Keynote Presentation

Capital Markets Day
Ludwigshafen, November 20, 2018

Dr. Martin Brudermüller, Chairman of the Board of Executive Directors and CTO

Dr. Hans-Ulrich Engel, Vice Chairman of the Board of Executive Directors and CFO
Cautionary note regarding forward-looking statements

This presentation contains forward-looking statements. These statements are based on current estimates and projections of the Board of Executive Directors and currently available information. Forward-looking statements are not guarantees of the future developments and results outlined therein. These are dependent on a number of factors; they involve various risks and uncertainties; and they are based on assumptions that may not prove to be accurate. Such risk factors include those discussed in the Opportunities and Risks Report from page 111 to 118 of the BASF Report 2017. BASF does not assume any obligation to update the forward-looking statements contained in this presentation above and beyond the legal requirements.
What will we do differently?

1. Intensify customer focus to accelerate growth
2. Sharpen our portfolio and strengthen the Verbund
3. Transform our organization to be more agile and customer-focused
4. Focus capital allocation on organic growth
5. Drive growth particularly in largest market China
6. Set the tone with CO₂-neutral growth
Part I  Be the leading chemical company for our customers
Part II  A sustainably growing industry in an attractive environment
Part III Transforming into an agile and customer-focused BASF
Part IV The Verbund – strengthening our portfolio
Part V  Set the tone with CO\textsubscript{2}-neutral growth
Part VI Disciplined capital allocation and focus on value creation
Part VII Conclusion
Part I

Be the leading chemical company for our customers
BASF strength

EBITDA growth above fixed costs

BASF Group* 2012–2017
indexed (2012 = 100), CAGR 2012–2017

- EBITDA before special items
  - CAGR: 8%
- Fixed Costs
  - CAGR: 3%
- Sales
  - CAGR: 1%

* Excluding Oil & Gas
**BASF strength**

Proven ability to achieve earnings growth above global chemical production of 3.7% per year

EBIT before special items* and EBITDA before special items* billion €, 2012–2017

**Normalized CAGR** EBITDA before special items around +5%
BASF strength

Strong free cash flow development

Cash flows from operating activities and free cash flow
billion €, 2012–2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash flows from operating activities*</th>
<th>Free cash flow*</th>
<th>Capital expenditures*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4.7</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>5.8</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>4.6</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>7.7</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>6.5</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>7.1</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Q1-Q3 2018</td>
<td>5.1</td>
<td>3.1</td>
<td></td>
</tr>
</tbody>
</table>

* Excluding Oil & Gas
BASF strength

Return on capital employed well above cost of capital

Return on capital employed
%
2012–2017

<table>
<thead>
<tr>
<th>Year</th>
<th>ROCE*</th>
<th>Cost of capital rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>12.5%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>13.2%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>13.8%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>15.4%</td>
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</tr>
</tbody>
</table>

* ROCE: EBIT generated by the operating divisions as a percentage of the average cost of capital basis, excluding Oil & Gas
BASF strength

We have refocused our portfolio towards innovative growth businesses*

Acquisitions
- Functional crop care
- Personal care and food ingredients
- Omega-3 fatty acids
- Enzymes
- Battery materials
- Specialty plastics
- Selected assets in Oil & Gas
- Refinish coatings
- Surface treatment
- Seeds and crop protection

~€7.7 billion sales in emerging and innovation-driven businesses

Divestitures
- Styrenics
- Fertilizers
- Selected assets in Oil & Gas
- Natural gas trading and storage
- Custom synthesis business
- Textile chemicals
- Polyolefin catalysts
- Industrial coatings
- Leather chemicals

~€21.1 billion sales in businesses with decreased differentiation potential

* Selected, closed transactions 2010–today
BASF strength

Established and growing presence in Asia Pacific

BASF Group in Asia Pacific (2017)

- BASF is present in 18 markets
- >100 production sites*
- ~125 sales offices*
- 18,256 employees**
- ~€14.3 billion sales***
- ~€2.2 billion EBIT

* Only selected sites and offices are depicted on this chart. Site and office numbers refer to companies of significant size where BASF holds a stake greater than 50%
** As of December 31, 2017
*** Sales by location of customer, without sales of BASF-YPC Company Ltd. Nanjing
Today’s challenge

BASF’s business grows below global chemical production

Volume growth*
indexed (2012 = 100); CAGR 2012–2017

- Global chemical production growth: 3.7%
- BASF organic volume growth: 2.3%

* Excluding Oil & Gas
Investors and analysts clearly acknowledge strengths and weaknesses

**Buy-side**

"Quality of the management is high and the breadth of the business is impressive."

"The share price performance could definitely have been stronger."

"Long history in operations, experience, cash generation and a global footprint."

"Is BASF really in a position to grow the specialty chemicals businesses?"

**Sell-side**

"The biggest advantage is the Verbund integration across all of the different businesses."

**Buy-side**

"They have to be more agile and nimble to adjust to changes."
Focusing our strengths to drive customer success

- Innovation – with impact
- Sustainability – live our purpose
- Operations – be the leader
- Digitalization – leverage across the company
- Portfolio – businesses with customer relevance
- People – drive high performance

Our customers will have a new experience with BASF
Focusing our strengths to drive customer success
Our ambitious financial and non-financial targets

**Growth**
Grow sales volumes faster than global chemical production

**Profitability**
Increase EBITDA before special items by 3% to 5% per year

**Return**
Achieve a ROCE* well above the cost of capital percentage every year

**Dividend**
Increase the dividend per share every year based on a strong free cash flow

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* Return on capital employed (ROCE) is a measure of the profitability of our operations. We calculate this indicator as the EBIT generated by the operating divisions as a percentage of the average cost of capital basis. ROCE is also the key performance indicator for determining the variable compensation for members of the Board of Executive Directors and all employee groups.

** Accelerator products are products that make a particular contribution to sustainable development (sales 2017: ~€15 billion)

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€22 billion of sales with Accelerator products** by 2025

CO₂-neutral growth until 2030
Part II

A sustainably growing industry in an attractive environment
Global trends provide opportunities for growth in the chemical industry

Demographic change: Rising number of seniors

- Share of population +130%

Chemical growth 2017–2030 coming mainly from Asia Pacific

- Share of absolute growth 64%

Climate change: Strong reduction of GHG emissions necessary to achieve 2°C global warming target

- Gigatons CO₂ -70%

Population growth

- Billion people +32%

Digitalization is surging

- Digital universe, zettabytes

Electromobility drives demand for battery materials

- Cathode active materials demand, kilotons > +300%

Sources: UN, IEA, UBS foresight, BASF
Rising incomes, demand for innovative solutions and digitalization are the main growth drivers for BASF in the future.

**Advanced markets**
- Differentiated consumer needs
- Aging populations
- Focus on sustainability

**Emerging markets**
- Population growth
- Rising incomes
- Expanding middle class

**Growth industries**
- Nutrition
- Beauty and care
- Additives
- Digitalization
- Electromobility
- Materials and surface enhancement
- Chemicals
China is the major growth driver for global chemical production

Real chemical production excluding pharmaceuticals
billion US$

CAGR* +3.1%
Global GDP CAGR: +2.9%

2017: ~3,800

2030: ~5,700

Source: BASF  * Real chemical production excluding pharmaceuticals
Part III
Transforming into an agile and customer-focused BASF
Portfolio transformation towards higher value

Portfolio management principles

- Continuous active portfolio management
- Annual review of strategic business units following “best-owner” principle
- Portfolio pruning of businesses with limited differentiation potential
- Selective acquisitions with transformative character for distinct growth businesses or segments

“Best-owner”:
- Asset and technology fit
- Benefit from or contribution to Verbund
Recently announced portfolio pruning measures

<table>
<thead>
<tr>
<th>Business Area</th>
<th>Sales 2017:</th>
<th>Planned Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil &amp; Gas</td>
<td>~€3.2 billion</td>
<td>Closing expected in first half of 2019, subject to regulatory approvals; IPO take place in second half of 2020 at the earliest</td>
</tr>
<tr>
<td>Water and paper chemicals</td>
<td>~€0.8 billion</td>
<td>Closing anticipated for the end of 2018 at the earliest, subject to regulatory approvals</td>
</tr>
<tr>
<td>Construction Chemicals</td>
<td>~€2.4 billion</td>
<td>Review of strategic options announced end of October 2018</td>
</tr>
<tr>
<td>Other businesses</td>
<td>&gt; €1 billion</td>
<td></td>
</tr>
</tbody>
</table>
Recent acquisitions to upgrade our portfolio

Agricultural solutions businesses and assets from Bayer

- Sales 2017: ~€2.2 billion
- Closing took place in August 2018
- Integration is ongoing

Chemetall surface treatment business

- Sales 2016: ~€0.9 billion
- Closing took place in December 2016

BASF to acquire Solvay’s integrated polyamide business

- Sales 2016: ~€1.3 billion
- On June 26, 2018 the EU Commission opened an in-depth investigation and will likely take a decision in Q1 2019
BASF will run its businesses in a more transparent segment structure

**Current structure**
- Chemicals
- Performance Products
- Functional Materials & Solutions
- Agricultural Solutions
- Oil & Gas

**Structure as of January 1, 2019**
- Chemicals
- Materials
- Industrial Solutions
- Surface Technologies
- Nutrition & Care
- Agricultural Solutions
New segment structure strengthens performance- and market-orientation and provides more transparency
Each new segment has a clear and compelling path forward

<table>
<thead>
<tr>
<th></th>
<th>Chemicals</th>
<th>Materials</th>
<th>Industrial Solutions</th>
<th>Surface Technologies**</th>
<th>Nutrition &amp; Care</th>
<th>Agricultural Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share*</td>
<td>25%</td>
<td>35%</td>
<td>12%</td>
<td>10%</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>Core theme</td>
<td>Verbund</td>
<td>Advanced materials</td>
<td>Additives platform</td>
<td>Surface modification platform</td>
<td>Consumer ingredients</td>
<td>Integrated offering of seeds, crop protection, digital</td>
</tr>
<tr>
<td>Innovation focus</td>
<td>Improved or new processes</td>
<td>Applications, biomaterials</td>
<td>Formulations</td>
<td>Battery materials, surface effects</td>
<td>Biotechnology, formulations</td>
<td>Crop protection, seeds, digital farming</td>
</tr>
<tr>
<td>Capex relevance</td>
<td></td>
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<tr>
<td>M&amp;A relevance</td>
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</tr>
<tr>
<td>Sustainability</td>
<td>ChemCycling</td>
<td>Bio-based materials</td>
<td>More from less</td>
<td>Low-emission mobility</td>
<td>Bio-based and natural, traceability</td>
<td>Better with less</td>
</tr>
</tbody>
</table>

* Percentage of EBITDA before special items in 2017; Other: minus €0.4 billion
** Target picture, until signing of a transaction agreement, Construction Chemicals will be reported under Surface Technologies
# Chemicals

## Divisions
- Petrochemicals
- Intermediates

## Strategy
- Enable organic growth of key value chains by providing flexible supply of raw materials
- Maintain high competitiveness through technological leadership and operational excellence

## Growth drivers
- Emerging markets
- Value chain integration/Verbund
- Geographical reach/assets in relevant markets

## Innovation
- Focus R&D on best-in-class process technology

## Capex
- Build new Verbund site in Zhanjiang, Guangdong province; expand Verbund site in Nanjing; evaluate further expansion in Asia
- Strengthen and upgrade existing value chains in advanced markets

## Sustainability
- Develop low CO₂ technologies like Carbon Management or ChemCycling
- Foster Verbund value chain steering to minimize transportation risk and optimize utilization

## 2017*

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>€11.2 billion</td>
</tr>
<tr>
<td>EBITDA before special items</td>
<td>€2.6 billion</td>
</tr>
<tr>
<td>EBIT before special items</td>
<td>€2.0 billion</td>
</tr>
<tr>
<td>ROCE</td>
<td>23%</td>
</tr>
</tbody>
</table>

## Peers
- Arkema
- Dow
- Eastman
- LyondellBasell
- Nippon Shokubai

* Pro-forma, unaudited data
Materials

Divisions
- Performance Materials
- Monomers

Strategy
- Drive organic growth by offering advanced materials for new applications and systems
- Differentiate through application know-how, industry knowledge and customer proximity
- Generate maximum value in isocyanate and polyamide value chains

Growth drivers
- Emerging markets
- Consumer comfort
- Electromobility

Innovation
- Focus on new applications, materials, systems, simulation tools and digital business models
- Leverage materials competence for expansion of 3D printing business

Capex
- Globally expand engineering plastics capacities close to customers
- Focus on isocyanate and polyol value chains in North America and Asia
- Drive operational excellence

Sustainability
- Strengthen portfolio of bio-based materials
- Continuously improve sustainable production of materials

2017*
- Sales: €13.7 billion
- EBITDA before special items: €3.7 billion
- EBIT before special items: €3.0 billion
- ROCE: 33%

Peers
- Covestro
- Huntsman
- Lanxess
- Solvay
- Wanhua

* Pro-forma, unaudited data
## Industrial Solutions

### Divisions
- Dispersions & Pigments
- Performance Chemicals

### Strategy
- Drive organic growth in key industrial markets with low cyclicality
- Grow value-enhancing ingredients and solutions by building on industry and application know-how

### Growth drivers
- Resource efficiency
- Urbanization and digitalization
- Enhancement of product portfolio

### Innovation
- Increase focus on formulation development
- Enhance process innovation focus to maintain cost competitiveness

### Capex
- Selectively expand into high-growth regions by leveraging the integration into BASF value chains/Verbund

### Sustainability
- Address resource efficiency as key market driver (“more from less”)
- Capture opportunities from societal and regulatory trends

### 2017*

<table>
<thead>
<tr>
<th></th>
<th>Sales</th>
<th>EBITDA before special items</th>
<th>EBIT before special items</th>
<th>ROCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peers</td>
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<tr>
<td>Arkema</td>
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<tr>
<td>Clariant</td>
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<tr>
<td>Dow</td>
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<tr>
<td>Lanxess</td>
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</tbody>
</table>

* Pro-forma, unaudited data
Surface Technologies

Divisions
- Catalysts
- Coatings

Strategy
- Drive organic growth by leveraging portfolio of technologies and know-how regarding protection, modification and creation of surfaces on various substrates
- Strengthen position as leading and innovative provider of battery materials

Growth drivers
- Automotive growth in Asia
- Low-emission mobility
- Electromobility-driven growing demand for battery materials

Innovation
- Support growth trends via new battery materials, advanced coatings, surface treatment and structure films systems and via new process catalysts and mobile emissions catalysts

Capex
- Build global asset footprint for battery materials
- Increase capacity for mobile emissions catalysts, especially in China

Sustainability
- Benefit from trend towards low-emission mobility

2017*

| Sales       | €10.6 billion |
| EBITDA before special items | €1.1 billion |
| EBIT before special items    | €0.7 billion |
| ROCE       | 6%           |

Peers
- Axalta
- Johnson Matthey
- PPG
- Umicore

* Pro-forma, unaudited data; target picture excluding Construction Chemicals
Nutrition & Care

Divisions
- Care Chemicals
- Nutrition & Health

Strategy
- Become a leading provider of nutrition and care ingredients for consumer products
- Enhance and broaden the product and technology portfolio
- Drive strong organic growth by focusing on emerging markets, new business models and sustainability trends in consumer markets

Growth drivers
- Health and well-being, responsible living
- Aging populations, expanding middle class, growing consumer base
- Digitalization and personalization

Innovation
- Develop tailor-made solutions for new functionalities via product and process innovation
- Address unmet needs beyond existing chemical solutions with R&D in white biotechnology and fermentation technologies

Capex
- Selectively expand capacities and enhance operational excellence
- Support further portfolio development and diversification

Sustainability
- Build on trends driven by changing consumer behavior, e.g., biodegradable and bio-based products, traceability

<table>
<thead>
<tr>
<th>2017*</th>
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<tbody>
<tr>
<td>Sales</td>
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<tr>
<td>EBITDA before special items</td>
</tr>
<tr>
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</tr>
<tr>
<td>ROCE</td>
</tr>
</tbody>
</table>

Peers
- Croda
- DSM
- DuPont
- Evonik

* Pro-forma, unaudited data
Agricultural Solutions

Division
- Agricultural Solutions

Strategy
- Further strengthen market position as fully integrated agricultural solutions provider
- Focus on innovation-driven organic growth

Growth drivers
- Population growth
- Increasing demand for high-quality food
- Resource limitations (land, water, air)

Innovation
- Realize R&D synergies between crop protection, seeds and traits
- Leverage BASF’s biotechnology research platform
- Develop digital business models to provide holistic solutions for the farmer

Capex
- Selectively expand capacities for crop protection products

Sustainability
- Address demand for efficient food production (“better with less”), triggered by population growth
- Respond to changing application volumes and market models via digitalization and precision farming

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2017*

<table>
<thead>
<tr>
<th></th>
<th>Sales</th>
<th>€5.7 billion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EBITDA before special items</td>
<td>€1.3 billion</td>
</tr>
<tr>
<td></td>
<td>EBIT before special items</td>
<td>€1.0 billion</td>
</tr>
<tr>
<td></td>
<td>ROCE</td>
<td>12%</td>
</tr>
</tbody>
</table>

Peers
- Bayer
- Corteva
- FMC

* Pro-forma, unaudited data
Transforming into an agile and customer-focused organization

Guiding principles
- Empowerment
- Differentiation
- Simplification

Action fields
- Embedding to bring services closer to customers
- Functions and headquarters with streamlined back-end organization
- Regions with sharpened roles to increase customer focus
- Process landscape simplified
- People working in an entrepreneurial performance culture
We empower our businesses to optimize and differentiate according to customer needs

Example: Embedding of business-critical services

Current structure

OD1  OD2  ...

Functional services

Governance

New structure

OD1  OD2  ...

Embedded services

(Standard) Services

Governance

More than 20,000 employees from services, functions and R&D will move closer to customers
Example: Supply chain becomes an integrated part of BASF’s value proposition

From functional focus …
- Functional expertise built up
- Efficiency gains realized
- Customer orientation hampered by division of labor

… to customer focus
- Responsiveness, flexibility, reliability
- Business-driven shared services
- Digital integration of customers with supply network
Automation is key enabler for future efficiencies

**Example: Invoice processing within purchase-to-pay process**

- **Past**
  - 40% Cost reduction by labor arbitrage at time of transfer

- **Today**
  - 40% FTE reduction by bundling and process harmonization over 10-year period
  - 40% FTE reduction over 4-year period

- **Future**
  - Automated request classification and data extraction by usage of **machine learning**
  - Virtual assistance by using **chatbot** technology
  - Automated processing by using **robotic process automation**
  - **Technologies in implementation** in our global shared services organization

Example: Invoice processing within purchase-to-pay process
Part IV

The Verbund – strengthening our portfolio
Our portfolio is strengthened by multiple Verbund effects

- Confirmed annual cost savings of more than €1 billion through integrated production
- Ensure competitive supply of key products to all segments
- Create customer relevance through size and broad portfolio
- Leverage technological advantages and innovation across all segments
- Harvest the advantages offered by digitalization across BASF
# Physical Verbund strengthens each segment through value chains

<table>
<thead>
<tr>
<th>Steam-cracker</th>
<th>Syngas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Butenes</strong></td>
<td><strong>Homogeneous catalysis</strong></td>
</tr>
<tr>
<td><strong>Acetylene</strong></td>
<td><strong>Industrial catalysts</strong></td>
</tr>
<tr>
<td><strong>Aromatics</strong></td>
<td><strong>Emissions control catalysts</strong></td>
</tr>
<tr>
<td><strong>Butenes</strong></td>
<td><strong>VOD</strong>*</td>
</tr>
<tr>
<td><strong>VOD</strong>*</td>
<td><strong>Acetylene</strong></td>
</tr>
<tr>
<td><strong>Amines</strong></td>
<td><strong>NVP</strong>**</td>
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<tr>
<td><strong>Propionic acid</strong></td>
<td><strong>Actives</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemicals</th>
<th>Materials</th>
<th>Industrial Solutions</th>
<th>Surface Technologies</th>
<th>Nutrition &amp; Care</th>
<th>Agricultural Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene</td>
<td>Acrylics</td>
<td>SAP</td>
<td>Isocyanates</td>
<td>PolyTHF®</td>
<td></td>
</tr>
<tr>
<td>Butenes</td>
<td>Alcohols</td>
<td>Plasticizers</td>
<td>Polyurethane systems</td>
<td>Engineering plastics</td>
<td></td>
</tr>
<tr>
<td>Acetylene</td>
<td>Butanediol</td>
<td>Polyurethane systems</td>
<td>Engineering plastics</td>
<td></td>
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</tr>
<tr>
<td>Aromatics</td>
<td>Isocyanates</td>
<td>Polyurethane systems</td>
<td>Engineering plastics</td>
<td></td>
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<tr>
<td>Acids and amines</td>
<td>Polyamides</td>
<td>Engineering plastics</td>
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<tr>
<td>Butenes</td>
<td>HR-PIB</td>
<td>Keropur® fuel additives</td>
<td></td>
<td></td>
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<tr>
<td>Acrylics and alcohols</td>
<td>Acrylic esters</td>
<td>Acronal® dispersions</td>
<td></td>
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</tr>
</tbody>
</table>

* VOD: Vacuum oil distillate  ** NVP: N-Vinylpyrrolidone

Oil & Gas; Construction Chemicals
In the physical Verbund, we focus our activities and resources to achieve best-in-class operations

<table>
<thead>
<tr>
<th>Operational excellence</th>
<th>Environmental protection, health and safety</th>
<th>Asset target picture</th>
<th>Site logistics operations</th>
<th>Digitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational excellence improves our plant availability and efficiency</td>
<td>Professional implementation of high environmental and safety standards ensures our license to operate</td>
<td>Long-term strategy for each site</td>
<td>Dynamic site logistics enable agility in delivering our products</td>
<td>Digitalization enhances our technology leadership</td>
</tr>
</tbody>
</table>

Optimal processes and structures
Digital plants create value in operations

High-quality data are recorded, providing real-time information of the plant status.

Digital twins are created to optimize planning and minimize investment cost.

Augmented reality enables the workforce to access key information and receive guidance.

Data analytics detect and predict asset anomalies like wear, fouling, coking.

Turnarounds with 3D support and tailored apps improve uptime.

Maintenance app connects work orders and notifications directly with SAP.

More than 350 digital plants planned until 2022.
Technological Verbund: Leveraging our expertise in catalysis across the company

Catalyst production | Automotive catalysts | Chemical catalysts | Catalyst recycling

BASF has a unique catalyst technology expertise:
- Strong catalysis R&D platform
- Leader in catalyst production
- Business with automotive, chemical and refinery catalysts
- Application of many different process catalysts in BASF operations

90% of BASF’s production depends on the use of catalysts
Technological Verbund: Fermentation processes for bio-based products enable access to new customer groups

- Fermentation is a natural process, using fungi or bacteria to make chemicals.
- Powerful technology that enables access to complex molecules that are hard to produce with conventional chemistry.
- Special requirements, e.g., sterile environment and extraction of pure chemicals from diluted and complex “fermentation broth” needed.
- BASF’s fermentation technology platform enables efficient use of this technology in many different businesses.

Fermentation technology addresses strategically relevant €15 billion market.
**Technological Verbund: Biodegradability research platform to access an emerging market**

<table>
<thead>
<tr>
<th>Biodegradable plastics (structural applications)</th>
<th>Further applications (functional applications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer bags</td>
<td>Personal and home care: new biodegradable materials</td>
</tr>
<tr>
<td>Mulch films</td>
<td>Agricultural solutions: biodegradable formulations</td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
</tr>
</tbody>
</table>

**Platform for biodegradable and bio-based materials**

- Biodegradation: microorganisms metabolize polymeric material completely to CO₂, energy, water and biomass
- Strong understanding of biodegradability in soil, marine and aquatic environments, including modeling of biodegradability
- Innovation platform provides Verbund advantages such as combining know-how in biodegradability and product development, technological leadership and engagement in stakeholder dialogue, global standards for biodegradability
- BASF well positioned to benefit from trend towards biodegradable materials

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8 million tons of plastics leak into the ocean each year.  
Source: Ellen MacArthur Foundation 2017
Technological Verbund: ChemCycling enables sustainable growth in the circular economy

1. Plastic waste is converted into feedstock
2. Feedstock can be used to create all kinds of chemicals and products, including new plastics
3. Customers use these chemicals to make their own products
4. Consumers and companies use and dispose of products
5. The waste is collected and sorted by waste companies
6. Waste companies supply recyclers with plastic waste

67 million tons of plastic packaging waste per year under scrutiny

Successful business proof in October 2018
Customer Verbund: BASF’s sales to the automotive industry have grown twice as fast as the automotive industry

BASF sales to the automotive industry vs. global vehicle production indexed

CAGR: 7%  
BASF sales* to the automotive industry

CAGR: 3%  
Global vehicle production

With sales of €11.4 billion to the automotive industry, BASF is the #1 chemical supplier

* Excluding precious metals, coatings refinish business; CAGR shown for 2012–2017
Digital Verbund: BASF’s vast amount of data provides the basis for strong future growth

- Digital Verbund connects backend systems and provides structured data sources to digital projects
- Benefits:
  - Pool of data and artificial intelligence allow better and faster product development
  - Offering data-driven services to customers
  - Fostering data-driven business models
  - Optimizing chemical processes by machine learning
  - Data-based predictive maintenance

Pool of data from
- Operations
- R&D
- Marketing & Sales
- Procurement
- Supply chain
- Finance
QURIOSITY – Machine learning to develop complex polymer formulations faster and more effectively

Formulation development

~100,000,000 possible combinations

~10,000 to ~100,000 potential combinations after basic assessment

With Quriosity supercomputer

~20 highly likely combinations

Lab trials

Best solution

Without supercomputer

~200 likely combinations

Many lab trials

1 potential solution or no solution

So far

~3,000,000 chemical structures screened with Quriosity

~100,000,000 potential combinations after basic assessment

Machine learning

Modeling

Inspiration

~20 highly likely combinations

~200 likely combinations

Many lab trials

1 potential solution or no solution

Best solution

So far

~3,000,000 chemical structures screened with Quriosity
Part V

Set the tone with CO$_2$-neutral growth
Sustainability is society’s key challenge – BASF helps find solutions

- Relevant sustainability topics as identified in BASF’s materiality analysis:
  - Energy and climate
  - Water
  - Resources and ecosystems
  - Responsible production
  - Employment and employability

- We matched the material aspects of BASF’s businesses with the 17 UN Sustainable Development Goals to identify focus areas for our strategic steering

- BASF contributes to a wide range of the SDGs, living up to our company purpose “We create chemistry for a sustainable future”

- We support the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
CO₂-neutral growth until 2030: Creating value to society and protecting our climate

Absolute greenhouse gas (GHG) emissions indexed (1990 = 100)

- BASF is committed to contributing to the Paris Climate Agreement
- BASF uses carbon raw materials responsibly: 82% of carbon converted to products, 17% consumed for process energy and converted to CO₂, 1% waste
- 22 million tons of CO₂ emissions by BASF worldwide expected in 2018* compared to 10–30 million tons per year for one coal-fired power plant
- Development of new, breakthrough technologies with impact beyond 2030

* Preliminary figure 2018; final figure to be published separately in 2019
Key measures to implement CO₂-neutral growth

GHG emissions (million tons CO₂ equivalent), scope 1 and 2

- Significant organic growth targeted
- Carbon intensity to be reduced by 30%
- Key measures:
  - Process improvements
  - Operational excellence measures
  - Shift to CO₂-neutral power
  - Portfolio development

22 million tons*
BASF 2018/2030

* Preliminary figure 2018; final figure to be published separately in 2019
To achieve CO$_2$-neutral growth, we will consistently include greenhouse gas emissions into our decision making.
€22 billion sales with Accelerator products by 2025 through innovation

Percentage of sales 2017*

- Accelerators are characterized by:
  - strong growth in their markets
  - margins ~7 percentage points above the remaining product portfolio
- More than 13,000 Accelerator products and solutions
- Accelerator sales 2017: €15 billion
- BASF’s R&D pipeline contains mainly Accelerator products

Substantial sustainability contribution in the value chain

Meets basic sustainability standards on the market

Specific sustainability issues which are being actively addressed

Significant sustainability concern identified and action plan developed

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More than 13,000 Accelerator products and solutions

Accelerator sales 2017: €15 billion

BASF’s R&D pipeline contains mainly Accelerator products
### BASF’s Accelerators contribute to a wide range of the UN Sustainable Development Goals

<table>
<thead>
<tr>
<th>Accelerator</th>
<th>Cost savings downstream</th>
<th>Biodiversity and renewables</th>
<th>Climate change and energy</th>
<th>Emission reduction</th>
<th>Resource efficiency</th>
<th>Water</th>
<th>Health and safety</th>
<th>Hunger and poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>(including double nominations)</td>
<td></td>
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</tr>
</tbody>
</table>

BASF’s Accelerators primarily addressed the following SDGs:

- **27.3%** Hunger and poverty
- **4.3%** Health and safety
- **0.1%** Water
- **68.3%** Resource efficiency

BASF's Accelerators contribute to a wide range of the UN Sustainable Development Goals.
Part VI

Disciplined capital allocation and focus on value creation
We aim to increase our dividend per share every year.

We strive to organically grow above global chemical production via innovation and capital expenditures.

We strive to enhance BASF’s portfolio through selective acquisitions with transformative character for distinct growth businesses or segments, and further focus the portfolio through continued pruning measures.

We will also consider share buybacks to return cash to our shareholders, thus maintaining an efficient capital structure.
Capital expenditures for organic growth, particularly in China

Capital expenditures
billion €

- 2009-2013
- 2014-2018
- Forecast 2019-2023

- Oil & Gas
- South China Verbund
- BASF ongoing business including recent acquisitions
The new Verbund site in Zhanjiang and the expanded Nanjing Verbund will foster considerable growth in China

**BASF sales and earnings in Greater China**

**Sales* billion €**

**EBIT Indexed (2012 = 100)**

- **BASF in China 2000–2018:**
  - Area ~7 km²
  - Capex ~US$11 billion

- **New Verbund site in Zhanjiang:**
  - Area ~9 km²
  - Capex ~US$10 billion

- **Ludwigshafen**
  - Area ~10 km²
  - Area ~6 km²

* Net sales to 3rd parties by location of customer plus 50% of sales of BASF-YPC Company Ltd. Nanjing
BASF’s R&D is highly competitive, ensures long-term growth and generates a net benefit to earnings every year

Expected annual R&D expenditures

- 42% Agricultural Solutions
- 17% Corporate research
- 10% Surface Technologies
- 9% Industrial Solutions
- 9% Materials
- 6% Chemicals

Expected annual R&D expenditures: ~€2.3 billion

Measures to boost innovation power

- Capitalize on innovation mindset
- Focus R&D resources on growth businesses
- Increase customer centricity
  - Stronger alignment of customer needs and R&D projects
  - Establish rapid prototyping
  - Move R&D closer to businesses
- Fully leverage artificial intelligence
- Cross-divisional corporate research strengthens existing and develops new key technologies
Industry-leading progressive dividend policy

**BASF dividend per share, € per share**

<table>
<thead>
<tr>
<th>Year</th>
<th>Dividend per Share</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.60</td>
<td>2.70</td>
<td>2.80</td>
<td>2.90</td>
<td>3.00</td>
<td>3.10</td>
</tr>
</tbody>
</table>

**BASF payout ratio**

<table>
<thead>
<tr>
<th>Year</th>
<th>Payout Ratio</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>50%</td>
<td>52%</td>
<td>50%</td>
<td>67%</td>
<td>68%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Average dividend yield* 2012–2017:
3.7%

#1 dividend yield in chemicals sector**
Clear acquisition criteria

Strategic acquisition criteria

We want to acquire businesses which …

- create more value as part of BASF’s Verbund
- help achieve relevant market positions
- drive innovation or technological differentiation
- enable new and sustainable business models

Financial acquisition criteria

We want to acquire businesses which …

- provide a return on capital employed above the WACC after full integration into BASF Group
- are EPS accretive by year three at the latest
- contribute to growth of EBITDA before special items
Excellence program 2019–2021

Key facts

- **Operational excellence** will focus on production, logistics and planning

- In **digitalization and automation**, smart supply chains and smart manufacturing are major contributors

- **Organizational development** targets leaner structures in the areas of services, R&D and governance
  
  ▶ Significant parts of **functional services** will be embedded in businesses, closer to our customers
  
  ▶ **Simplification** of process landscape

- Estimated **one-time costs of €0.8 billion** and **capital expenditures of €1 billion** (included in current capex planning)

€2 billion annual EBITDA contribution from 2021 onwards
Part VII

Conclusion
What will we do differently?

1. Intensify customer focus to accelerate growth
2. Sharpen our portfolio and strengthen the Verbund
3. Transform our organization to be more agile and customer-focused
4. Focus capital allocation on organic growth
5. Drive growth particularly in largest market China
6. Set the tone with CO$_2$-neutral growth
Our ambitious financial and non-financial targets

<table>
<thead>
<tr>
<th>Growth</th>
<th>Profitability</th>
<th>Return</th>
<th>Dividend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grow sales volumes faster than global chemical production</td>
<td>Increase EBITDA before special items by 3% to 5% per year</td>
<td>Achieve a ROCE* well above the cost of capital percentage every year</td>
<td>Increase the dividend per share every year based on a strong free cash flow</td>
</tr>
</tbody>
</table>

€22 billion of sales with Accelerator products** by 2025

CO₂-neutral growth until 2030

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* Return on capital employed (ROCE) is a measure of the profitability of our operations. We calculate this indicator as the EBIT generated by the operating divisions as a percentage of the average cost of capital basis. ROCE is also the key performance indicator for determining the variable compensation for members of the Board of Executive Directors and all employee groups.

** Accelerator products are products that make a particular contribution to sustainable development (sales 2017: ~€15 billion)
Numbers to take home

- **€2 billion** annual EBITDA contribution from 2021 onwards through new excellence program
- **~20,000** employees will move closer to customers
- **~€8 billion** sales to be divested
- **Zero** additional CO₂ until 2030
We create chemistry for a sustainable future
## Key facts of new segments

<table>
<thead>
<tr>
<th></th>
<th>Chemicals</th>
<th>Materials</th>
<th>Industrial Solutions</th>
<th>Surface Technologies**</th>
<th>Nutrition &amp; Care</th>
<th>Agricultural Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business units</strong></td>
<td>Petrochemicals</td>
<td>Performance Materials</td>
<td>Dispersions &amp; Pigments</td>
<td>Catalysts</td>
<td>Nutrition &amp; Health</td>
<td>Agricultural Solutions</td>
</tr>
<tr>
<td></td>
<td>Intermediates</td>
<td>Monomers</td>
<td>Performance Chemicals</td>
<td>Coatings</td>
<td>Care Chemicals</td>
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</tr>
<tr>
<td><strong>Portfolio adjustments</strong></td>
<td>+ Superabsorbent polymers</td>
<td>+ Propylene oxide</td>
<td></td>
<td></td>
<td>– Superabsorbent polymers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ Styrene</td>
<td>– Propylene oxide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales 2016*</td>
<td>€9.2 billion</td>
<td>€11.3 billion</td>
<td>€8.9 billion</td>
<td>€9.5 billion</td>
<td>€6.1 billion</td>
<td>€5.6 billion</td>
</tr>
<tr>
<td>EBITDA bsi 2016*</td>
<td>€2.2 billion</td>
<td>€2.2 billion</td>
<td>€1.4 billion</td>
<td>€1.0 billion</td>
<td>€1.2 billion</td>
<td>€1.3 billion</td>
</tr>
<tr>
<td>EBIT bsi 2016*</td>
<td>€1.5 billion</td>
<td>€1.5 billion</td>
<td>€1.0 billion</td>
<td>€0.7 billion</td>
<td>€0.8 billion</td>
<td>€1.1 billion</td>
</tr>
<tr>
<td>Sales 2015*</td>
<td>€10.5 billion</td>
<td>€11.6 billion</td>
<td>€9.3 billion</td>
<td>€9.5 billion</td>
<td>€6.2 billion</td>
<td>€5.8 billion</td>
</tr>
<tr>
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<td>€2.4 billion</td>
<td>€1.8 billion</td>
<td>€1.3 billion</td>
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<td>€0.6 billion</td>
<td>€0.6 billion</td>
<td>€1.1 billion</td>
</tr>
</tbody>
</table>

* Pro-forma, unaudited data  
** Target picture, until signing of a transaction agreement Construction Chemicals will be reported under Surface Technologies