

# Evonik

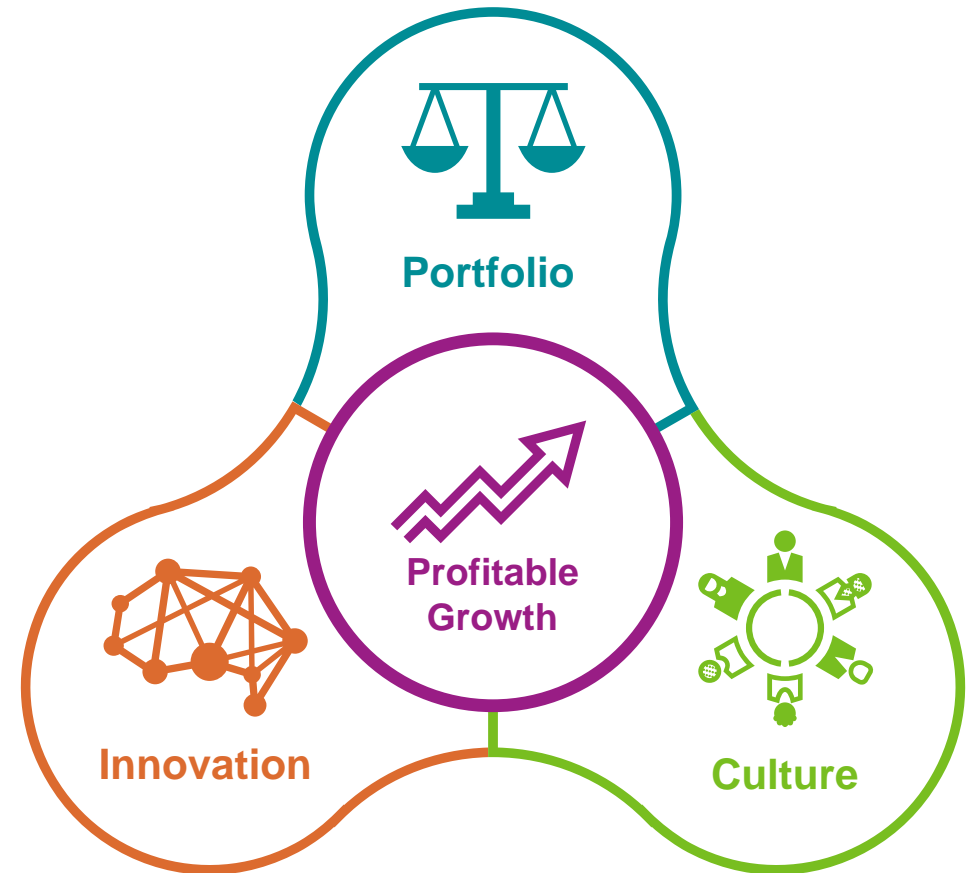
## Meet the Management 2018

September 14, 2018 | London

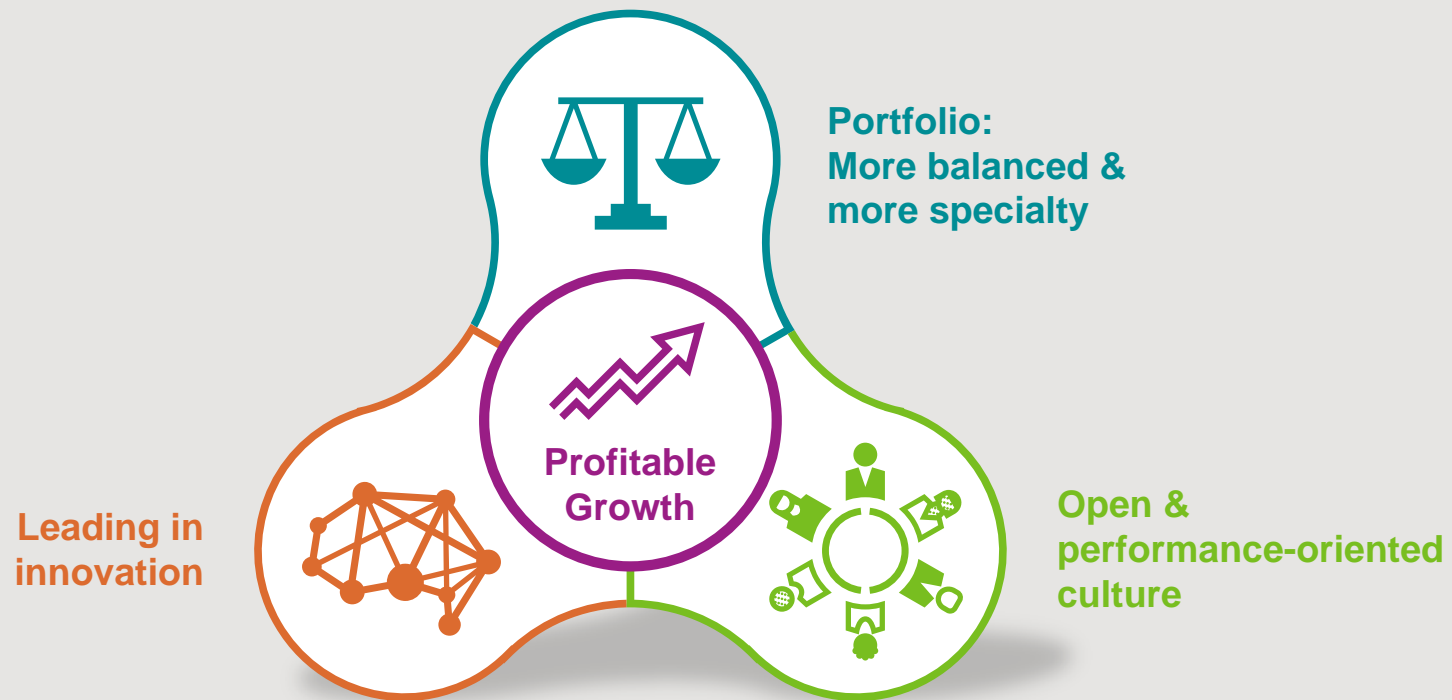
# Group Strategy

Building a best-in-class specialty chemicals company

Dr. Harald Schwager, Deputy CEO



# Targeting excellence in three strategic focus areas



# Agenda

---

- 1. Open & performance-oriented culture**
2. Leading in innovation
3. Portfolio: More balanced & more specialty
4. Deep-dive into growth segments

# Open & performance-oriented culture

## New corporate values as guidelines for cultural change



### PERFORMANCE



We demand excellence – and results. For our customers and our company only the best will do.

### OPENNESS



We are curious and like to think outside the box. This means embracing new and diverse perspectives, sharing and open dialog.



We believe in each other. Mutual respect, close collaboration and initiative are our driving forces.

### TRUST

We are ready for the future and moving fast towards it. We are agile, decisive, and quick to react.



### SPEED

# Achieving cost excellence

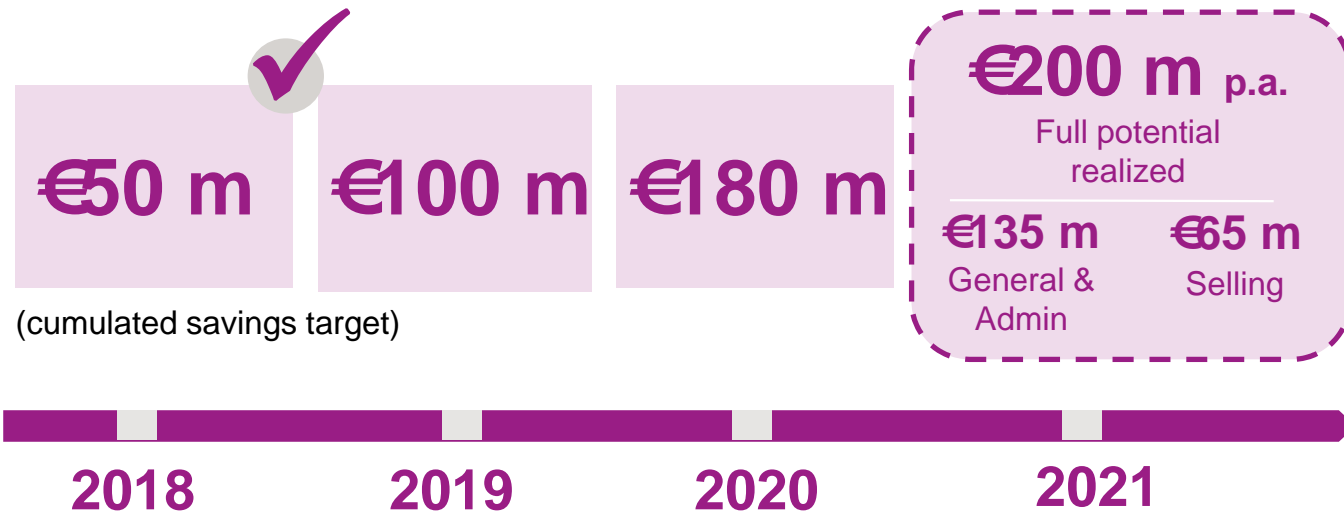
## Targeting structural improvements in SG&A



Cost savings of **€200 m** p.a.

Reduction of **1,000 FTE**

Savings **across all units and segments**



# Achieving cost excellence

## Well-established excellence functions foster efficient growth



### Operational Excellence

- Identifies improvement measures along the entire value chain, mainly in production functions
- Leverage best practices across group, foster continuous improvement processes
- 27 employees globally across 3 locations
- In operation for more than 10 years

- About 60 projects under execution every year
- Example projects:
  - Cost and efficiency improvements on different levels (e.g. Adjust 2020)
  - Reviews of production network incl. site diagnoses (e.g. US sites Milton, Reserve)

~ €120 m  
factor cost  
compensation  
p.a



### Marketing & Sales Excellence

- Global center of competence for Marketing & Sales in Evonik
- Accelerate growth via definition and implementation of M&S standards, tools, and development programs
- 65 employees globally across 9 locations
- Established over 10 years ago

- More than 30 projects under execution p.a.
- Example projects:
  - Customer segmentation and service level design
  - Pricing and data analytics
  - New CRM tool

# Agenda

---

1. Open & performance-oriented culture
- 2. Leading in innovation**
3. Portfolio: More balanced & more specialty
4. Deep-dive into growth segments



# Innovation based on strong R&D foundation

## Internal innovation, partnerships and technology acquisitions



### Internal Innovation



- Strong project pipeline
- Growth Segments and Creavis with focus on projects fueling innovation growth fields

### Partnerships / Cooperations

University  
Institutes

Startups

Strategic  
Partners

Partner  
Networks

- Access to high-end technology
- Increased reach and agility
- Risk limitation in area of transformative innovation

### Technology Acquisitions



**Transferra Nanosciences, CAN**  
Healthcare Solutions



**Norel Probiotics, ESP**  
Sustainable Nutrition



**Alkion, FRA**  
Cosmetic Solutions

- New high technology as nucleus for own developments
- Acceleration of market entry
- Access to inherent new business models

# Innovation example: Membranes

## Internal innovation and strategic partnership as key elements



### Membranes



### Leading gas separation solution

- Already mid-double digit million € business<sup>1</sup>
- Strongly growing with 20% CAGR
- Modules and applications in all relevant markets
- 250 projects in 20 countries already realized



Revenue  
~€200 m  
by 2025

based on

### Evonik owned unique polyimide chemistry

- Superior biogas purification developed by Creavis
- Strong in-house competence in polyimide chemistry and fiber business



### Strategic partnership with Linde

- Expertise in plant engineering and gas separation
- Holistic portfolio and market access

1. 2017 Revenue

# Innovation Growth Fields

Tangible size already today – strong growth ahead



## Innovation Growth Fields

Advanced Food Ingredients



Additive Manufacturing



Sustainable Nutrition



Membranes



Cosmetic Solutions

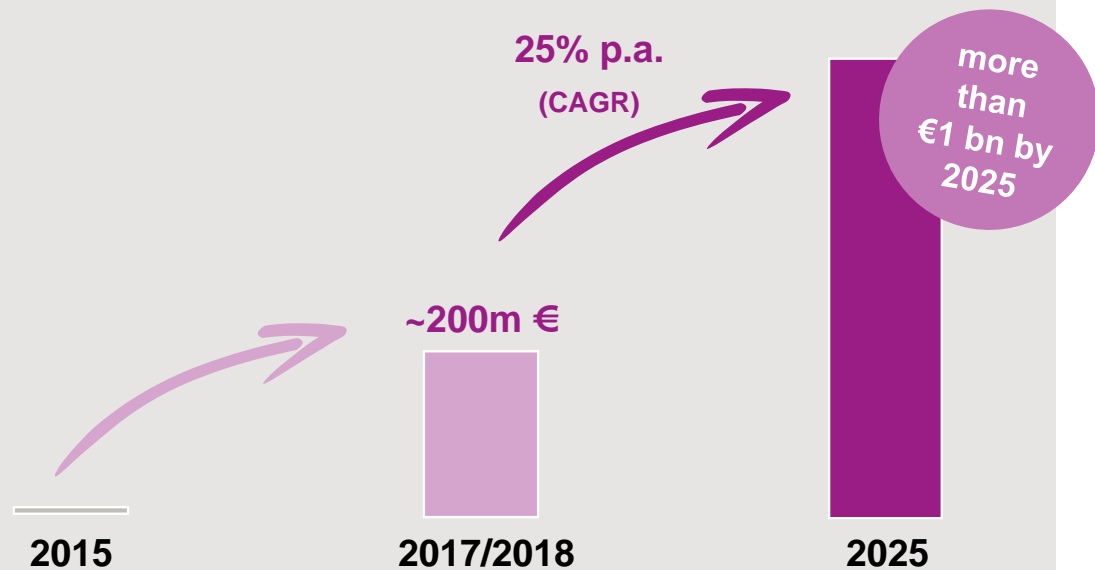


Healthcare Solutions



## Sales contribution

Additional contribution to sales from Innovation Growth Fields



# Digital innovations provide the means for value creation

## Digital transformation offers broad-based opportunities



New digital business models



Adaption of existing businesses & processes

Focus areas	Benefits		
Research & Development	User centricity	“Throughput”	Time-to-market
Marketing & Sales	Market insights	Pricing	Growth
Supply Chain & Production	Connectivity	Prediction	NWC
Management & Administration	Agility	Self-service-level	Complexity cost

# Evonik Digital is exploring the e-commerce playing field

## From dedicated B2C & B2B offerings to open industry platforms



### B2B e-commerce portal

#### PLEXIGLAS® UK



Go-live 09/2017

- Dedicated offerings for specific target group
- Increase reach, acquire additional customers

### Online marketplace

#### Alibaba Flagship Store

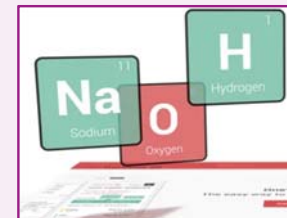


Go-live 11/2017

- Selected products across different categories
- Use established platform as additional sales channel

### B2B distribution portal

#### OneTwoChem



Go-live 08/2018

- Selected products, mainly raw materials and pre-cursors
- Multi-sided platform approach, also open to competitors

### B2C online shop

#### MEDOX® Germany



Go-live 11/2017

- Food supplement
- Evonik's first B2C online presence
- Learnings also used for other e-commerce activities

# OneTwoChem Movie



# Agenda

---

1. Open & performance-oriented culture
2. Leading in innovation
- 3. Portfolio: More balanced & more specialty**
4. Deep-dive into growth segments

# Portfolio strategy and financial targets

More balanced portfolio to uplift profitability & growth



## Portfolio strategy: More balanced - more specialty...



- Focus on businesses with **specialty chemicals** characteristics
- Four **growth engines** as drivers for profitable & balanced growth

... for structural uplift  
in profitability & growth

**18-20%** EBITDA margin

**GDP+** volume growth

Sustainable **FCF** generation



# Target portfolio structure

Four growth engines as drivers for profitable & balanced growth



## NUTRITION & CARE

## RESOURCE EFFICIENCY



Health & Care



Smart Materials



Specialty Additives



Animal Nutrition

Four  
growth  
engines

# Portfolio strategy

Healthy mix of growth & financing businesses



## Strengthen leading positions in attractive markets

- Strong growth profile
- Above-average returns
- Focus of capital allocation (capex, R&D, acquisitions)
- **Examples:**  
High Performance Polymers, Comfort & Insulation

**Growth  
businesses**

**Financing  
businesses**

## Generating financing power

- Attractive market growth
- Below average capex allocation
  - Stable returns and high FCF contribution
- **Examples:**  
Perf. Intermediates (C4), Active Oxygens, Oil Additives

# Executing portfolio management on all levels

Achievements so far ... more to come



## Major portfolio steps



## Bolt-on M&A and divestments



## Optimization on business level

- Acquisition of Air Products Specialty Additives
- Divestment of Methacrylates business

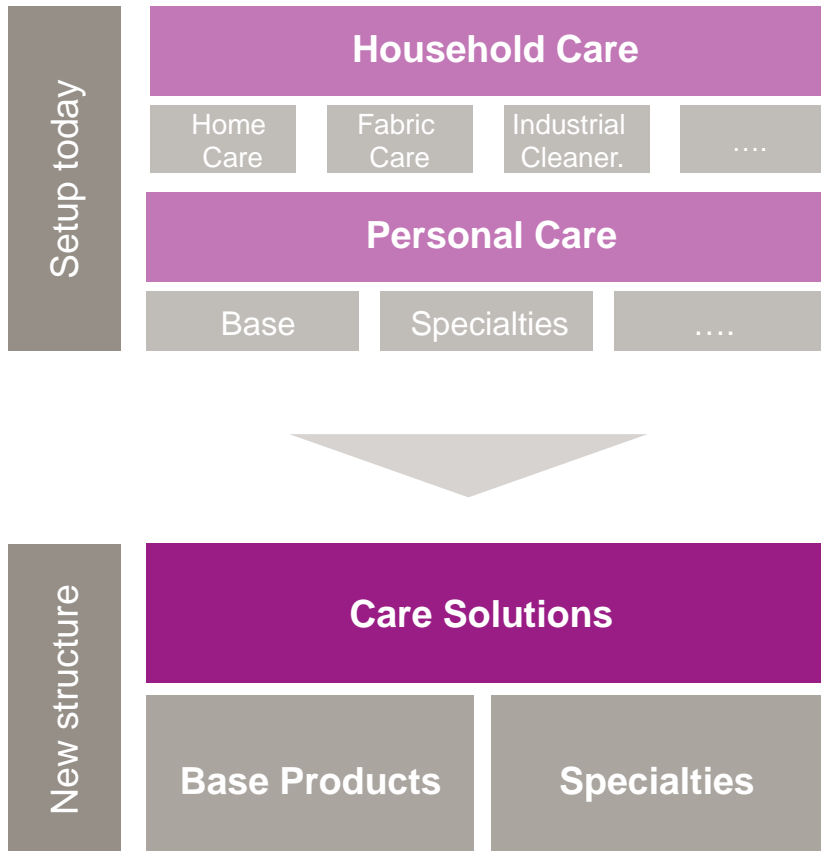
- Acquisition of Huber Silica
- Acquisition of Dr. Straetmans
- Sale of non-core Jayhawk agrochemicals site in Galena, Kansas (Performance Materials)

- Optimized strategic positioning for Animal Nutrition (adjust 2020)
- Dissolution of acrylic acid joint venture (StoHaas) in Baby Care

**Portfolio management on all levels to support financial targets**

# Complexity reduction on business level (1/2)

## “Oleo 2020”- Business model renewal for Household & Personal Care

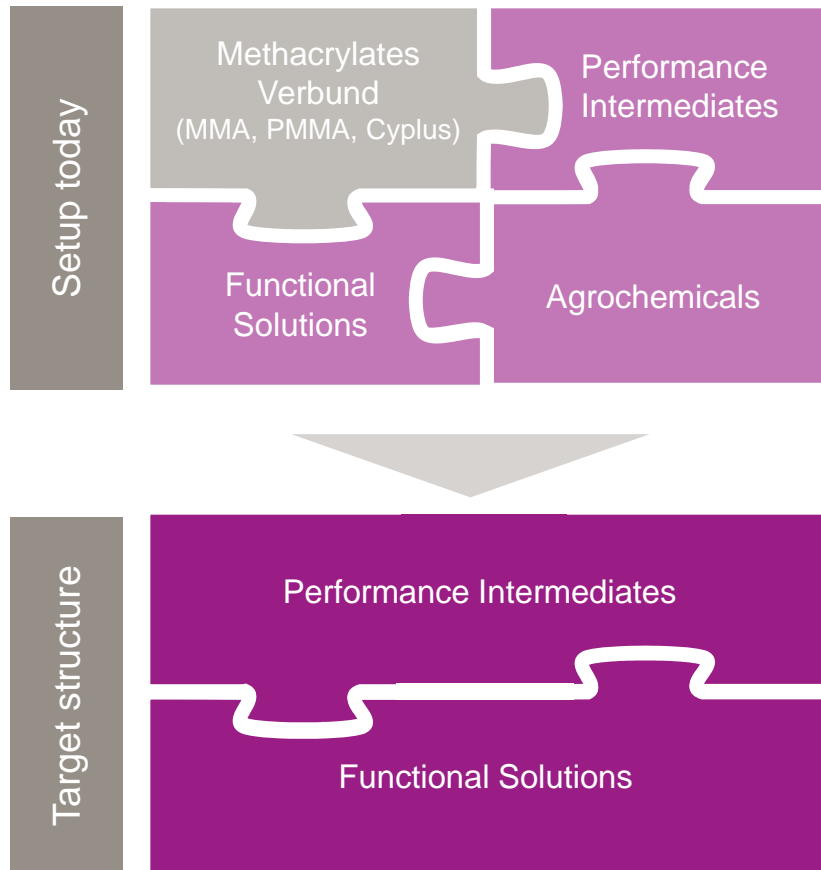


### New Business Line “Care Solutions”

- **Complexity reduction:**
  - Merging business lines Household Care and Personal Care into “Care Solutions”
  - Differentiate product portfolio solely according to standard and specialty products
- **Efficiency improvement:**
  - Asset network adapted to meet the future requirements for a higher specialty share
  - Closure of uneconomic sites
  - Bundling of management positions

# Complexity reduction on business level (2/2)

## Streamlined setup of Performance Materials segment



### Merger Functional Solutions & Agrochemicals: Bundling of competencies

- **Complexity reduction:**
  - On segment level: Going forward, only 2 business lines in Performance Materials
  - On business line level: Reduction of product lines from 5 to 3 (in new Functional Solutions business line)
- **Efficiency improvement:**
  - Further optimization of Chlorine Verbund
  - More efficient supply chain organization
  - Bundling of mgmt. positions and support functions

# Summary

## Strategy execution along our three strategic focus areas

---



### 1 Culture

New **corporate values** as guidelines for cultural change  
On track to realize **ambitious cost savings**

### 2 Innovation

Substantial growth potential in **innovation growth fields**  
Leader in chemicals industry for **digital business models**

### 3 Portfolio

**Portfolio optimization** and **complexity reduction**  
**Healthy balance** between growth & financing



# Agenda

---

1. Open & performance-oriented culture
2. Leading in innovation
3. Portfolio: More balanced & more specialty
- 4. Deep-dive into growth segments**

## Segment strategy

### Growth & efficiency initiatives across both growth segments

	Growth	Efficiency
 <p><b>Nutrition &amp; Care</b></p>	<p><b>Selected growth drivers:</b></p> <ul style="list-style-type: none"><li>▪ Glycolipids (e.g. Rheance One)</li><li>▪ Biopolymers for controlled drug release</li><li>▪ Tissue Engineering for wound healing</li></ul>	<p><b>Efficiency projects:</b></p> <ul style="list-style-type: none"><li>▪ Project “Oleo 2020” in Househ. &amp; Personal Care</li><li>▪ Project “Adjust 2020” in Animal Nutrition</li></ul>
 <p><b>Resource Efficiency</b></p>	<p><b>Selected growth drivers:</b></p> <ul style="list-style-type: none"><li>▪ Silica capacity expansions</li><li>▪ Leverage trend towards low VOC-coatings and new smart surface solution development</li></ul>	<p><b>Efficiency projects:</b></p> <ul style="list-style-type: none"><li>▪ Digital optimization of process technology</li><li>▪ Supply Chain Technology</li></ul>





**EVONIK**

**POWER TO CREATE**

## Nutrition & Care

Science in our minds.  
Humans in our hearts.

**Dr. Reiner Beste**, Head of Segment Nutrition & Care

**Dr. Jean-Luc Herbeaux**, Head of BL Health Care

**Dr. Tammo Boinowitz**, Head of BL Personal Care

**Dr. Matthias Kottenhahn**, Head of Strategy



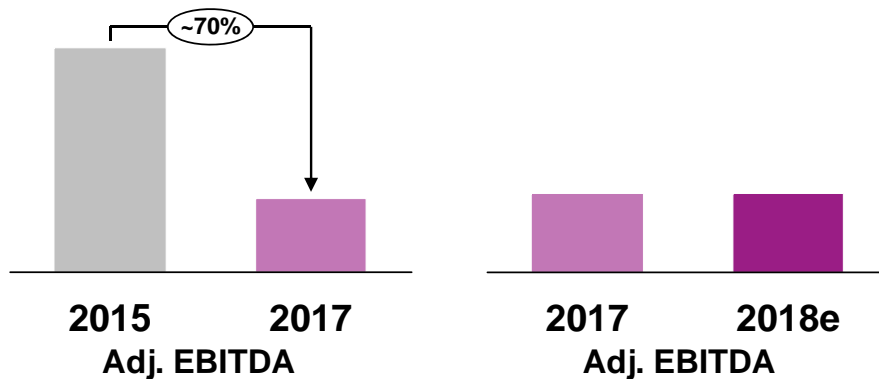
# Agenda

---

- 1. Segment Overview Nutrition & Care**
2. Business Line Health Care
3. Business Line Care Solutions
4. Appendix – Growth & efficiency examples

# Strong growth in all business lines of Nutrition & Care has been overshadowed by declining prices in Animal Nutrition and Baby Care

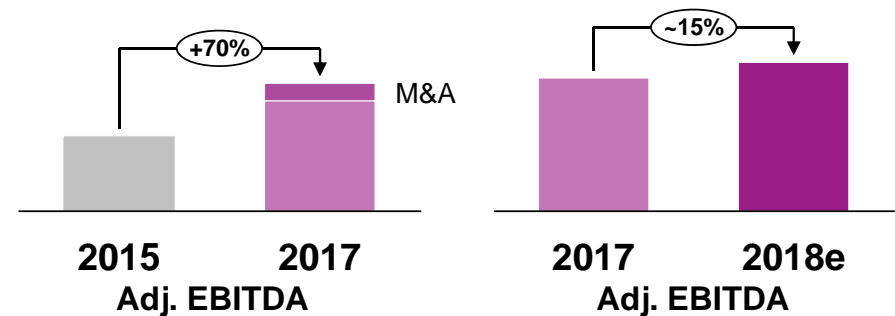
## Animal Nutrition and Baby Care



- Earnings decline since 2015 due to normalization of methionine price and overcapacities in Baby Care (Superabsorbents)
- 2018 showing clear signs of stabilization

## Other Nutrition & Care business lines

(Comfort & Insulation, Health Care, Personal Care, Household Care, Interface & Performance)

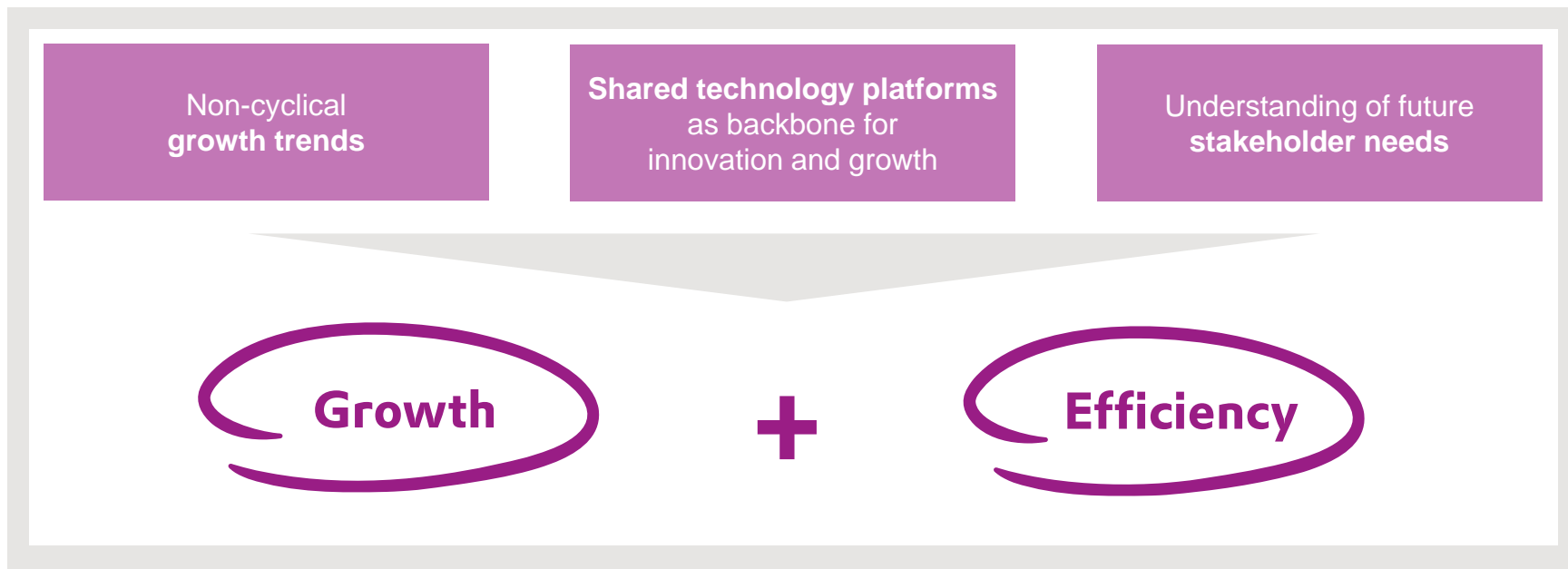


- Strong earnings growth since 2015 – finally becoming visible in 2018
- Besides Comfort & Insulation (organic growth and M&A-driven), Personal Care and Health Care as major drivers

**Based on a strong foundation, renewal process for the segment underway**

---

# “Renewal”



# Our businesses are driven by non-cyclical growth trends

## HEALTHY LIVING

Consumer are increasingly interested in personal health and well-being. Elderly people strive for a healthy and active life.



## GROWING WORLD POPULATION

The world population is expected to reach 9.7 billion by 2050 and with it the demand for food and animal protein in particular will increase.



## EMERGING MIDDLE CLASS

The global middle class will increase from 1.8 billion in 2009 to 4.9 billion by 2030. The bulk of this growth will come from Asia, accounting for 59% of middle-class consumption.



## SUSTAINABILITY

As natural resources become scarcer, we need to decouple economic growth from resource consumption. Additionally, consumers increasingly tend to make choices from an ethical perspective.



## AGEING POPULATION

People become older. The over 60s now make up over 10%, and by 2050 this is likely to rise to over 20%.

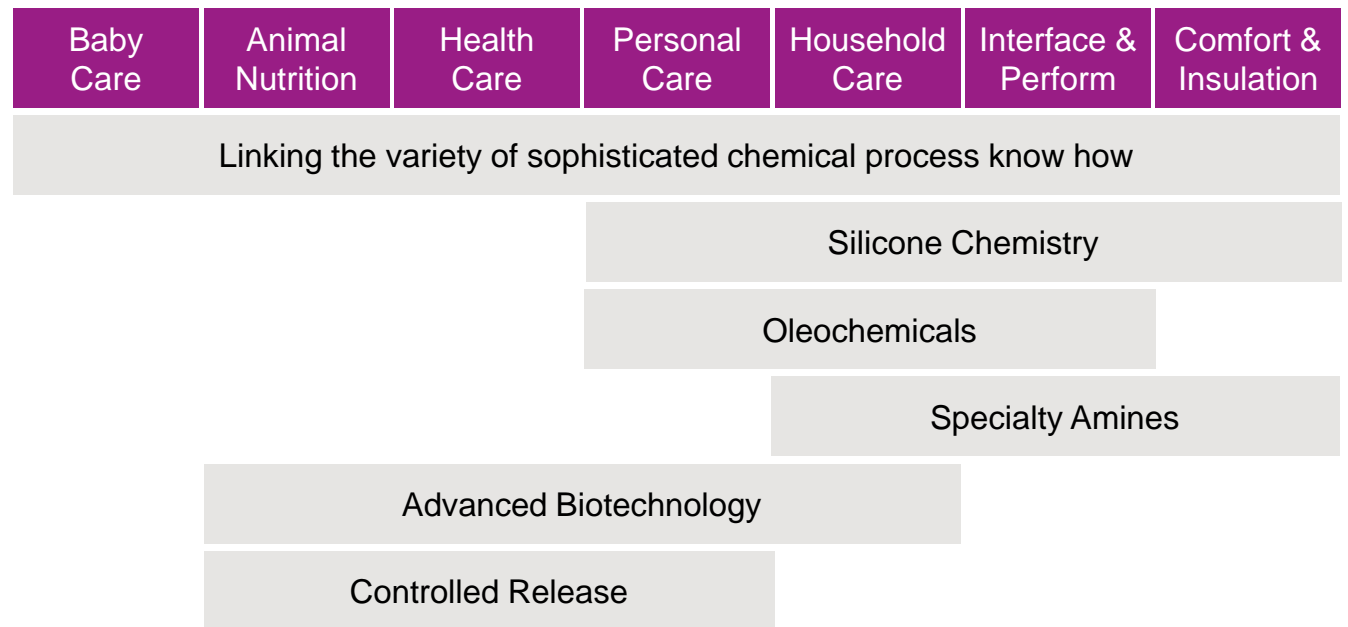
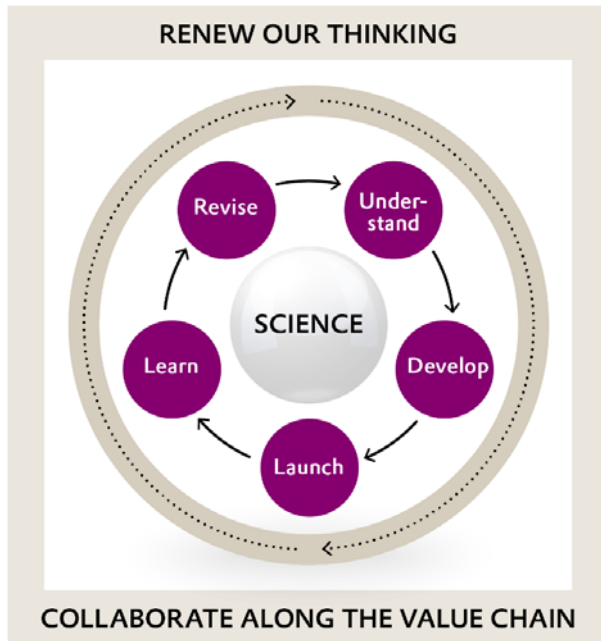


## INDIVIDUALISATION

Lifestyles and life choices are becoming more flexible and differentiated, and so do products and services.



# Our shared technology platforms are the backbone for innovation and growth



Technology platforms enable for > 90% of Nutrition & Care sales

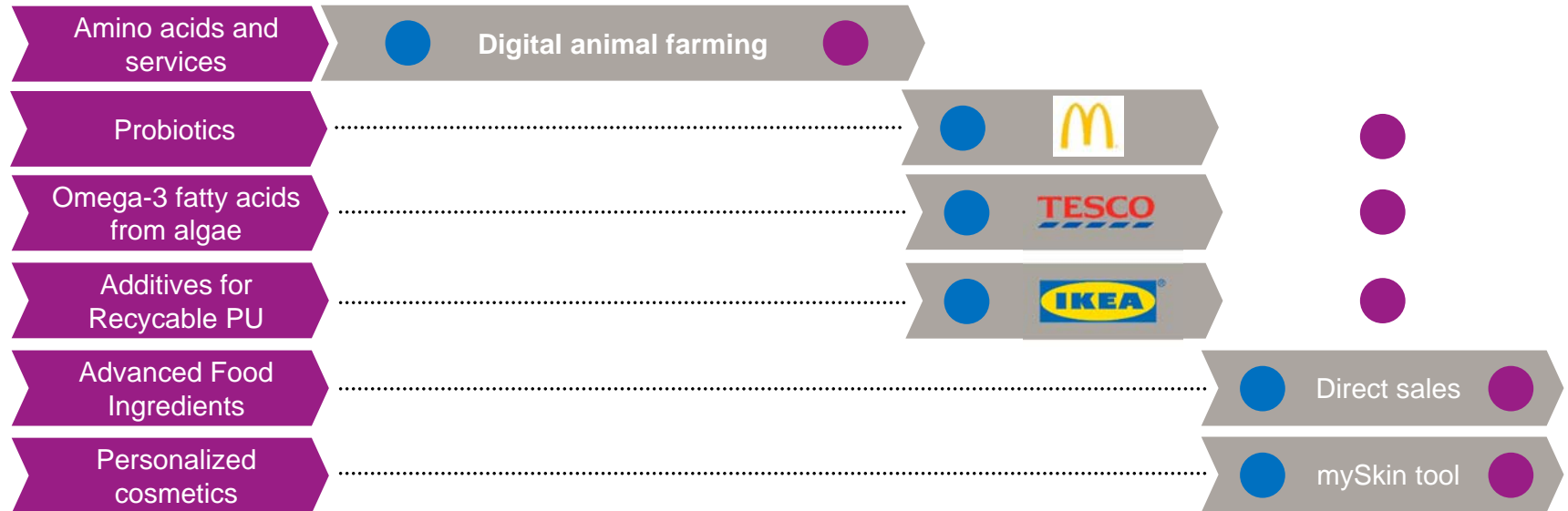
# The success of our strategy depends on our understanding of future stakeholder needs and value chain dynamics

By understanding the individual needs along the value chain we will shape our portfolio

## THE VALUE CHAIN



## EXAMPLES



● DECISION  
● IMPACT



# Recent investments and acquisitions serve as strong foundation for our renewal process



# Four powerful innovation growth fields fuel future growth

## Sustainable Nutrition



## Advanced Food Ingredients



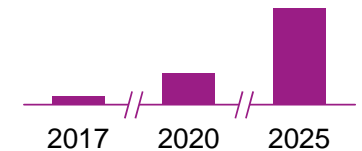
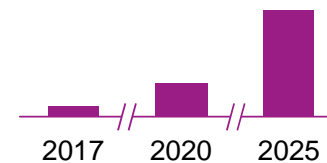
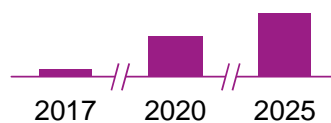
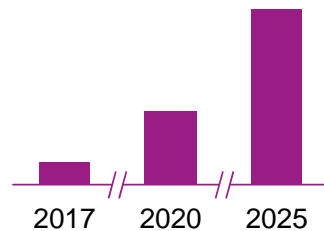
## Healthcare Solutions



## Cosmetic Solutions



### Sales Ambition



### Product examples



- Omega-3 fatty acids
- Probiotics
- Diagnostics & Digital farming

- Anthocyanins
- Omega-3 salts
- Probiotics

- Drug delivery systems
- Medical Devices
- Cell Culture additives

- New Actives
- Glycolipids
- Smart formulations

### Growth Categories



Main growth driver is own innovation supported by targeted technology acquisitions

# Strategic growth focus of Evonik

Addressing three growth engines as drivers for growth & efficiency

Four  
growth  
engines

## NUTRITION & CARE



Health & Care



Animal Nutrition

## RESOURCE EFFICIENCY







Smart Materials



Specialty Additives

## Growth & Efficiency initiatives to drive renewal process

	Growth	+	Efficiency
 <b>Animal Nutrition</b>	<ul style="list-style-type: none"> <li>▪ Sustainable Healthy Nutrition</li> <li>▪ Omega-3 fatty acids (Veramaris)</li> </ul>		<ul style="list-style-type: none"> <li>▪ Project “Adjust 2020” (€50 m savings)</li> </ul>
 <b>Health &amp; Care</b>	<ul style="list-style-type: none"> <li>▪ Glycolipids from 100% renewable sources</li> <li>▪ Biopolymers for controlled drug release</li> <li>▪ Tissue Engineering for wound healing</li> </ul>		<ul style="list-style-type: none"> <li>▪ Project “Oleo 2020”</li> </ul>
 <b>Specialty Additives</b>	<ul style="list-style-type: none"> <li>▪ Comfort &amp; Insulation: Adding the APD business to build PU-Additives power house</li> </ul>		<ul style="list-style-type: none"> <li>▪ Synergy realization from integration</li> </ul>
 <b>Segment level</b>	<ul style="list-style-type: none"> <li>▪ Digitalization initiatives (e.g. mySkin, Digital Farming)</li> </ul>		<ul style="list-style-type: none"> <li>▪ Implementing Group SG&amp;A efficiency program</li> <li>▪ Digital optimization of process technology</li> </ul>

**Science in our minds.  
Humans in our hearts.**

# Agenda

---

1. Segment Overview Nutrition & Care
- 2. Business Line Health Care**
3. Business Line Care Solutions
4. Appendix – Growth & efficiency examples

# Evonik Health Care

An enabling portfolio of products, technologies & services for high-value partnerships

> 1,000 customers served worldwide	90% top 50 global pharma	>60 years of market leadership	10 FDA-registered sites	34 labs and sales offices
> 50 core competencies	38 nationalities in diverse teams	↗ customer project pipeline	2 innovation growth fields	6 acquisitions since 2010

## Pharmaceuticals



API contract manufacturing



Oral and parenteral drug delivery



Cell culture and tissue engineering

## Bioresorbable Implants



Biomaterials



Application technologies

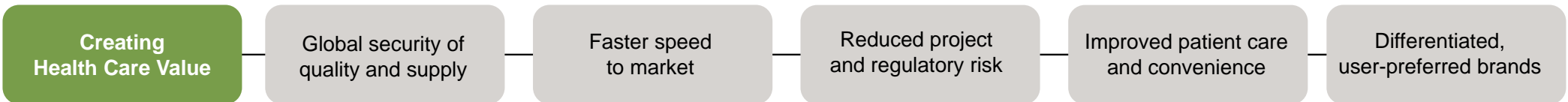
## Nutraceuticals



Advanced food ingredients



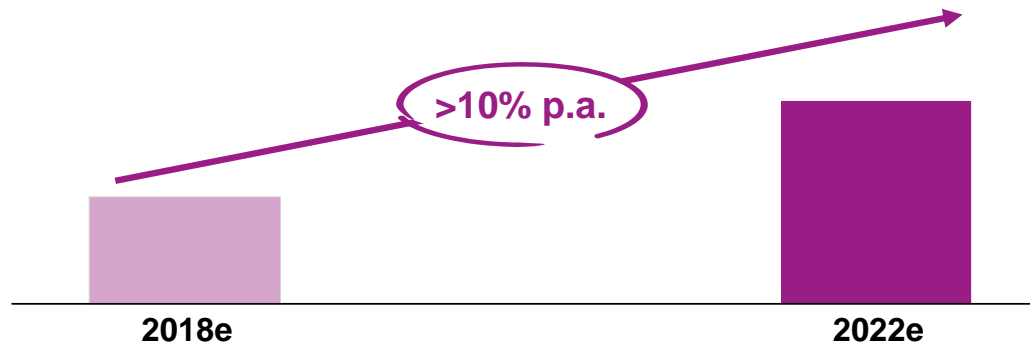
Nutraceutical coatings



# Evonik Health Care

## Strong growth perspectives after broad-based repositioning of business

Absolute EBITDA development



### Historical performance

- Strong organic growth backed by selective technology acquisitions
- Developed leadership position in advanced drug delivery with backward integration for excipients
- Established as a CMO leader for APIs with technology mix to handle complex projects
- Built strong project pipeline via partnering with many of the world's largest, most innovative companies

### Future growth drivers

- Continue to strengthen our innovation portfolio and core competencies
- Strengthen position as a preferred CDMO partner for API and advanced drug delivery
- Leverage competencies to enter attractive new markets including tissue engineering
- Expand beyond pharma into complementary medical device and advanced nutrition segments



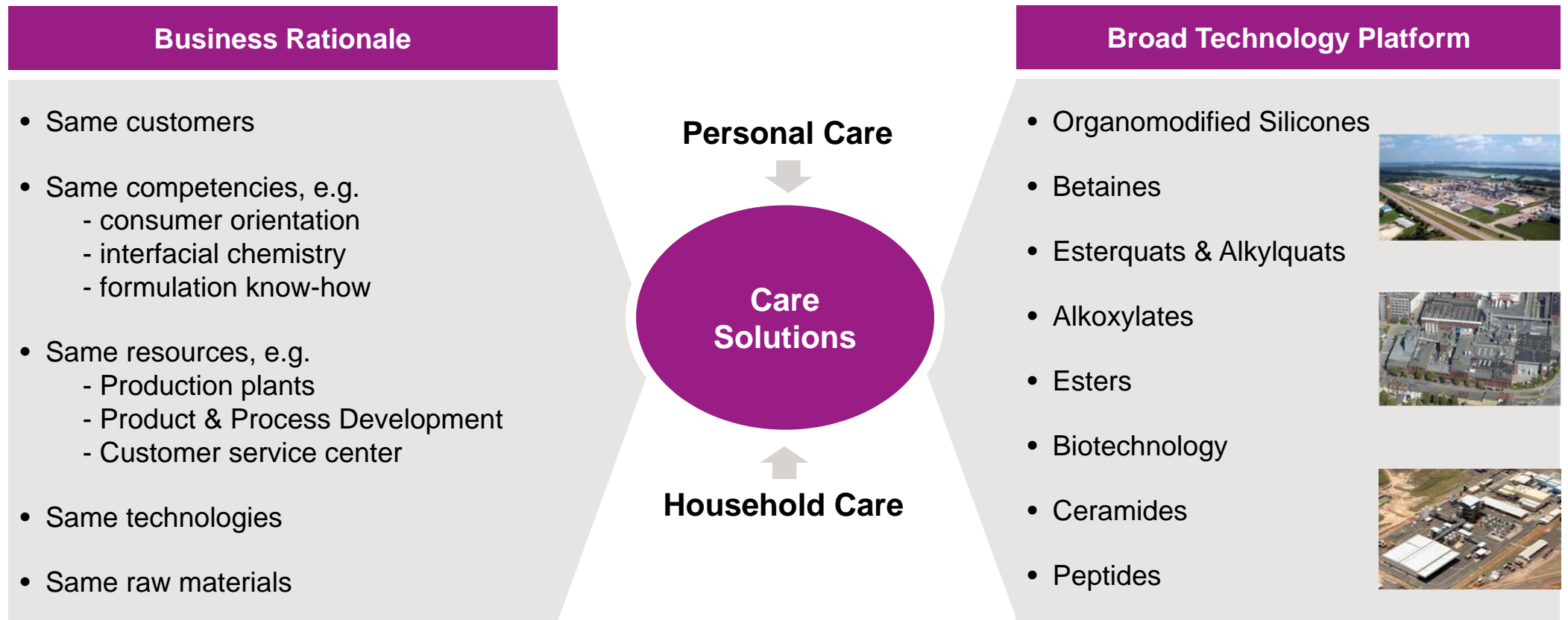
# Agenda

---

1. Segment Overview Nutrition & Care
2. Business Line Health Care
- 3. Business Line Care Solutions**
4. Appendix – Growth & efficiency examples

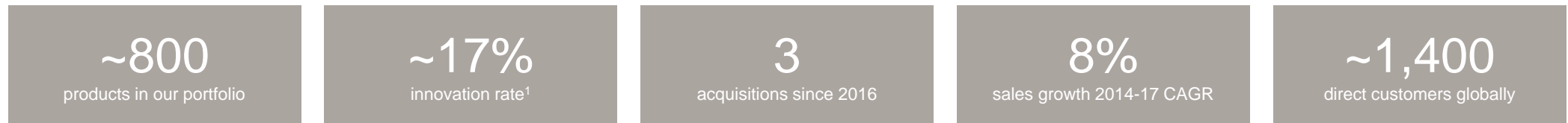
# Building a “Care Solutions” Powerhouse

## Combining Personal Care & Household Care business lines



# Evonik Care Solutions

Leading partner for Care applications: Translating technologies into marketable solutions



Exemplary Applications							
	Bath & Shower		Skin Care		Antiperspirants & Deodorants		Age Defying
	Hair Care		Sun Care		Colour Cosmetics		Industrial Institutional Cleaning
	Fabric Care		Drilling Fluid, Hydraulic Fracturing, Cementing Chemicals		Liquid Laundry Detergent		

# Evonik Care Solutions

## Strong growth perspectives after reorganisation and having done our homework

Absolute EBITDA development



### Historical performance

- Portfolio, organizational and business model adjustments (base & specialties)
- Significant and successful broadening of our Activities by acquisitions (Alkion, Dr. Straetmans, PMD)
- Strategic Partnerships in Household & Personal Care with key global players

### Future growth drivers

- Glycolipids (e.g. Rhamnolipids) following the trend of using biobased materials (e.g. biosurfactants)
- Digitalization (e.g. MySkin, E-Sales & Marketing)
- Scent Management (enabling long-lasting scent on clothes)
- New Active Technologies, e.g. Skin Microbiome

# Nutrition & Care

## Renewal agenda based on a solid foundation

---

### Strategic Goals

- 1 **More balanced portfolio** with higher resilience
- 2 Further **foster growth** and drive competitiveness through differentiation
- 3 **Execute efficiency programs** and harness digitalization chances

### Financial Goals

Clear commitment to **contribute to Group targets**

→ Attractive **growth above GDP**

→ Target **margin of above 20%**

→ Reliable **cash provider** for the Group

→ **Normalized CAPEX** following a phase of high investments



**EVONIK**

**POWER TO CREATE**

# Agenda

---

1. Segment Overview Nutrition & Care
2. Business Line Health Care
3. Business Line Care Solutions
- 4. Appendix – Growth & efficiency examples**

# Business Line Animal Nutrition

## Sustainable Healthy Nutrition – Four powerful programs to fuel future growth

### Precision Livestock Farming

**Gut Health Solutions**  
Solutions to reduce AGP<sup>1</sup>s



**Animal Diagnostics**  
Performance monitoring



**Digital Animal Farming**  
The holistic control center



### Performance Enhancement

**GAA<sup>2</sup> (CreAMINO<sup>®</sup>)**  
The best creatine source



### Aquaculture

**AQUAVI<sup>®</sup> Met-Met**  
Dipeptide of DL-Met for shrimp



**Veramaris**  
Algal omega-3 for aquaculture



### Ruminants

**Mepron<sup>®</sup>**  
Protected DL-Met for dairy



**N4C4**  
Protected urea for beef cattle

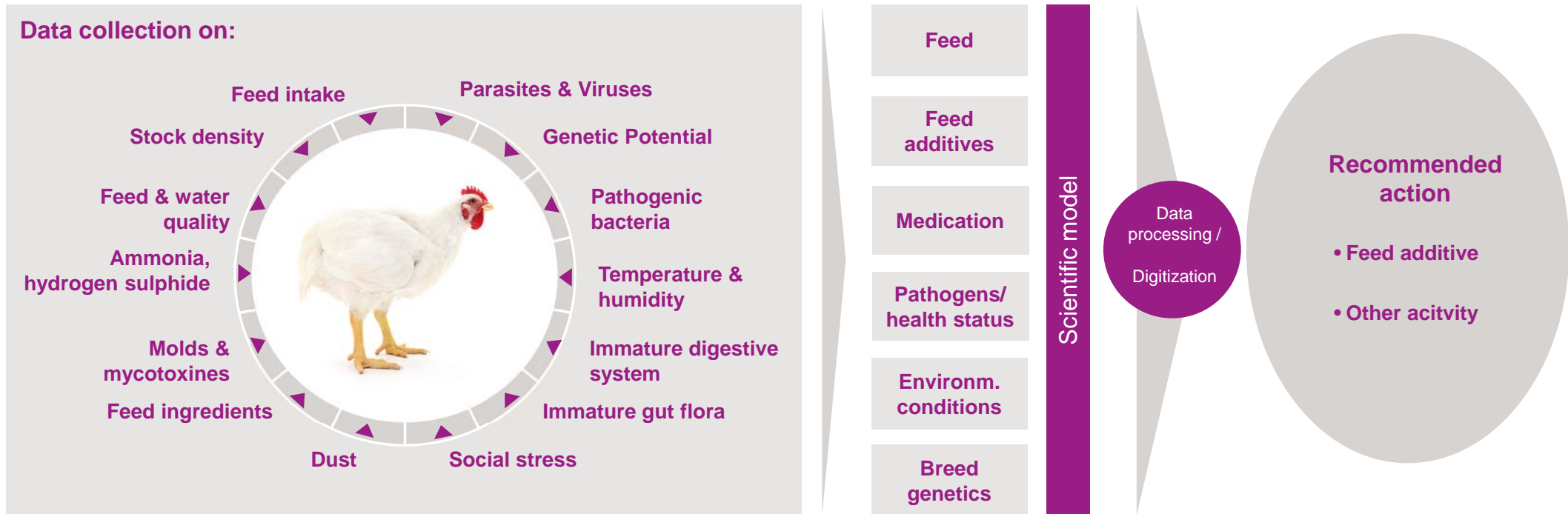




# Business Line Animal Nutrition: Digital Farming

We support the chicken farm of the future with tailored recommendations

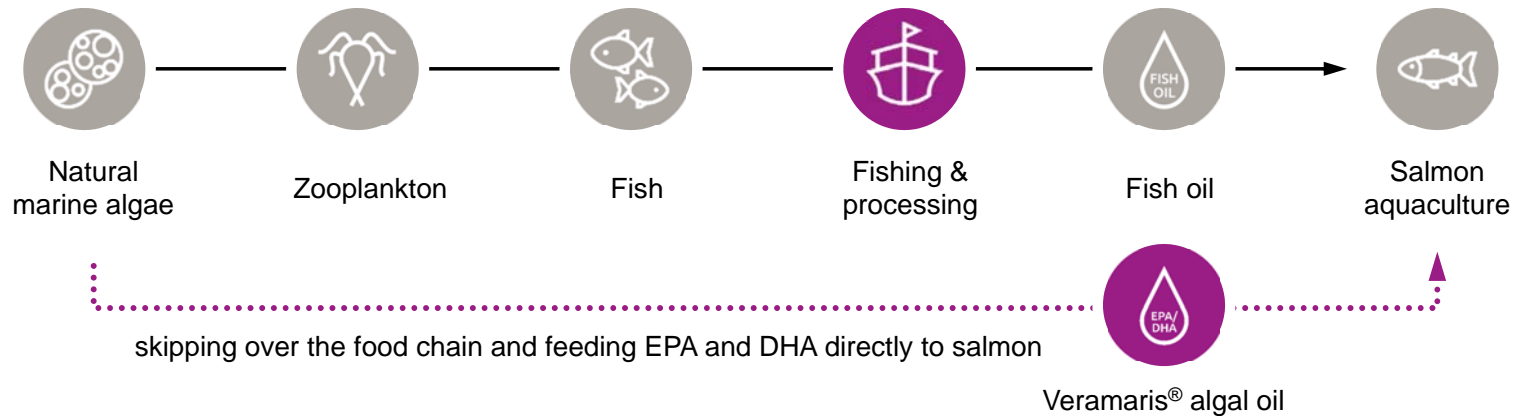
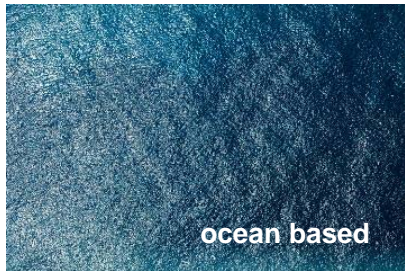
## Precision Livestock Farming



© shutterstock / Tsekhmister

## Business Line Animal Nutrition: Omega-3 fatty acids (Veramaris) (1/2)

Natural marine algae to produce the omega-3 fatty acids, skipping over the food chain in the ocean



Veramaris® plant

Evonik Blair site leveraging existing fermentation infrastructure

Natural marine algae are fed sugar from corn in a biotechnology process to produce the high-purity algal oil containing more than 50% omega-3 EPA and DHA

Veramaris® algal oil

# Business Line Animal Nutrition: Omega-3 fatty acids (Veramaris) (2/2)

The trustful alliance with DSM and partnerships with stakeholders along the value chain are key to success

## Partnering for a purpose



**200**

US\$ 200 million investment in algal oil facility in Blair, Nebraska, USA

**15%**

Initial production capacity will meet 15% of the global demand for omega-3 EPA and DHA in the salmon industry

**+**

Veramaris® algal oil is the only product on the market containing EPA + DHA

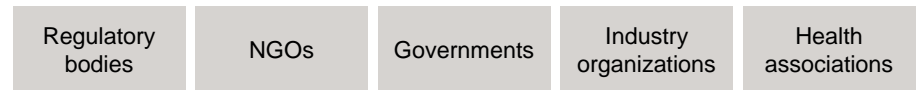
**x 2**

Evonik and DSM are experts in this industry

## Engaging along the value chain

By talking to all stakeholders along the value chain and facilitating round tables we help to create market pull.

### Influencers



### Value Chain



## Business Line Animal Nutrition: “adjust2020”

Significantly adapt the go-to-market model and adjust the cost basis

### Strategic review process conducted in Animal Nutrition

#### Manage production setup

- Contract manufacturing for bio-amino acids
- Closure of uneconomic sites (e.g. Threonine in Hungary)
- Synergy realization for lysine and omega-3 production in Blair, NE

#### Optimize cost base

- Process innovations to improve Methionine production cost base
- Streamlining supply chain
- Evolution of sales & marketing: strict cost-to-serve approach

### €50 m p.a. efficiency improvements

- First savings already in 2018; full savings by 2020
- Reduction of ~270 FTE across all functions

# Business Line Care Solutions

A reliable partner in the Home & Personal Care market

## Customer Intimacy



- Multi-level touch points (R&D, Formulation, Marketing, Management)
- Joint development projects
- Global supply network

## Application Technology



- Formulation support
- Application Testing
- Regulatory Support

## Production



- State-of-the-art facilities
- Global production network
- High quality products

## Sustainability



- RSPO member since 2010
- 15 production sites RSPO certified
- CareTain® - a comprehensive data tool on sustainability criteria for Evonik cosmetic ingredients

## Business Line Care Solutions

Excellent solutions for latest trends in the global personal care market

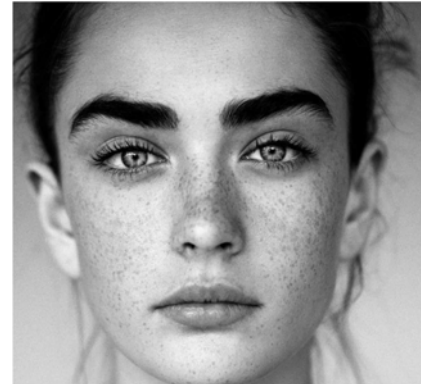
### TEGO® Pep UP

- Prevention and youthful appearance
- Fast growing market
- Bio-inspired solution



### Skinolance®

- Re-balances the skin microbiota, the natural microbial shield
- Inspired by probiotic science



### Hairflux®

- Repair and protection
- Mild and pure
- For hair and scalp



### TEGO® enlight

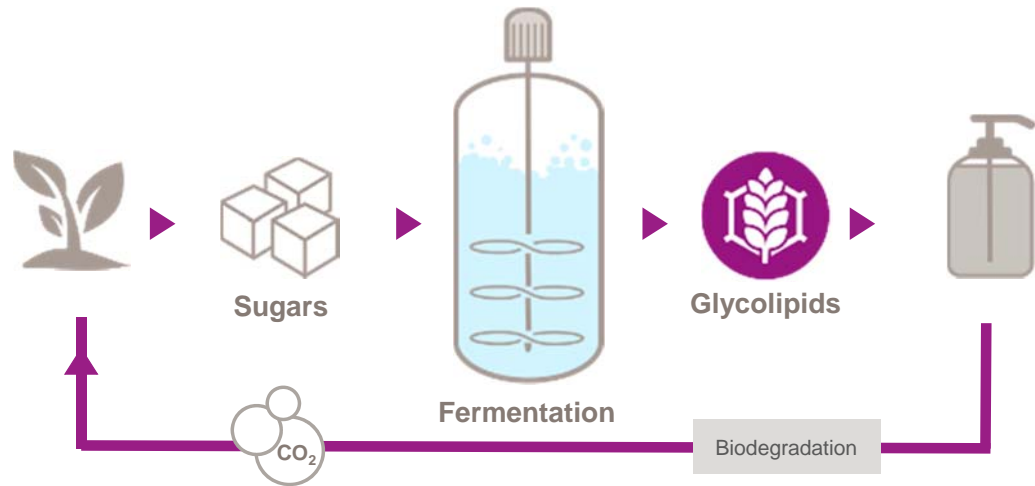
- Make your skin radiate evenly
- Natural brightening ingredients



# Business Line Care Solutions: RHEANCE® Glycolipids / Biosurfactants

## Biotechnology for a sustainable step change in cosmetic ingredients

**Consumer demand:**  
Products from 100% renewable natural resource (Traceable to plantation level)



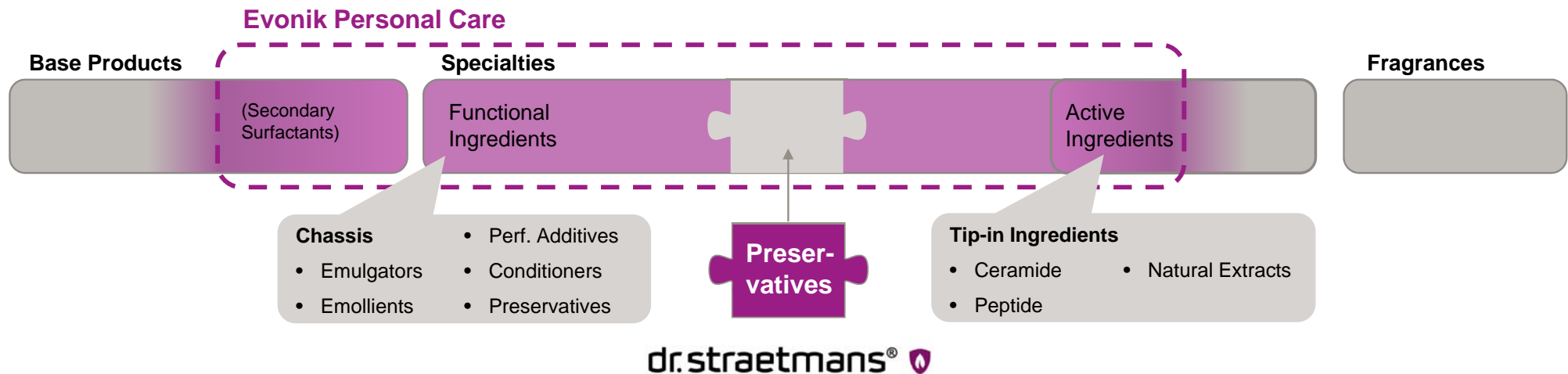
**Consumer products:**  
Multifunctional solution for gentle cleansing enabling 100% biodegradable skin and hair care products with a strong performance and eco-profile

### Unique process – Unique products

- Nature-identical biomolecules
- By fermentation of sugars only
- No tropical oils needed
- Based on strong Evonik biotech platform

# Business Line Care Solutions

## Dr. Straetmans – An important portfolio extension



### A perfect fit for the existing Evonik setup

- Significant competitive advantage by combining preservative and emulsifier know how
- Strengthening market position with highly reputed Dr. Straetmans business
- Better customer access and bonding through enhanced formulation expertise
- Increased specialties portfolio



# Business Line Care Solutions

## Digital Skin technology start-up mySkin

### Driving digitalization in the cosmetic industry

- Evonik investment into skin technology start-up mySkin
- mySkin's technology offers the possibility of getting a direct insight into how active ingredients perform in cosmetic products at the consumer level
- Supports Evonik Personal Care strategy of supplying cosmetic industry customers with a wide range of specialty technology solutions



### mySkin's unique handheld device "OKU"

- measures a variety of skin properties and recommends personal care products
  - World's first mobile-connected skin coach with proprietary imaging technology

# Business Line Care Solutions: “Oleo 2020”

## New setup and business model renewal

Merging business lines Household Care and Personal Care into “**Care Solutions**”

Aligning the product portfolio along the chosen business model: **standard products and specialties**

Adapting the asset network to meet the future requirements for a **higher share of specialties**

### Network optimization

- Reduce complexity and improve fixed cost position:
  - site consolidation
  - Dedicated plants for specific product groups
- Improvements of on-site operations and support functions

### Enhanced target costing

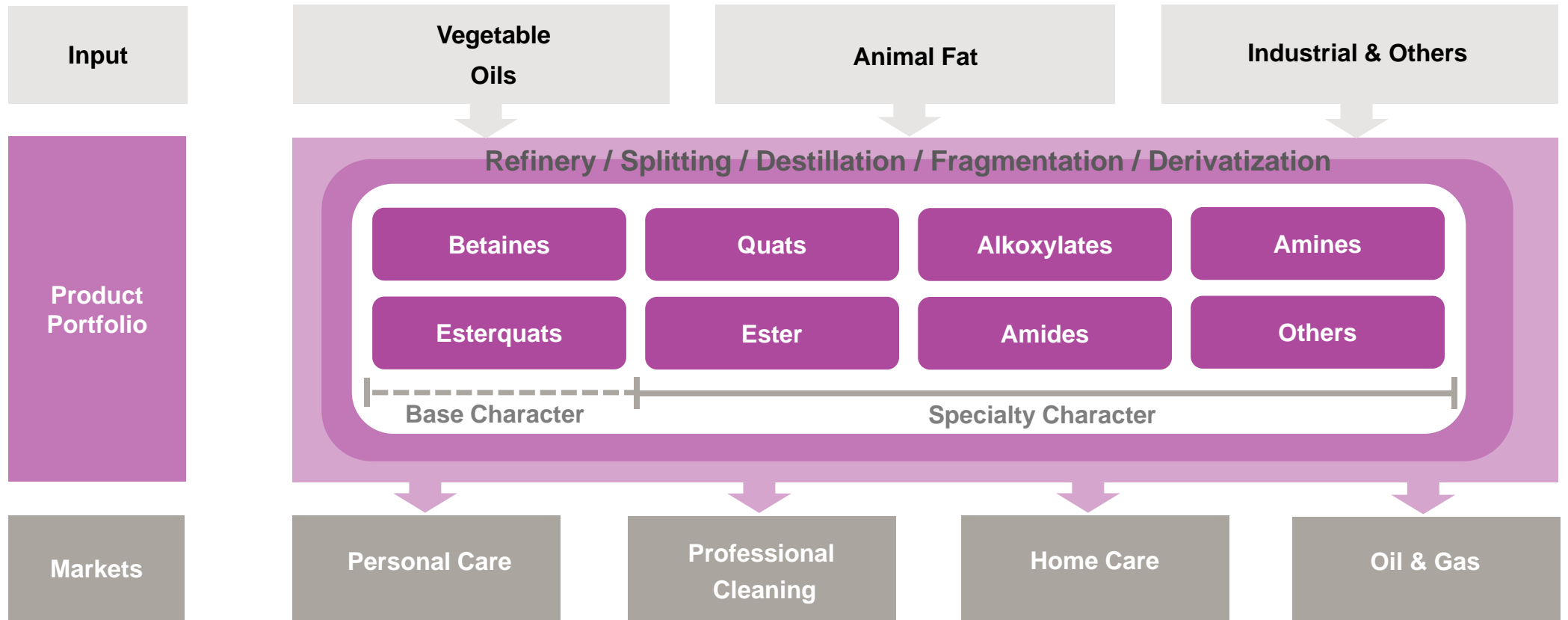
- Improve variable cost position
- Customer segmentation with focus on business potential
- More targeted service offerings

### Strategy & portfolio Management

- Optimize product portfolio
- Leaner organizational set up and processes
- Focused automation efforts

# Business Line Care Solutions

The Oleo Platform produces a broad product base for various markets



# Business Line Health Care

Today's portfolio of products & services enables higher participation in the value chain

A vertically integrated portfolio of products and services for advanced drug delivery and medical device markets

	Advanced Oral Drug Delivery	Advanced Parenteral Drug Delivery	Medical Devices
<b>Value adding Services</b>	Advanced Oral Formulations	Polymer Microparticles <span style="float: right;">2011</span> Liposomal Nanoparticles <span style="float: right;">2016</span>	Medical Device Competence Center <span style="float: right;">2018</span>
<b>Product examples</b>	EUDRAGIT® AEROSIL®	RESOMER® mPEGs <span style="float: right;">2011</span>	RESOMER® VESTAKEEP® <span style="float: right;">2011</span>
<b>2016 Addressable End Market Size</b>	~USD 70 bn <sup>1</sup>	~USD 60 bn <sup>1</sup>	~USD 65 bn <sup>3</sup>
<b>CAGR</b>	~4.0% <sup>2</sup>	~5.0% <sup>2</sup>	~15% <sup>3</sup>

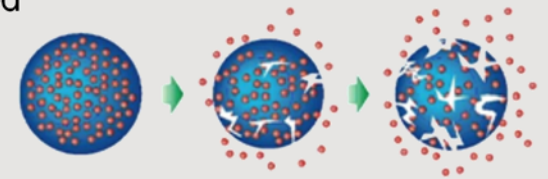
1. BCC report March 2016: Adv. DD Market 2015; 2. CAGR - IMS data 2012 to 2016; 3. MarketsandMarkets Report March 2015 Biomaterials market. CAGR. 2015 - 2020

## Business Line Health Care: RESOMER® Platform

### A Broad, Differentiated and Highly Versatile Portfolio of Bioresorbable Polymers



- 100% biodegradable and completely metabolized
- Used in a multitude of commercial products
- A broad, highly versatile portfolio
- Delivering safety and quality for more than 30 years
- Two production sites in the U.S. and EU for global supply security
- Global network of formulation and application labs

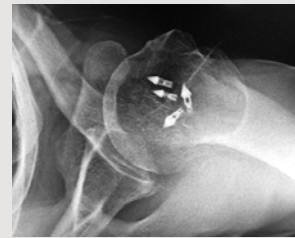


#### Parenteral Controlled Release



- API released as polymer resorbed by body
- Degradation from a few weeks to 1.5 years





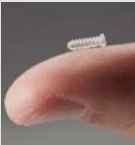




#### Bioresorbable Medical Devices



- Device resorbed by body to match target healing time
- Degradation from six months to four years

# Business Line Health Care: RESOMER® Platform

A strong platform for growth within existing and emerging market segments

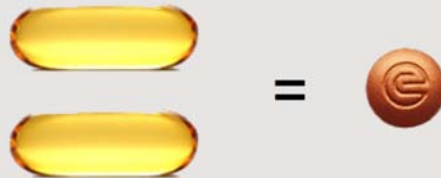
	Parenteral Controlled Release	Bioresorbable Implant Devices	Tissue Engineering
<b>Target application areas</b>	<p>Large, growing areas for advanced drug delivery</p>  <ul style="list-style-type: none"> <li>▪ Oncology</li> <li>▪ Chronic diseases</li> <li>▪ Genetic and rare diseases</li> </ul>	<p>Market conversion to bioresorbable implants</p>  <ul style="list-style-type: none"> <li>▪ Orthopedic devices</li> <li>▪ Cardiovascular devices</li> <li>▪ Wound healing devices</li> </ul>	<p>A new, fast-growing market segment</p>  <ul style="list-style-type: none"> <li>▪ Repair damaged tissue</li> <li>▪ Skin model</li> <li>▪ Repair / replace organs etc.</li> </ul>
<b>Current Evonik status</b>	<p>A CDMO leader for advanced drug delivery</p>  <ul style="list-style-type: none"> <li>▪ Back integrated in excipients</li> <li>▪ Polymer microparticles leader</li> <li>▪ Lipid nanoparticles leader</li> </ul>	<p>An enabling partner for biomaterial solutions</p>  <ul style="list-style-type: none"> <li>▪ Leader in PLGA (RESOMER®)</li> <li>▪ Application technology labs</li> <li>▪ Project House Medical Devices</li> </ul>	<p>Leveraging existing core competencies</p>  <ul style="list-style-type: none"> <li>▪ Portfolio of biomaterials</li> <li>▪ Cell nutrition</li> <li>▪ Industrialization</li> </ul>
<b>Key growth projects</b>	<p>€35 million CDMO expansion to mid-2019</p>  <ul style="list-style-type: none"> <li>▪ Birmingham expansion</li> <li>▪ Aseptic commercial filling line</li> <li>▪ Biomaterials innovation</li> </ul>	<p>New biomaterials and process technologies</p>  <ul style="list-style-type: none"> <li>▪ MD Competence Center</li> <li>▪ 3D printing / electrospinning</li> <li>▪ Biomaterials innovation</li> </ul>	<p>Reliable, effective, scalable capabilities</p>  <ul style="list-style-type: none"> <li>▪ Project House Tissue Eng.</li> <li>▪ Cell culture innovation</li> <li>▪ 3D printing scaffolds</li> </ul>

## Business Line Health Care: AvailOm®

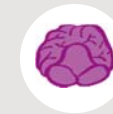
### The highest-load Omega-3 powder for cardiovascular and cognitive health

- High-concentration lysine powder complex
  - Minimum of 45 percent EPA and DHA by weight
  - 3-5 times more bioavailable than standard Omega-3 softgels
- Directly compressible to easily combine with other ingredients
- Unmatched protection against oxidation: stable for at least 3 yrs.
- Clearance for use in the U.S., Europe and other markets
- New formulation opportunities for new consumer products

A small, single tablet has the same uptake of EPA and DHA as two fish oil capsules



**DHA to help maintain normal brain function with EPA + DHA to maintain normal heart function**



Cognitive health



Cardiovascular health

# BL Comfort & Insulation: Integration of Air Products PU foam catalysts

A perfect operational fit forms an innovative platform to better fulfil customer needs



The combination enables Evonik to better fulfill customer needs through enhanced innovation



## Evonik Nutrition & Care is driven by a purpose

---

### WHY ?

**HUMAN WELL-BEING  
IS AT THE HEART OF  
EVERYTHING  
WE DO.**

We want humans to live a healthy and good life with nutritious food, effective medicine and a comfortable place to call home.

We believe we can contribute by finding new ways to enable economic growth while conserving finite natural resources.

### HOW ?

**WE MAKE  
SCIENCE BENEFIT  
OUR PARTNERS.**

Yes we are B2B – yet it is all about the end consumer. We want to understand the field of our customers and what consumers expect.

That's why we talk to stakeholders along the entire value chain to develop premium solutions that rise above the competition.

Only then, we can constantly renew our thinking and expand our competencies to translate customer needs into new technologies.



**EVONIK**

**POWER TO CREATE**

# Resource Efficiency

Ensuring efficiency and sustainability –  
for business as well as everyday life

**Dr. Claus Rettig**, Head of Segment Resource Efficiency

**Andreas Fischer**, Head of BL Silica

**Dr. Gaetano Blanda**, Head of BL Coating Additives

**Dr. Ralph Marquardt**, Head of Strategy



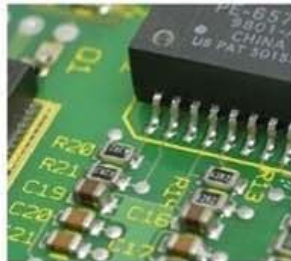
# Agenda

---

- 1. Resource Efficiency – Ensuring efficiency and sustainability**
2. Silica – Not just any white powder
3. Coating Additives – Integrated solutions for the coatings industry
4. Appendix – Growth & efficiency examples



# Resource Efficiency



At Resource Efficiency, we ensure efficiency and sustainability – for business as well as everyday life.



# Strategic growth focus of Evonik

Addressing two growth engines as drivers for profitable & balanced growth

Four  
growth  
engines

## NUTRITION & CARE



Health & Care



Animal Nutrition

## RESOURCE EFFICIENCY



Smart Materials



Specialty Additives

# Resource Efficiency

## True specialty segment as strong value driver for Evonik

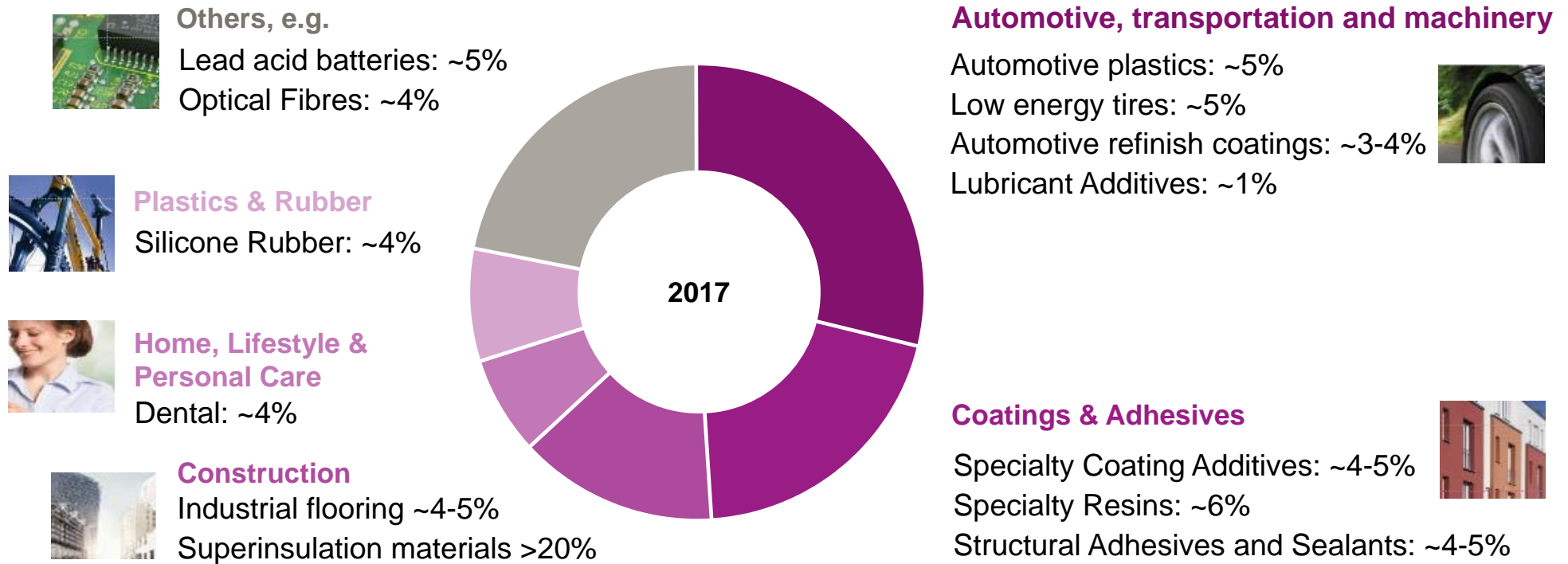
### High profitability and high-value specialty portfolio

- 1 Portfolio** High-value and resilient specialty business with broad application scope
- 2 Financials** Commitment to continue growth track record with resilient EBITDA margins >20%
- 3 Innovation** Strong technology platforms, application know-how and innovation focus
- 4 Efficiency** Continue efficiency improvement with focus on SG&A, digitalization and process efficiency



# Growth engines supported by RE's attractive products and applications

## Achieving consistent GDP+ growth in attractive end markets






End market growth rate, CAGR 2016-2022



## Segment strategy

### RE's growth and efficiency initiatives to support the Group strategic agenda

	Growth	Efficiency
 <p><b>Smart Materials</b></p>	<ul style="list-style-type: none"> <li>Expansion of silica platform through Huber acquisition and new plants in Americas and Asia</li> <li>Polyamide 12: capacity increase by &gt;50%</li> <li>Leverage H<sub>2</sub>O<sub>2</sub> technology platform to its full potential</li> </ul>	<ul style="list-style-type: none"> <li>Synergy realization of Huber acquisition</li> </ul>
 <p><b>Specialty Additives</b></p>	<ul style="list-style-type: none"> <li>Complement Coating Additives portfolio through Air Products acquisition</li> <li>Leverage trend towards low VOC-coatings and new smart surface solution development</li> <li>Maintain innovation leadership in fuel-saving lubricants</li> </ul>	<ul style="list-style-type: none"> <li>Synergy realization of Air Products acquisition</li> <li>Investment into High Throughput Equipment (HTE) for non-stop testing of formulations (shortens time to market)</li> </ul>
 <p><b>Segment level</b></p>	<ul style="list-style-type: none"> <li>Digitalization initiatives (e.g. eCommerce initiatives)</li> <li>New Growth Businesses: Additive Manufacturing, Membranes, Thermal Insulation, Advanced Tire Solutions, Specialty Metal Organics and Oxides</li> </ul>	<ul style="list-style-type: none"> <li>Implementing digitalized world-class supply chain processes</li> <li>Digital optimization of process technology</li> <li>Process efficiency: reduce overall SG&amp;A cost</li> </ul>

**At Resource Efficiency,  
we ensure efficiency and  
sustainability – for business as  
well as everyday life.**

# Agenda

---

1. Resource Efficiency – Ensuring efficiency and sustainability
- 2. Silica – Not just any white powder**
3. Coating Additives – Integrated solutions for the coatings industry
4. Appendix – Growth and efficiency examples

# Evonik Silica

## A leading silica supplier with full coverage

Top #1

supplier for fumed and precipitated silica as well as metal oxides

32

industries served by industry experts

>100

products to solve customer challenges

~260

R&D and Applied Technology experts

26

production sites with global coverage

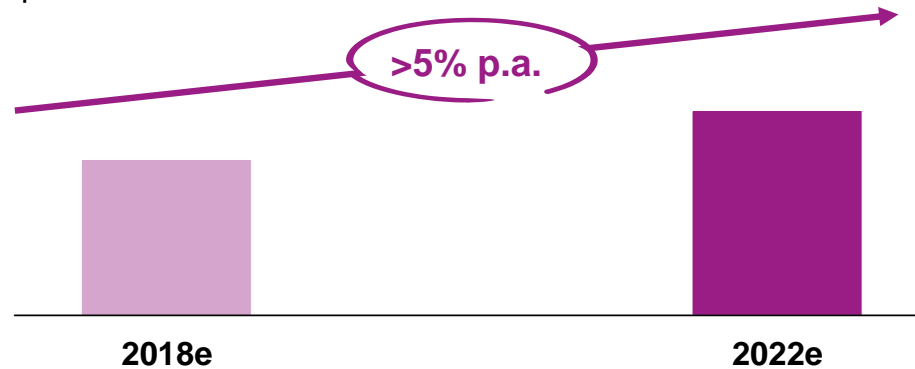
### Featured markets (exemplary)



# Evonik Silica

## Resilient earnings growth of silica business expected to continue

Absolute EBITDA development



### Historical performance

- EBITDA performance driven by organic growth and bolt-on M&A (J.M. Huber Silica)
- Capacity expansions at all precipitated silica sites executed (Silica Masterplan)

### Future growth drivers

- Solid growth expectations matched by investments in precipitated and fumed silica and joint venture with Wynca for Chinese market
- Emerging applications and product innovation pipeline gain commercial relevance (e.g., SPHERILEX®)



# Agenda

---

1. Resource Efficiency – Ensuring efficiency and sustainability
2. Silica – Not just any white powder
- 3. Coating Additives – Integrated solutions for the coatings industry**
4. Appendix – Growth examples

# Evonik Coating Additives

## Integrated solutions for the coatings industry

Top #1

supplier for Coating Additives  
& Specialty Resins

>500

products for broad spectrum of  
applications in various end markets

>4%

R&D ratio

40

innovation  
partnerships

>30

production and laboratory sites

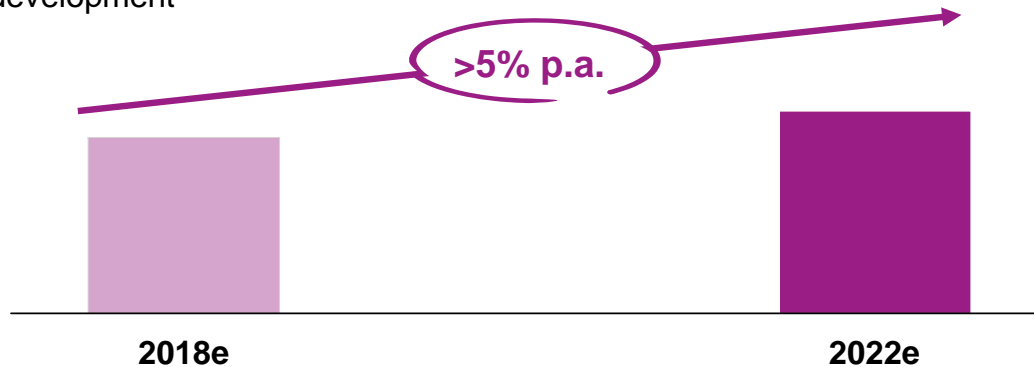
### Featured markets



# Evonik Coating Additives

## Consistent GDP++ growth through portfolio expansion and focus on innovation

Absolute EBITDA development



### Historical performance

- EBITDA performance driven by organic and bolt-on M&A (APD)
- Expansion of Coating Additives capacities in Germany and China
- Leverage trend towards low VOC-coatings

### Future growth drivers

- Continue GDP++ growth with Additives for environmentally-friendly coatings & inks, modular coating manufacturing and coatings with increased durability
- Emphasis on innovation and tailor-made solutions for coatings & inks





# Resource Efficiency

Commitment to continue delivering strong strategic and financial performance

## Strategic Goals

1

Develop business portfolio through **targeted investments into growth engines** “Smart Materials” and “Specialty Additives”

2

Stimulate additional growth through **Innovation** and **Digitalization**

3

Operational **focus on productivity and efficiency** by implementation of digitalized end-to-end processes

## Financial Goals

Clear commitment to delivering **strong financial performance in 2018 and beyond**

→ **EBITDA margin > 20%** with limited cyclicality

→ **GDP+ growth** rate

→ Strong **free cash flow generation**



**EVONIK**

**POWER TO CREATE**

# Agenda

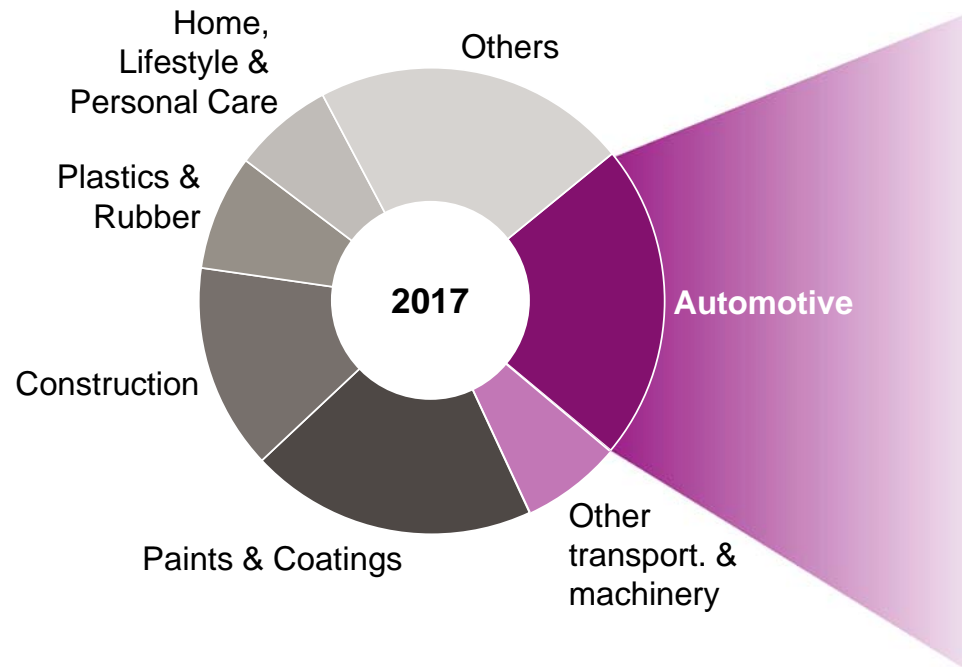
---

1. Resource Efficiency – Ensuring efficiency and sustainability
2. Silica – Not just any white powder
3. Coating Additives – Integrated solutions for the coatings industry
- 4. Appendix – Growth examples**

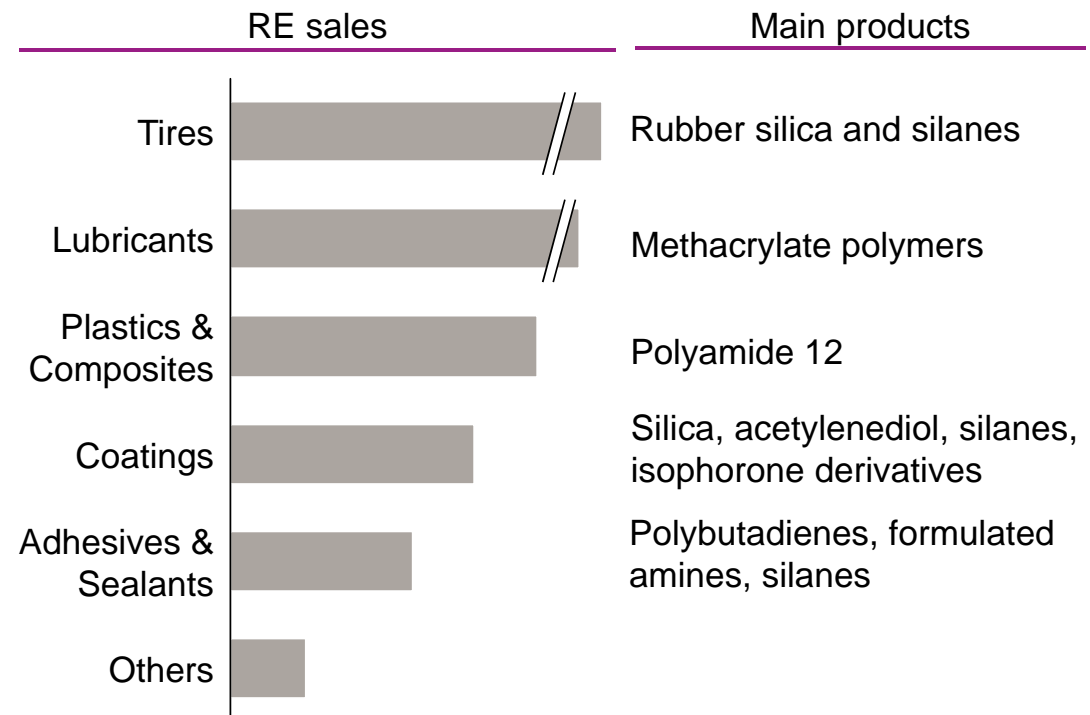
# Resource Efficiency

Diversified auto product portfolio with broad OEM and replacement exposure

## RE sales by Evonik end markets



## Automotive end market by direct customer industries



RE sales split 2017

# Synergistic portfolio expansions of two growth engines

## Acquisition of Air Products Performance Materials and Huber Silica

Seamless integration of recent acquisitions into existing businesses

Add. sales & exp. synergies



**Air Products**  
Performance Materials

Air Products  
Coating  
Additives

Silica for  
Coatings

Coating  
Additives

Air Products  
Epoxy Curing  
Agents

Crosslinkers

EBITDA margin: >20%  
Market growth: ~4-5%

+

~ \$500 m

With up to \$40 m expected synergies on RE level



**Huber Silica**

Huber Silica

Silica

EBITDA margin: >20%  
Market growth: ~4-6%

+

close to \$300 m

With ~ \$20 m expected synergies

# Business Line Silica

## Investment highlights

Start-up	Investment	Rationale	Precipitated Silica	Fumed Silica
2017	Acquisition of Huber Silica Business	Excellent complementary fit for high-growth and resilient Silica business	X	
2018	New precipitated silica plant in South Carolina, USA	World-scale facility close to production plants of large tire manufacturers	X	
2019	Capacity expansion, Antwerp 2020	Investment in additional fumed silica capacities in Antwerp		X
2020	Capacity expansion in Adapazari, Turkey	Investment into additional precipitated silica capacities mainly for tire applications	X	
2021	Joint Venture with Wynca to produce fumed silica	First fumed silica plant in the attractive Chinese market with strong local partner		X

# Business Line Silica

## Innovation pipeline goes beyond the existing business

### 1 Re-innovate product solutions for existing markets

#### New ULTRASIL® grade for SUV tires

- Growing demand for larger SUVs tires
- Challenge for tire manufacturers: Sufficient stiffness in spite of their size
- **ULTRASIL® 7800 GR** offers the right mix to give SUV tires the needed stiffness, low rolling resistance and improved “grip”
- This reduces **CO2-emissions** and **lowers fuel consumption** by up to **8%**



### 2 Tap into new markets via application development

#### AEROXIDE® as additive in Li-ion batteries

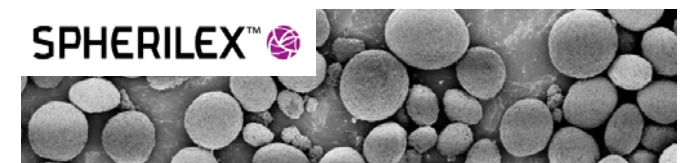
- Li-ion battery market shows a continued high growth rate, ultimately fueled by the **electric vehicle** market
- Key industry challenges are **performance**, **life-time**, and **safety** of the battery
- **AEROXIDE®** fumed metal oxides from Evonik help addressing these challenges as additives in Li-ion battery components



### 3 Create new technology options to enlarge the playing field

#### SPHERILEX® a new silica class

- New product class, unique, **patented manufacturing process** and materials
- Able to produce **novel, precipitated silica morphologies** with traditional raw materials
- Ability to control pore size, pore size distribution and surface area
- Applications examples: oral care, cosmetics and coatings



## Business Line Silica

### Silica as an eco-friendly answer to micro plastics beads

#### Industry needs

- Environmentally-friendly alternative for micro plastics for example in shower-peelings
- Regularly controlled microbiological quality
- Need for regulatory support



#### Evonik offering

- SIPERNAT® 2200 PC & SIPERNAT® 22 PC
- ECOCERT certificate and NATRUE listing for natural cosmetics
- Microbiological specification
- Regulatory documentation
- Economically attractive raw materials



## Business Line High Performance Polymers

### Expansion of Polyamide 12 capacities with new plant complex in Marl (Germany)

- ▶ **Strong strategic fit**  
... expanding growth engine “Smart Materials”
- ▶ **Attractive market**  
... strong growth and demanding applications
- ▶ **Unique market position**  
... leading player with full backward integration
- ▶ **Highly attractive financial profile**  
... high and stable returns

**Capex of ~€400 m over four years as 2018-2021**



# Business Line High Performance Polymers

## Several growth markets benefitting from unique Polyamide 12 properties

### Additive Manufacturing

Mid-term CAGR<sup>1</sup>



**VESTOSINT®** >15% p.a.

- PA12 powders for various powder based 3D technologies

Unique PA12 benefit:  
powder quality (shape & precision)

### Automotive



**VESTAMID®** 5-10% p.a.

- E.g. fuel lines for conventional vehicles & cooling lines for battery packages

Unique PA12 benefit:  
impact & chemical resistance

### Oil and Gas



**VESTAMID® NRG** >10% p.a.

- PA12 for large diameter pipes for offshore Oil and Gas production
- PA12 for onshore gas distribution

Unique PA12 benefit:  
high strength & chemical resistance

### Medical



**VESTAMID® Care** 5-10% p.a.

- Heart catheters and tubes
- Durable medical equipment in imaging devices

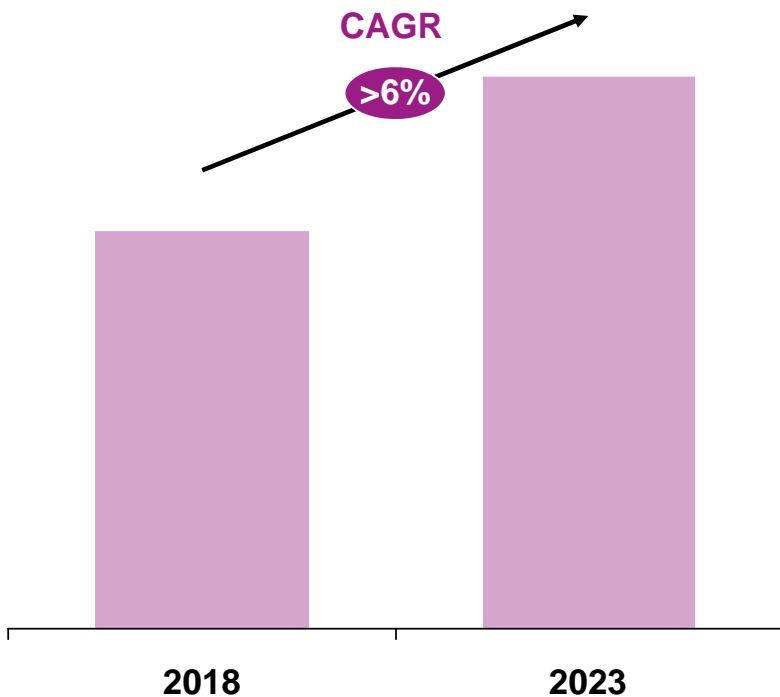
Unique PA12 benefit:  
biocompatibility

1. Evonik estimates

# Business Line Active Oxygens

## H<sub>2</sub>O<sub>2</sub> as efficient technology with resilience and growth from various industries

### Global hydrogen peroxide market



### Overview selected applications



#### Chemical Synthesis

>10%

- Preparation of peracetic acid, persalts, propylene oxide and other chemicals

#### Pharma & Healthcare

>4%

- Medical applications
- Wound treating
- Cleaning of contact lenses



#### Food & Beverages

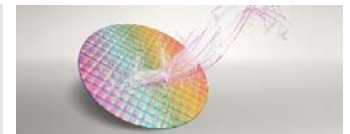
>3%

- Aseptic packaging
- Food processing
- Veterinary applications

#### Electronics

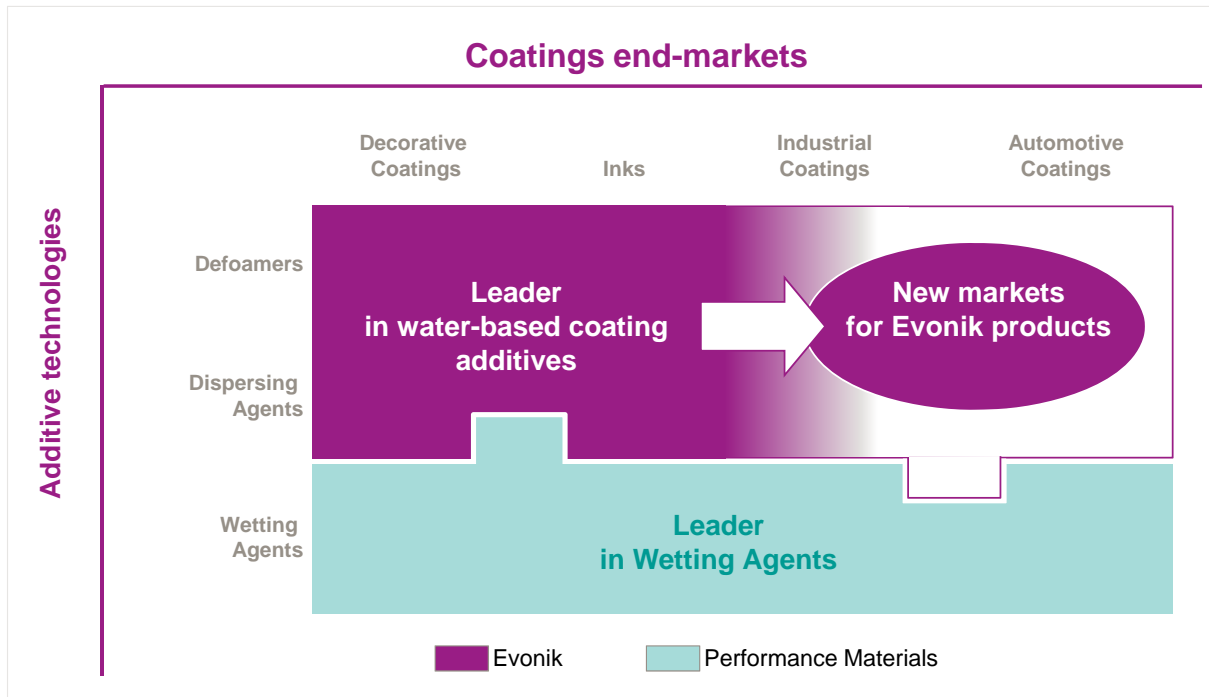
>7%

- Cleaning & etching of semiconductors



# Business Line Coating Additives

APD offers unique products and access to new markets



## Key value drivers

- Global leader for formulations enabling environmentally-friendly / waterborne coatings
- Access to complementary APD Performance Materials' wetting agent technology with
  - Market-leading position
  - New end markets (automotive)
  - Additional customers to create cross-selling opportunities

The unique APD Performance Materials product line complements Evonik's existing coating additives portfolio

# Business Line Coating Additives

Serving the high demand for eco-friendly, water-borne coatings

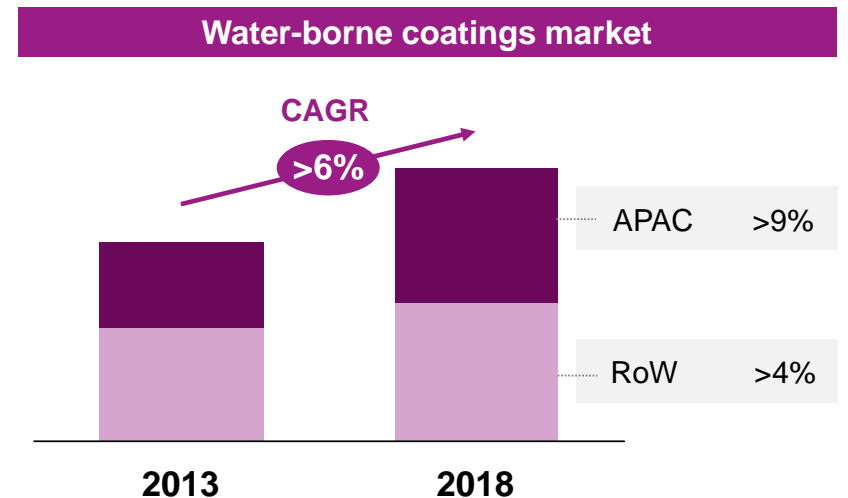
## Challenges & needs:

- Chinese government introduced new coating-regulations to prevent solvent-borne coatings
- First step: only water-borne coatings allowed for container-paintings (China accounts for 90% of worldwide containers-production)
- Increasing use of waterborne coatings also for e.g., wood coatings, protective coatings, industrial coatings

## Approach & Solution:

- Evonik as leading player for water-borne coatings
- Strong and innovative portfolio to serve the growing demand for water-borne coatings and applications from various industries

→ **Additional double digit million € sales in 2018**



# Business Line Coating Additives

## Competence Center in Singapore for Smart Surface Solutions



## Business Line Coating Additives

Investment into HTE for non-stop testing of formulations (shortens time-to-market)

### Technology to accelerate projects

- The high-throughput equipment (HTE) is a fully automated, modular system
- It is ultra flexible to test a wide variety of binders, solvents, additives, pigments, and fillers
- Fast blending and powerful dispersing enable incorporation and fine distribution of fillers and pigments in the liquid medium
- With non-stop testing of formulations, it shortens time to market

**120**  
formulations/day

**24/7**  
testing

**620**  
coated panels  
possible



# Business Line Oil Additives

## Innovation leadership in fuel-economy lubricants ...

... via customer and OEM driven innovation towards future mobility needs

### Benefits of Evonik's lubricant additives

- Reduce fuel consumption and friction and wear
- Disperse oxidation products
- Increase life-time



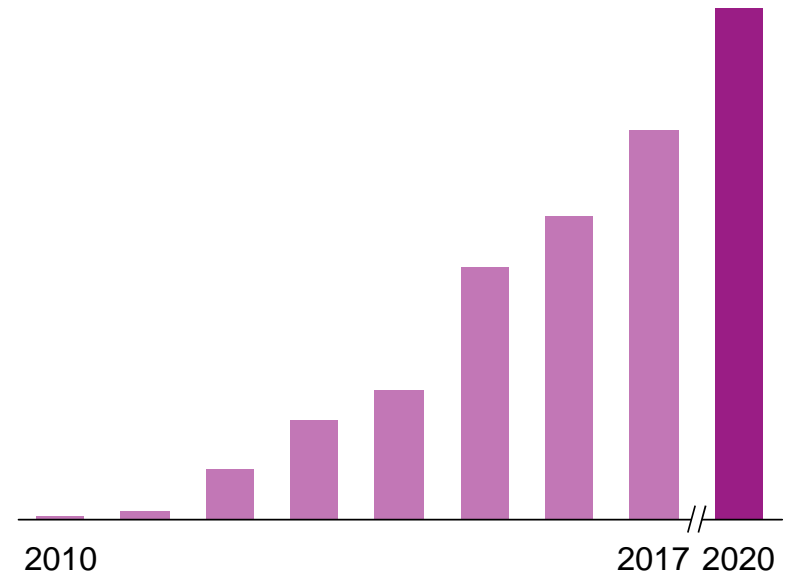
### Flow efficiency solutions for future mobility

- Additives for hybrid and electric vehicle lubricants and coolants
- Increase heat transfer
- Reduced conductivity
- Additives for electric grease



### Successful innovation of VISCOPLEX® comb polymers

Sales development 2010 to 2020





# Digitalization initiatives at Resource Efficiency

„Simplify the way to operate“ and „increase customer intimacy“



## „Machine Learning / AI“

- Next-generation artificial intelligence technology for managing materials data
  - Advanced analytics
  - Constant learning
- Targeted prediction of product composition or preferred product



## „eLab Journal“

- Cross-segment initiative for all R&D and AT labs
- Phase 1: Digitalization of all lab results
- Phase 2: Take advantage of AI/Machine learning to accelerate experiments



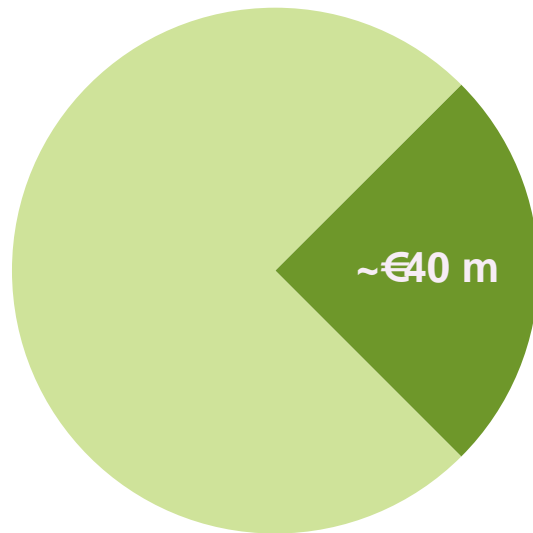
## Alibaba Group eBusiness ALIBABA

- Gain eCommerce experience with selected products
- Collect dynamic market insights (price elasticity, promo feedback)
- Spread market coverage (small / medium customers)



# Innovative products and applications for mid- and long-term growth

## R&D projects are bundled to high value efforts



Significant share of R&D investments dedicated to New Growth Businesses

## RE's New Growth Businesses

- Each New Growth Business with sales potential of > €100 m
- New Growth Businesses selected, which show average CAGR of >20%
- Acceleration of business development through capturing M&A opportunities outside RE's core

### Example of recent successes:

- Investment into capacity expansion at joint venture abcr labs
- Successful market entry with Sepuran Natural Gas prototypes
- CALOSTAT® as finalist for the German Innovation Award (Thermal Insulation)

Specialty Metal Organics & Oxides

Advanced Tire Solutions

Additive Manufacturing

Thermal Insulation

Membranes

## Additive Manufacturing

### Evonik to expand its leading position in powdered PA 12 for Additive Manufacturing

- Evonik VESTOSINT products have clear USP for powder-based 3D printing (e.g. chemicals resistance, melting point etc.)
- Strong growth potential with ongoing transition from prototyping to manufacturing
- Strong relationships with leading printer manufacturers (e.g. EOS, HP)
- New polyamide 12 powder plant in Marl
  - Investment in the mid double-digit million € range
  - New facility primarily produces high-performance powders for the 3D printing market, which is expanding heavily with double-digit growth rates



# The integrated end-to-end digital supply chain generates benefits for our customers and for Evonik

---

## Improved Service to the customer

- Improved reliability and responsiveness (Perfect order fulfillment - product availability)
- Disruption avoidance and fast response to events through end-to-end visibility
- Ease of order entry and order status traceability
- Closer collaboration, communication and interaction

## Financial effects

- Minimized inventories
- Logistics cost reduction
- Increased production output
- Workforce productivity gains
- Turnover growth

## Benefits

- Central governance for processes, KPIs, goal setting, data standards and tools
- Increased speed in standardization and digitalization building upon SCORE project results
- Full control of end-to-end planning process
- Synergies in resources and use of expertise across business lines
- Time savings in change management processes

# Business strategy to digitalize tomorrow's Smart Production

## Future operation of plants (exemplary)

- Higher focus on problem solving competencies rather than routine jobs
- Automation of plants in order to enable autonomous mode (e.g., remote operation)
- Integrated systems to deliver relevant information on demand

## Initiated Evonik projects

- Restricted digital safety procedure for maintenance, plant 3D-models
- Predictive maintenance (PreCARE), online/inline analytics
- Speed-up of working procedures via vertical integration, digital twin
- Use innovative technologies and trends for operation and safety
- Use of digital worker, drone use, remote operations

**Safety increase**

**Variable cost reduction**

**Integration & Supply-Chain**

**Employer attractiveness**

**Fixed cost optimization**



## Disclaimer

---

In so far as forecasts or expectations are expressed in this presentation or where our statements concern the future, these forecasts, expectations or statements may involve known or unknown risks and uncertainties. Actual results or developments may vary, depending on changes in the operating environment. Neither Evonik Industries AG nor its group companies assume an obligation to update the forecasts, expectations or statements contained in this release.



**EVONIK**

**POWER TO CREATE**