Bridgestone’s history

“Serving Society with Superior Quality”

Shojiro Ishibashi christened his budding venture with an English variation of his name (the surname Ishibashi translates as “stone bridge”).

From the very start, he was getting ready for something international.

Bridgestone’s corporate motto

SHOJIRO ISHIBASHI (1889 - 1976)
Founder of Bridgestone Corporation
Bridgestone activities and products

**TYRES WERE 82.8% OF OUR TOTAL ACTIVITY IN 2017**
Passenger Cars & Recreational Vehicles, Motorcycles & Scooters, Commercial Vans, Trucks & Buses, Heavy & Light (incl. Retread), Agriculture, Off-The-Road Vehicles, Aircraft, Subways & Monorails, Racing, Go-Karts...

**17.2% = NON-TYRE PRODUCTS**
- Automotive components, such as wheels, noise absorbers, cushions
- Industrial rubber products, such as belts, hoses, roofing and insulation materials
- Chemical products, such as building products, foams
- Sporting goods, such as bicycles, golf balls and gear, tennis balls, surf boards, boats
- Others
Global rubber industry – Tyre market share

Bridgestone Europe

**SALES PRESENCE IN EUROPE THROUGH 6 REGIONS**

- **North**: UK, Ireland, Denmark, Finland, Sweden
- **Central**: Germany, Austria, Switzerland
- **East**: Poland, Czech Republic, Hungary, Slovakia, Estonia, Latvia, Lithuania
- **South**: Italy, Romania, Bulgaria, Croatia, Bosnia-Herzegovina, Serbia, Slovenia, Greece, Cyprus
- **South West**: Spain, Portugal
- **West**: France, Belgium, The Netherlands, Luxembourg
- **Exclusive Distributors**: Norway

**10 FACTORIES**

Spain (3), Poland (2), Belgium (2: Retread/Molds), France (1), Italy (1), Hungary (1)

**1 TECHNICAL CENTRE** Italy

**2 PROVING GROUNDS** Italy & Sweden
What is a **Smart Factory**

In the Smart Factory, a virtual copy of the physical world is created via the integrated industrial network.

**A Smart Factory allows for**

- Interoperability: all machines, devices, sensors, and people working together
- Single data source and data availability
- Decentralized/cell based and faster decision making

Contribute to leading manufacturing plant performance by implementing digitalization
Smart Manufacturing – the digital transformation

- Smart Factory Foundation as a solid technology basis for digitization and Smart Factory
- Smart Factory Applications that bring smart applications and business benefits to the Plants

Smart Factories connected to each other, suppliers and LSCM allowing across plant value chain optimization and end-to-end integration

Smart Factory Application suite allowing:
- Optimization of plant operations and efficiency
- Preventive and decentralized decision making
- Accelerate B-ME and empower operators

Smart Factory Foundation with central MES, Data Capturing and Assets & Operators connected, enabling the creation of a ‘real time virtual copy’ and the physical Bridgestone plant

Geographical Scope: 8 Plants
- Stargard
- Poznan
- Burgos
- Bilbao
- Puente San Miguel
- Bari
- Béthune
- Tatabanya (12K)
- Russia*
- South Africa*

>200 people involved
- Bridgestone Central & Local
- EY as global Partner
- Integrators: DELMIA Apriso, Quintiq...
Definition of solution and business value

<table>
<thead>
<tr>
<th>APS</th>
<th>MES</th>
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<tr>
<td>• State-of-the-art planning system replacing current scattered planning capabilities</td>
<td>• Standardized business processes and MDM based on best practices across plants</td>
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<td>• Efficient scheduling processes with daily cycles instead of monthly/weekly</td>
<td>• Real-time monitoring of <strong>production</strong> processes</td>
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<td>• Optimization capabilities to dynamically react on events on production</td>
<td>• Management of <strong>quality</strong> and full product genealogy</td>
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One manufacturing system landscape
Why DELMIA Apriso and Quintiq?

- Tyre credential in BSJ for Curing and Building (→ BSJ template estimated reusable at 80% for Smart Factory)

- Companies used to very large-scale solution implementation project

- Best of suite when both Quintiq and DELMIA Apriso applied APS and MES as a holistic solution

- Centre of Excellence (CoE) approach introduced for life cycle software changes

- Apriso GPM (Global Process Manager) module is a strong toolkit for the CoE in order to manage process and solution updates over all plants

- Full suite of optimization technology is part of the Quintiq standard application – many world records in academic optimization puzzles (e.g. Flexible Job Shop Scheduling)
Integrated closed loop, proactive infrastructure

A two-platform world

Product & Service Planning
Order Fulfilment

As Planned

Product & Service Execution
Supply Chain Execution

As Built / Executed

- 3DS owns integration of Quintiq – Apriso
- Faster time to value at lower risk
What’s next?

• Global rollout
  - ✓ Full EMEA and BSJ
  - ✓ Americas
  - Up to 30 additional tyre plants

• 3DS as a Company is used to very large-scale solution implementation projects
Q&A