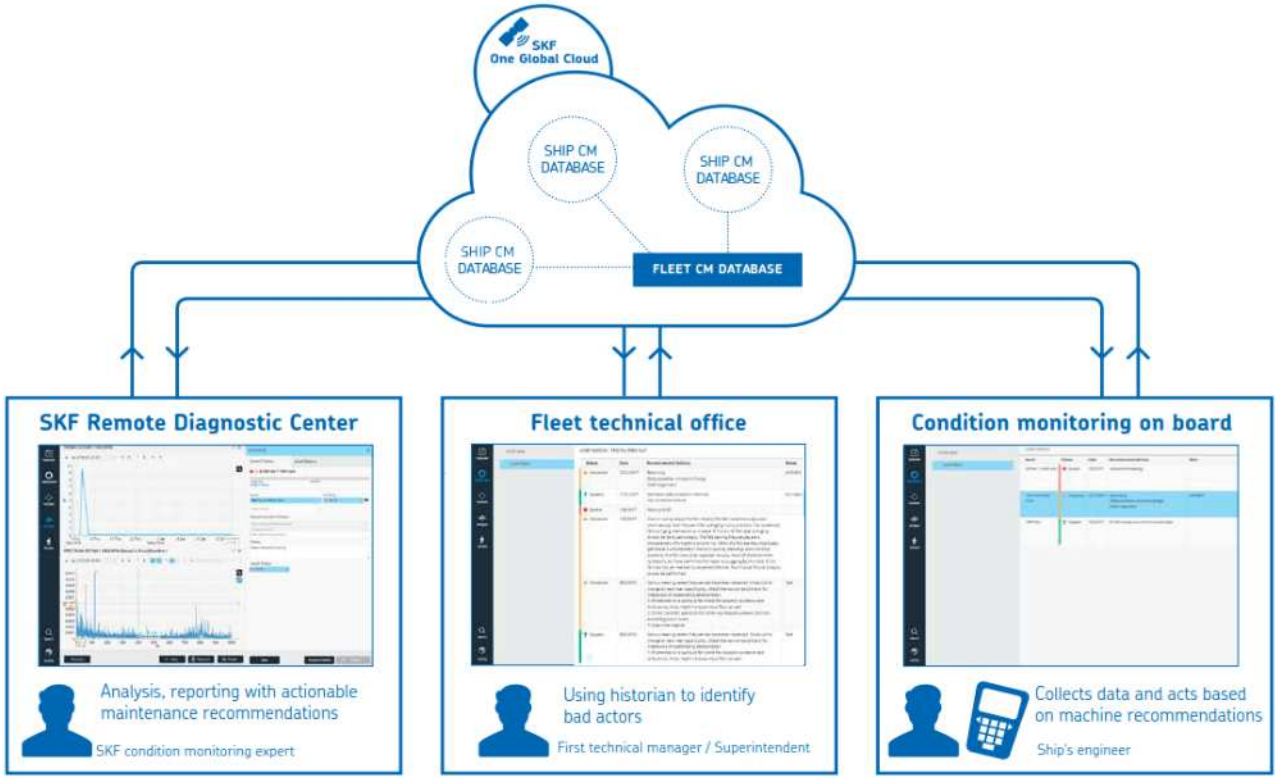
- Provides all information for a **successful CBM programme**;
- Planned maintenance work for operational safety
- reduced down time



→ Resulting in cost and time savings

© SKF Group

Dashboards adapted to main user groups (“personas”)



Fleet manager

- Responsible for a fleet of 6–100 vessels
- Optimize the maintenance cost
- Interested in the overall performance like ship/fleet KPI and ROI
- One of the key decision maker when implementing CBM across the fleet

Chief engineer

- Responsible for 1–5 vessels
- Avoid surprises, that cause the ship not to be able to perform her major function – collect, transport and offload the cargo on time
- Fix the problems on time
- Speed in the sales process is key

© SKF Group

Market and customer statements – Enlight Centre

"I like the functionality of doing the data transfer just pressing ONE button. We succeeded to collect data only using provided SKF Marine CM Kit quality work instruction, without any training from SKF"
Chief Engineer, leading Container ship owner

"I like the possibility to quickly see the status of the machines and to explore asset history. SKF has already provided us with valuable recommendations and improvement areas"
Technical superintendent, leading Container ship owner

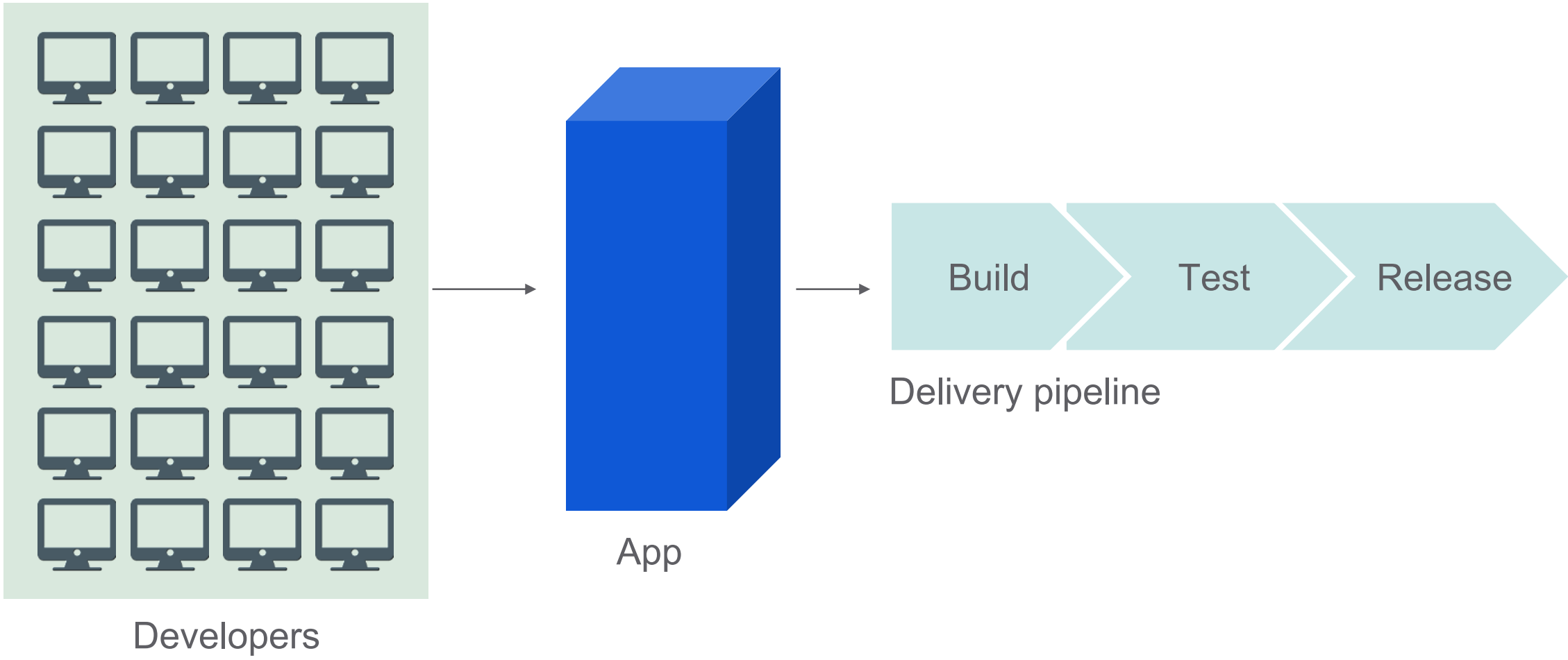
"The reporting functionality is very good and I'm now looking at improvements in the Route functionality"
Superintendent, leading Offshore supply company

"We appreciate the overall simplicity and also the single logon process. Looking for additional trials in the fleet"
Superintendent, major tanker operator

"All customers seem to like the reporting dashboard, it provides a basic reporting capability. Now need for more integration with CMMS"
General feedback from marine exhibitions

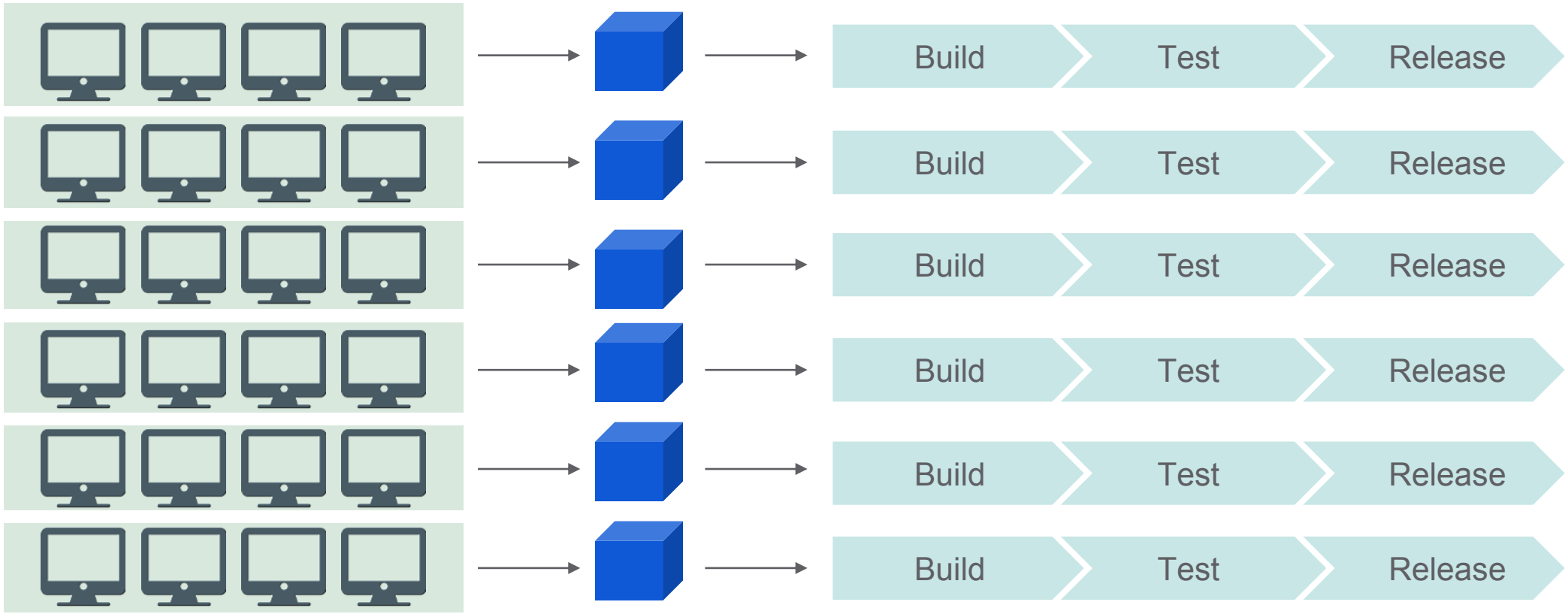
© SKF Group

Monolith development lifecycle



© SKF Group

Microservice development lifecycle



© SKF Group

Continuous integration...

Small, frequent changes, constantly integrating into production

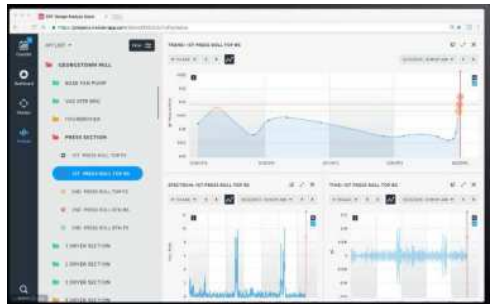


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Industrial digitalization product releases Q1 2017

Past Focus was on selling the Condition Monitoring products as “just” products.

NOW **Industrial digitalization products are enablers for new business models to allow us to further grow the bearing business.**



SKF Enlight Center for Marine

Next release Sept 2017 for SKF Service



SKF Multilog Online System IMx-8



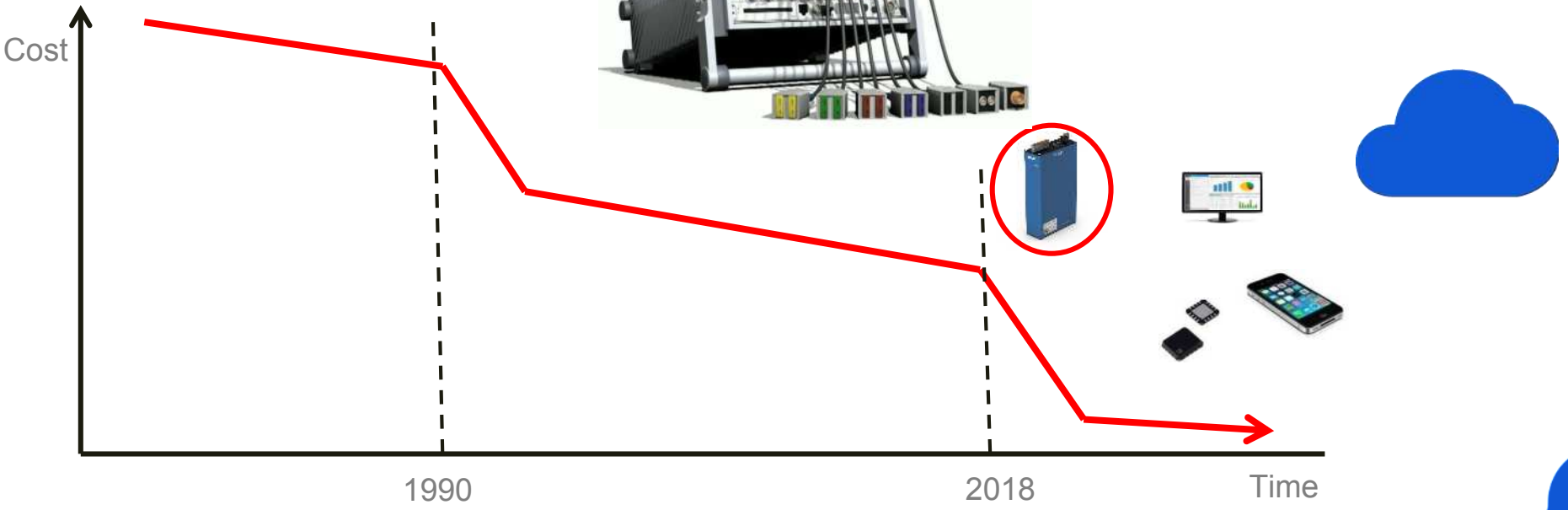
SKF Enlight QuickCollect

© SKF Group

Size does matter! Enter IMx-8







© SKF Group

Data collection and data analysis will merge

IMx-16



IMx-8



Insight



Enlight Collect



Next Gen. (IMx-1)



Size: 1–2 cm
Cost < 100 Euro

MEMS = micro electro mechanical system

Configurations









© SKF Group

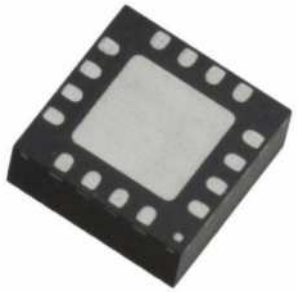
This means a technology change

Today producers of sensor-units working on replacing the market of classical measurement systems with fully integrated sensor units:

Example: Analog Devices (MEMS manufacturing company) is capable to integrate

- Sensing (High quality MEMS accelerometer with 50 kHz bandwidth).
- High performance AD convertor
- Micro processor
- Communication

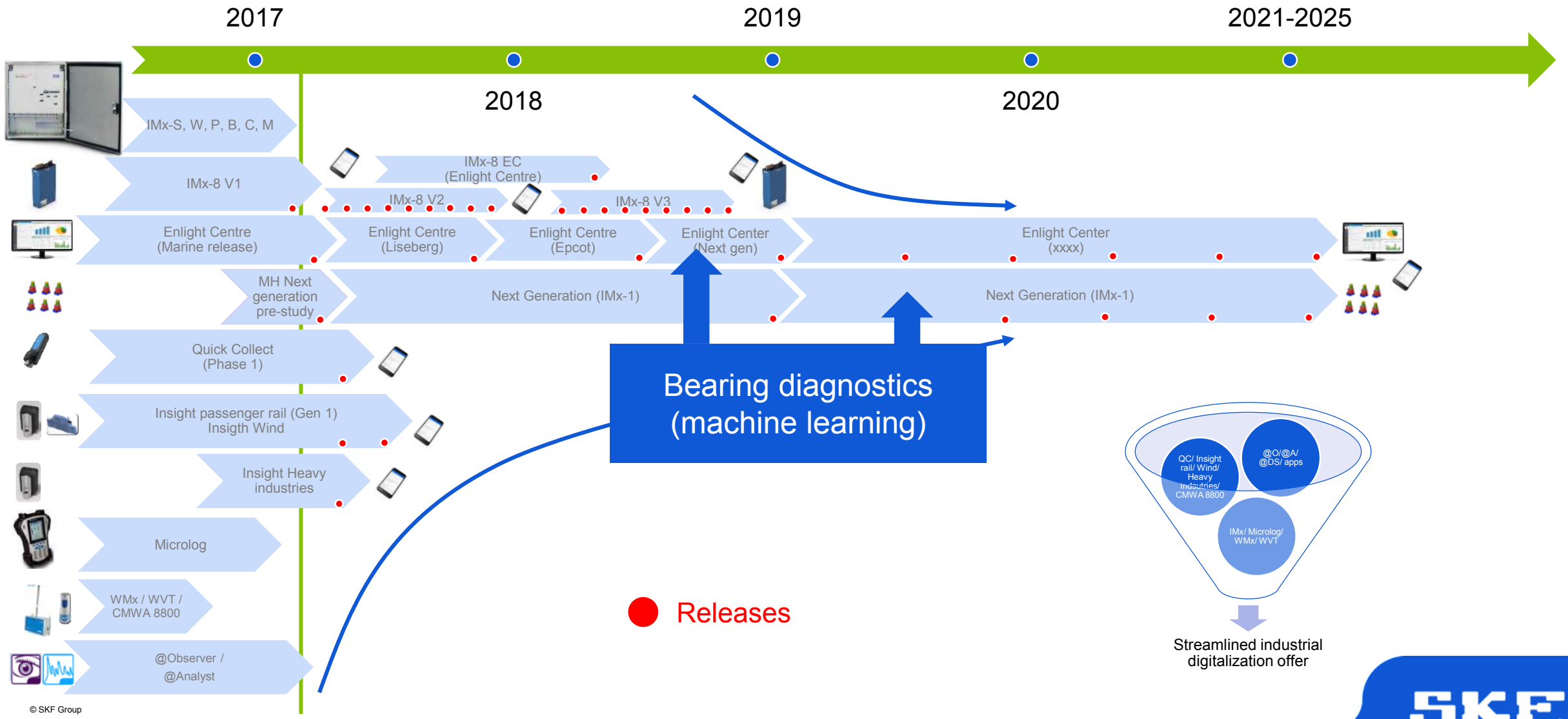
- **Size will below 1-2cm**
- **Cost <100 Euro per unit.**



MEMS = micro electro mechanical system

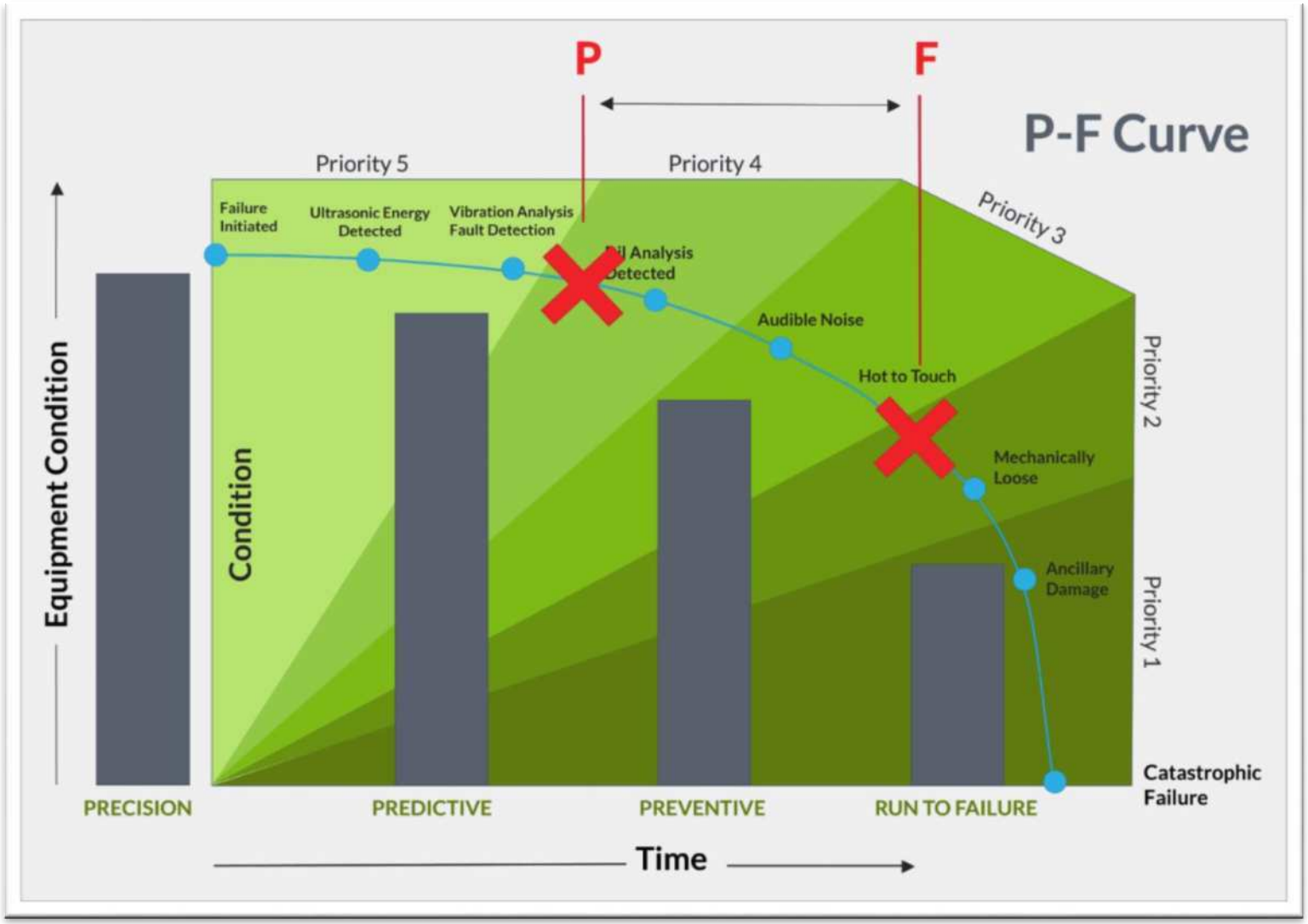
© SKF Group

Roadmap – streamlined industrial digitalization



© SKF Group

Prognostics enables true predictive maintenance



© SKF Group

Revolutions create big changes

New business models require:

- New knowledge base
- Fewer traditional manufacturing employees
- Cross-functional ways of working
- Collaboration and partnerships previously thought ’impossible’

Rapidly changing and partly open technology requires:

- Novel approach in development
- Maintained obsession with quality
- Cybersecurity is a must



SKF nyanställer 50 till utvecklingscenter

INDUSTRI

SKF storsatsar och bygger ett center i Göteborg för mjukvaruutveckling för tillståndsbaserad övervakning och nyanställer 50 personer.

– Vi har arbetat länge med detta länge, men nu lägger vi in en ny växel och ser till den ledande teknologin och hur vi ska bli bäst i världen, säger Fredrik Magnusson, chef för SKF:s nya center för mjukvaruutveckling.

SKF HAR ARBETAT med tillståndsbaserad övervakning i 20 år och har haft tre anläggningar i världen: Luleå, San Diego och Livingston i Skottland. Nu stänger man ner den amerikanska enheten och satsar på Göteborg.

– SKF har bestämt att vi ska ha en fokusering på att bli bäst i världen på allting som har med rotating equipment performance att göra, allt som roterar. Att vi har koll på hur våra maskiner fungerar, säger han.

STORSATSNING. SKF bygger ut sin drift – och vill bli världsbäst.

Det är en del i SKF:s arbete hjälpa kunderna med sin roterar utrustning, och nu vill man utve la potentialen för mobila tjäns och lösningar.

– Göteborg och Västsverige ger långt framme när det komm till internet of things, Big Data Analytics. Man kan bara se vad s

kan bli världsledande i detta, säger Fredrik Magnusson.

Just nu håller SKF på och rekry terar för fullt. Man behöver an ställa 30 personer; app-utvecklare mjukvaruutvecklare, hårdvaru designers, hårdvaruutvecklare oc designers för att utveckla smart användargränssnitt och projekt ledare.

– Detta är en jättesatsning, och v håller på och bygger upp en helt n typ av kompetens, säger han.

GP

START NYHETER SPORT NÖJE A-Ö

Bild: Bild: Jonas Lindstedt

SKF varslar 160 i Göteborg

GÖTEBORG SKF varslar om uppsägning av 160 verkstadsanställda i Göteborg. Enligt företaget beror det på vikande produktionsvolymer.

© SKF Group

Summary

Alrik Danielson, President and CEO







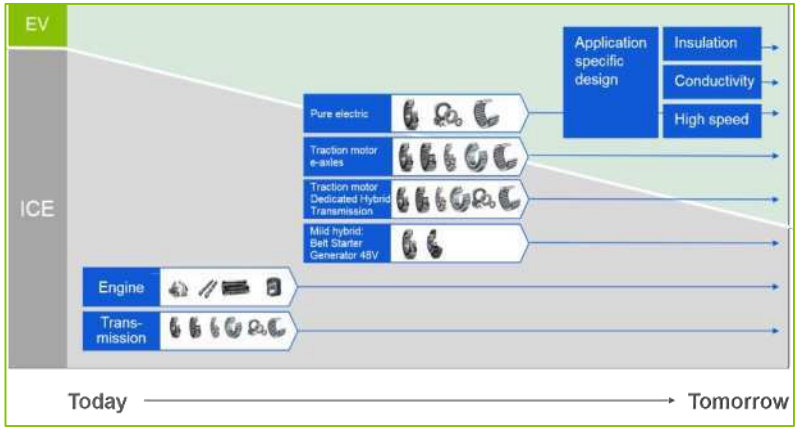



Summary









© SKF Group

Questions



SKF Group mission



The undisputed leader in the bearing business

Cautionary statement

This presentation contains forward-looking statements that are based on the current expectations of the management of SKF.

Although management believes that the expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those implied in the forward-looking statements as a result of, among other factors, changes in economic, market and competitive conditions, changes in the regulatory environment and other government actions, fluctuations in exchange rates and other factors mentioned in SKF's latest annual report (available on www.skf.com) under the Administration Report; “Important factors influencing the financial results", "Financial risks" and "Sensitivity analysis”

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