



**MERCK KGAA,
DARMSTADT, GERMANY**

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HEALTHCARE CONFERENCE

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Agenda

- 01** Strategic roadmap
- 02** Healthcare – Funding for success
- 03** Life Science – Focusing on profitable growth
- 04** Performance Materials – Strength and innovation
- 05** Conclusion & Outlook



01

STRATEGIC ROADMAP

Group

Portfolio of three high-tech businesses



Leading in specialty pharma markets

- Biologics and small-molecule **prescription medicines** against cancer, multiple sclerosis, infertility
- **Research** focus: Oncology, Immunology & Immuno-Oncology
- **Over-the-counter** products for everyday health protection



Leading life science company

- Innovative **tools, laboratory supplies** and **services** for biotech research & production
- Products that make **biotech production, academic research** and industrial **testing** easier, faster and more successful

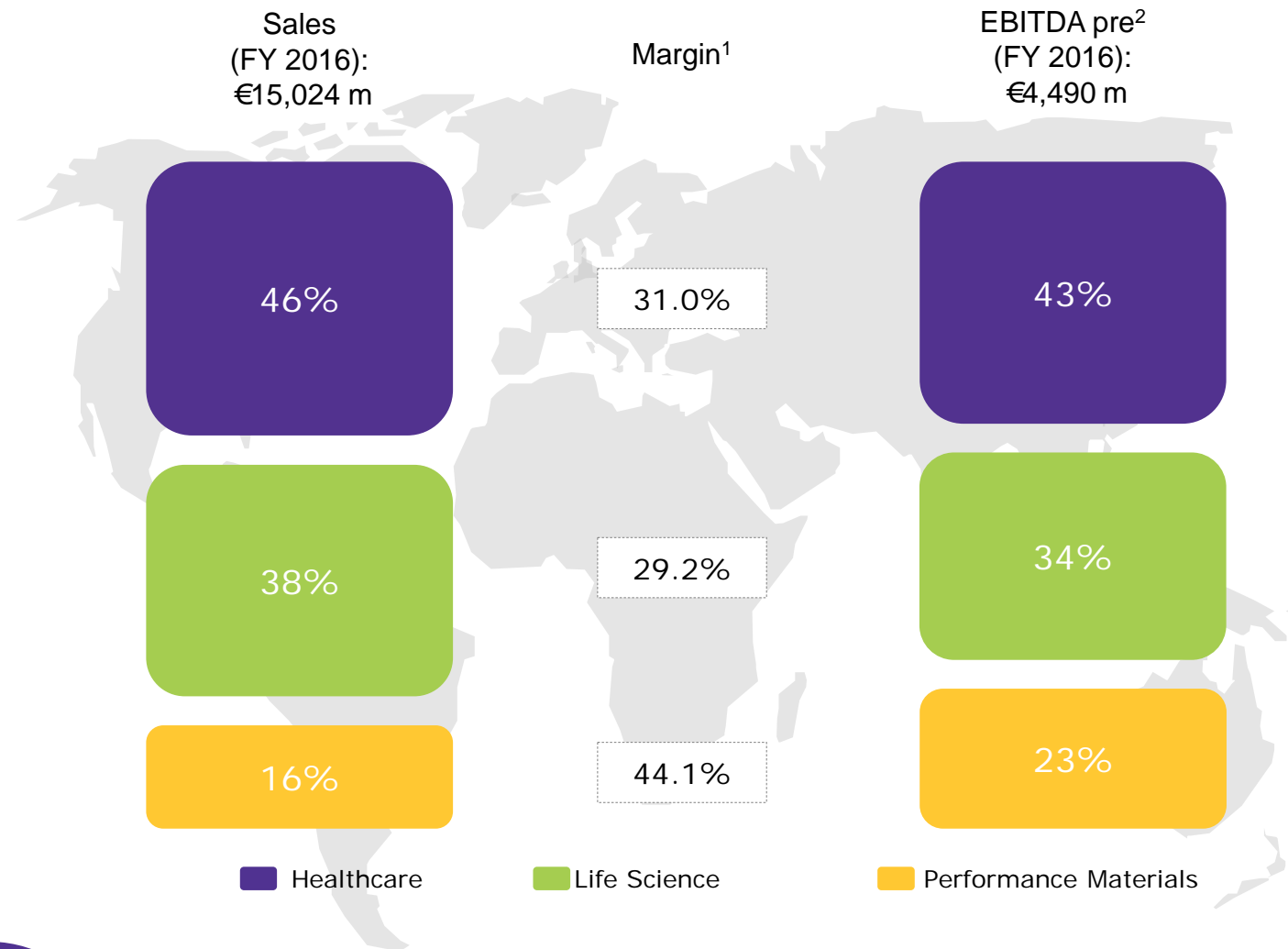


Market leader in specialty materials

- Innovative display materials, like **liquid crystals and OLEDs**
- **Effect pigments** and **functional materials** for coatings and cosmetics
- **High-tech materials** for the electronics industry

Group

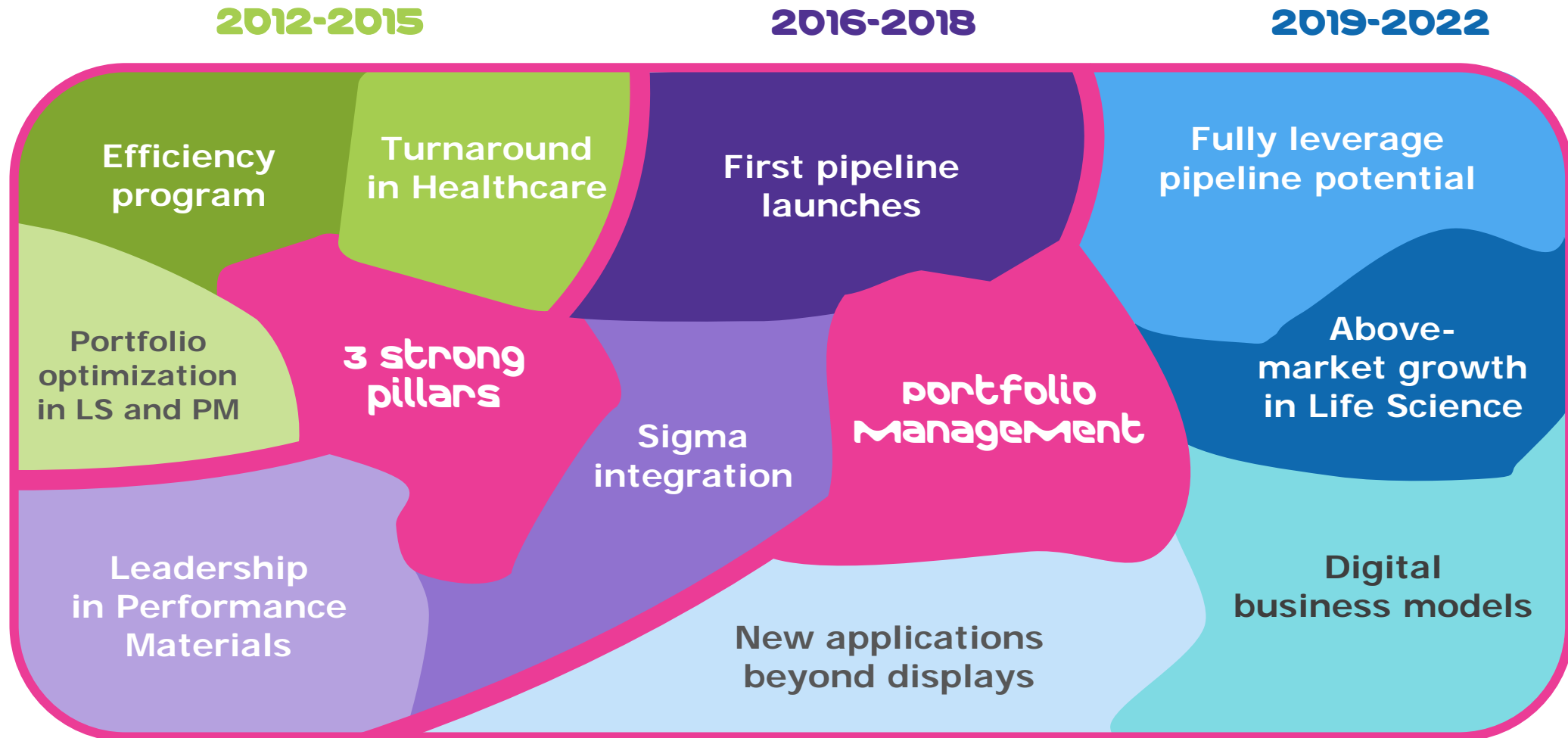
Strong businesses with attractive margins



- Maximize growth of existing franchises
- Deliver pipeline: one product launch or indication p.a. from 2017
- Focus on seamless integration and deliver cost synergies
- Leverage strategic capabilities for value creation
- Drive innovation and technology leadership across all businesses
- Innovate in applications beyond displays

¹EBITDA pre margin in % of net sales; ²Including Corporate/Others (-€396 m)

Group Strategic roadmap 2016-2022



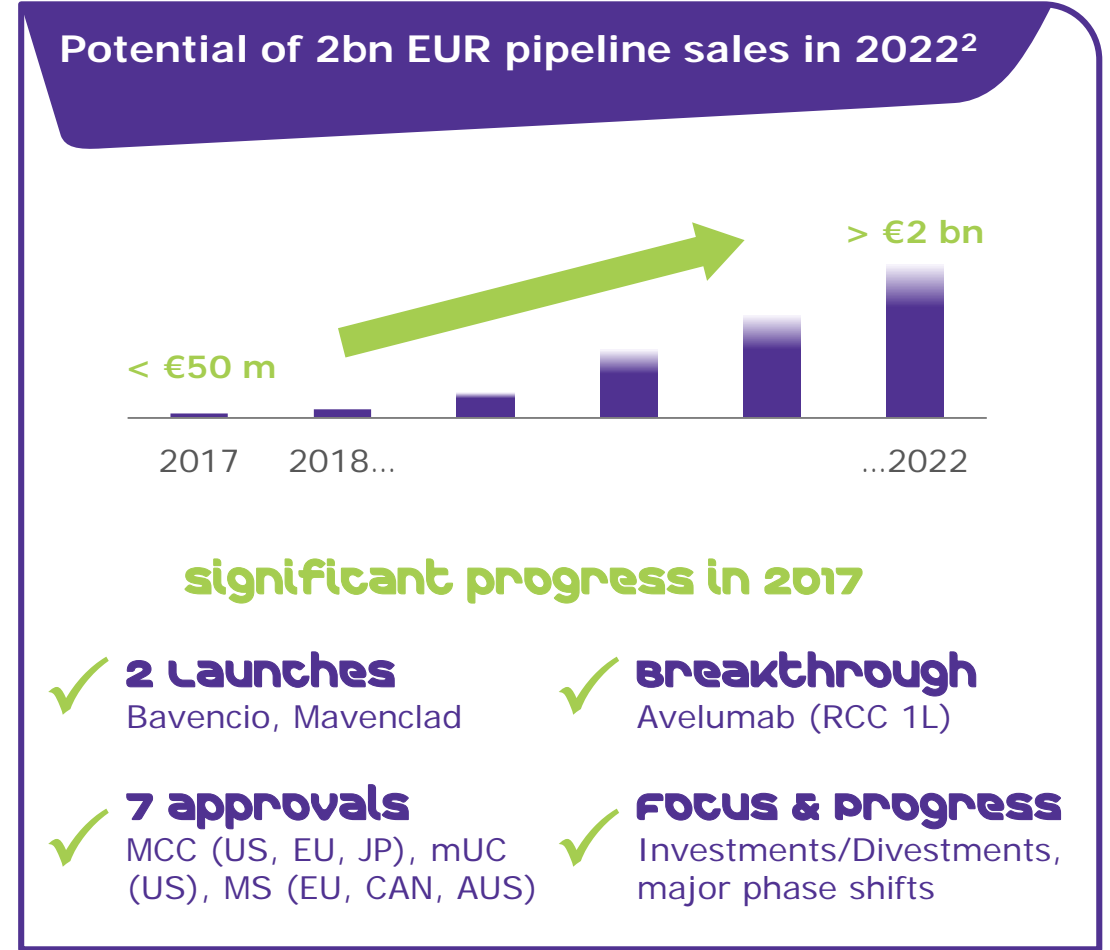
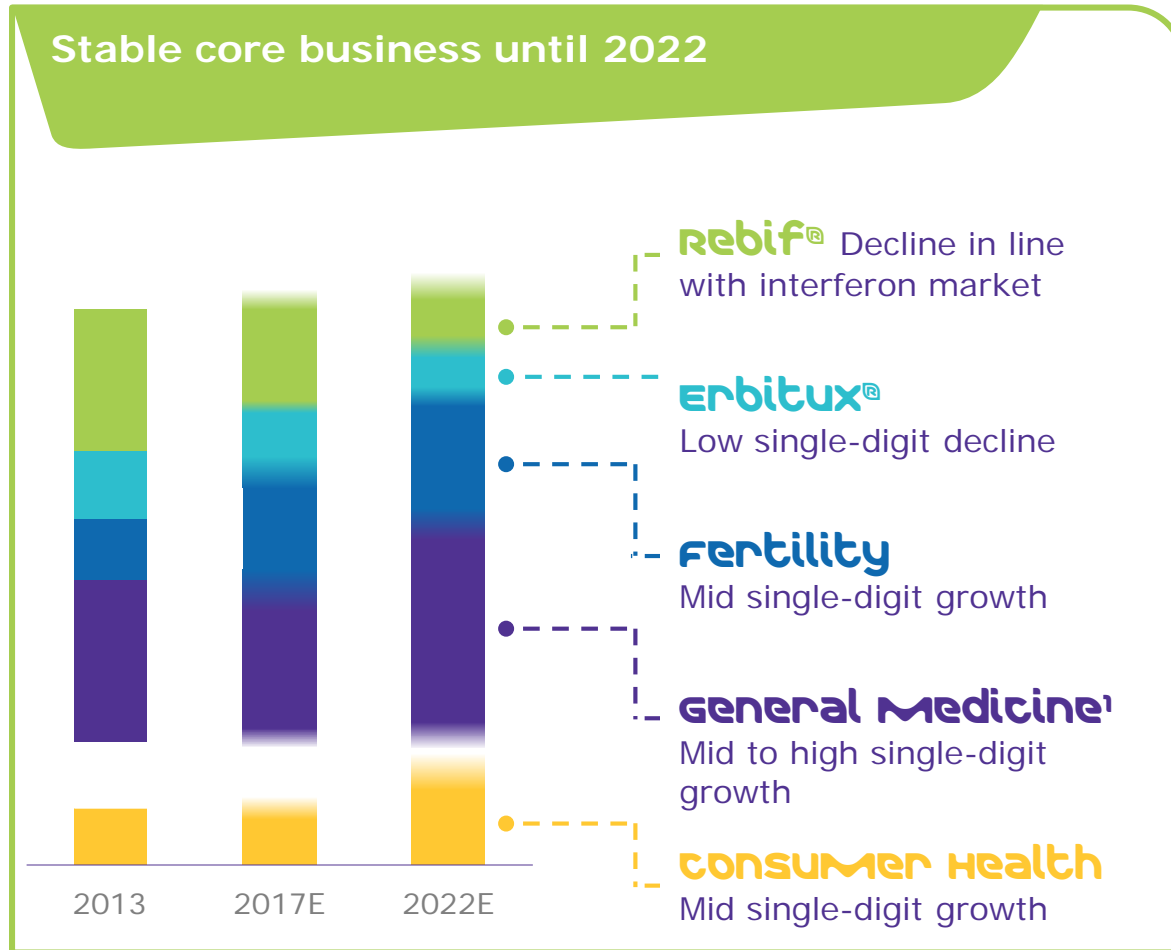
Healthcare

Solid performance of
core business and
remarkable **pipeline
progress**



Healthcare

2017 pipeline achievements pave the way towards our 2022 ambition



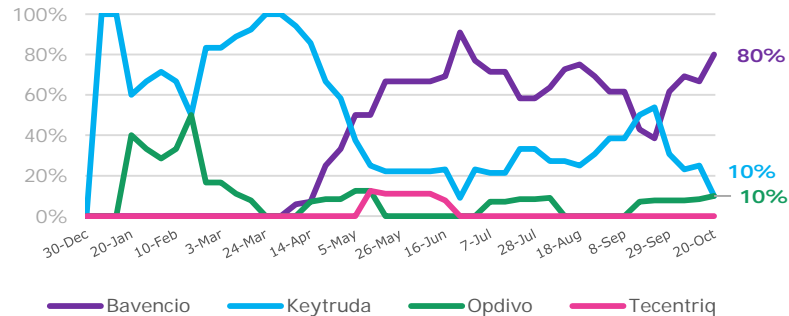
¹includes General Medicine, CardioMetabolic Care (CMC), Endocrinology & Allergopharma; ² Illustration; risk-adjusted
 Acronyms: RCC: Renal Cell Carcinoma | MCC: Merkel Cell Carcinoma | mUC: Metastatic Urothelial Cancer |
 MC: Multiple Sclerosis; Abbreviations: US: United States | EU: European Union | JP: Japan | CAN: Canada | AUS: Australia

Healthcare

Early commercial performance demonstrates ability to deliver innovation

Bavencio 2nd anti-PD-L1 to the market

MCC naive/1L Patient share of IO class⁴

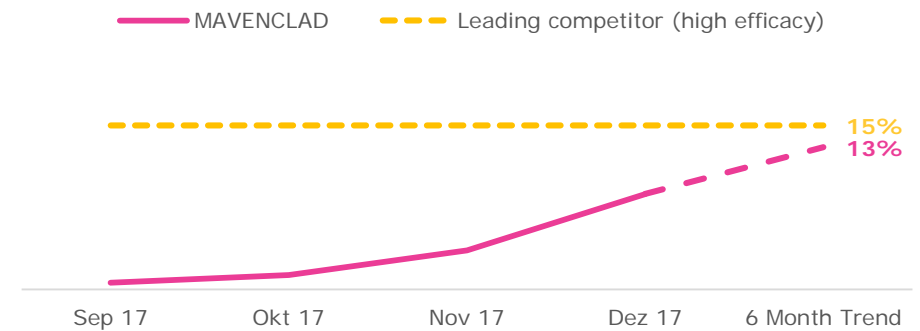


- MCC¹: successful uptake due to accelerated approval³
- mUC^{2,3}: targeted go-to-market

Deliver €20 m in 2017

Mavenclad Change MS treatment paradigm

Share of HDA dynamic patients (Germany)⁵



- Successfully launched in Germany & UK (peak sales: €500-700 m in EU)
- Selective immune reconstitution (SIRT)

High-single digit €m in 2017

¹mMCC = metastatic Merkel cell carcinoma; ²mUC = metastatic urothelial cancer; ³Accelerated FDA approval for mMCC on March 23, 2017, and for mUC on May 9, 2017; Continued approval for these indications in the U.S. is contingent upon verification and description of clinical benefit in confirmatory trials; ⁴Data sources: IMS claims data; ⁵Data sources: actual patients per IMS and shares estimated from IPSOS MS Monitor; Dynamic markets per internal company estimates

Healthcare

2018: multiple transformative catalysts to foster pipeline contribution

registration	Cladribine Tablets (MS)	▶ Filing in US under preparation (MS)
phase III	Avelumab (mono/combinations)	▶ Two phase III read-outs (NSCLC 2L, Ovarian plat. res/ref.)
phase II	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">BTK-i (RA, SLE)</div> <div style="width: 50%;">atacept (SLE)</div> <div style="width: 50%;">tepotinib (HCC/NSCLC)</div> <div style="width: 50%;">sprifermin (OA)</div> <div style="width: 50%;">BTK-i (MS)</div> </div>	<ul style="list-style-type: none"> ▶ Phase III decision (SLE) ▶ Phase III decision (OA) ▶ Phase II read-out (MS)
phase I	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">DNA-PK-i (solid tumors)</div> <div style="width: 50%;">M7824/TGF-b trap (basket trial)</div> <div style="width: 50%;">ATR-i (solid tumors)</div> <div style="width: 50%;">Avelumab (mono/combinations)</div> <div style="width: 50%;">ATM-i (solid tumors)</div> </div>	▶ Multiple phase Ib read-outs (e.g. PDX-naïve NSCLC 2L)

disciplined funding and prioritization including asset partnering and externalization

■ Oncology
 ■ Immuno-Oncology
 ■ Immunology
 ■ Neurodegenerative disease

Timelines may change: pharma pipeline products are under clinical investigation and there is no guarantee any product will be approved in the sought-after indication. Acronyms: ATM: ataxia-telangiectasia mutated | ATR: ataxia telangiectasia and Rad3 | DNA-PK: DNA-dependent protein kinase | HCC: hepatocellular carcinoma | MS: multiple sclerosis | NSCLC: non-small cell lung cancer | OA: osteoarthritis | RA: rheumatoid arthritis | SLE: systemic lupus erythematosus

Life Science

Market leading
performance during
integration



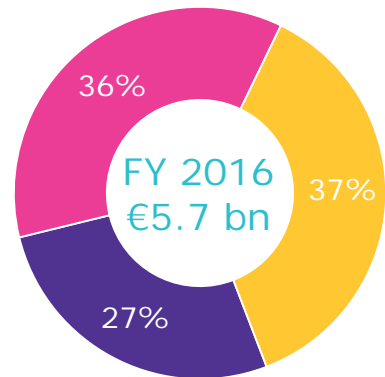
Life Science

Attractive market: large with stable growth trends

Current sales split and growth

Research Solutions

Low single digit growth



Process Solutions

High single digit growth

Applied Solutions

Mid single digit growth

Market size (~€120 bn) and long-term growth drivers

RESEARCH

~€42 bn

- Research activity
- Funding

PROCESS

~€38 bn

- Biologics volume
- Single use

APPLIED

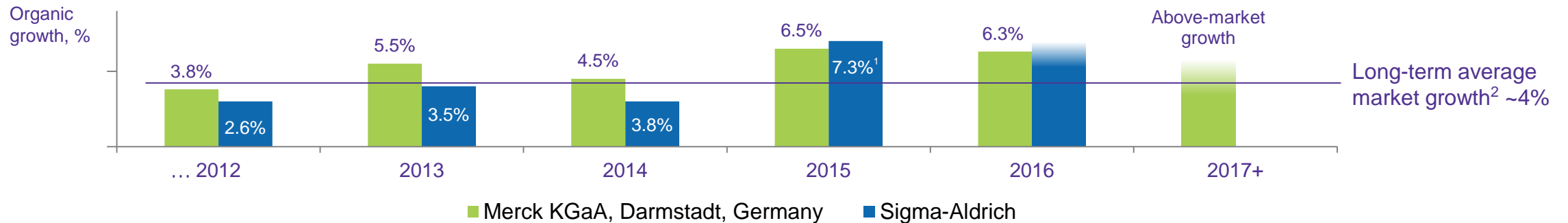
~€45 bn

- Regulations
- Population & economic growth

Life Science

Performance consistently at or above market during integration

Merck KGaA, Darmstadt, Germany and Sigma-Aldrich organic growth rates versus market growth



Q3 2017 EBITDA pre margins versus peers²



Industry leading Margins

¹Growth for 9M 2015 (organic growth of \$152 m on prior 9M 2014 sales of \$2,080 m); ²Source: Merck KGaA, Darmstadt, Germany market intelligence and broker research; ³Excluding corporate costs; including proportionate corporate costs EBITDA pre margin would be ~ 27-28%

Focus on strategic growth initiatives will secure long-term growth



Evolutionary

Developing offerings to further existing platforms



Breakthrough

Developing new platforms and product categories

Strategic initiative



SINGLE-USE



END TO END



GENE EDITING & CELL THERAPY

Ambition

Establish leadership in the fast-growing **single-use** bioprocessing segment through standardization and capacity expansion

Offer **process development** services with our complete bioprocessing portfolio especially to small biotechs

Develop tools for **gene editing** and manufacturing services for **cell therapy**

Proof points

- ✓ **Customized offer** by segment
- ✓ **Facilities expanded** in Danvers & Shanghai

- ✓ **15 customers** in Martillac
- ✓ **Additional site in Shanghai** opened in 2018 to augment Martillac & Boston

- ✓ **Foundational patents** in cutting & replacement for CrisprCas9
- ✓ Viral vector manufacturing site in **Carlsbad EMA/FDA approved**
- ✓ Supports **9 out of 10 top gene therapy products** manufacturers

Performance Materials

Four-pillar strategy and
innovation power strengthen
our **earnings** profile



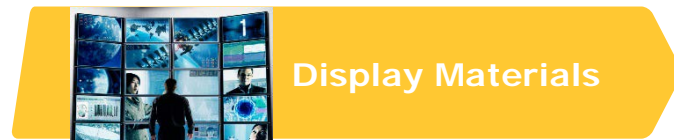
Performance Materials

Our four pillars are set for future profitable growth

Business unit

% sales

Products



- Liquid crystals (LC) and photoresists for TVs, smartphones and tablet computers
- Other display & non-display applications (e.g. LC Windows)



- Dielectrics, colloidal silica, lithography materials, yield enhancers, edge-bead removers
- Polyimide raw materials and printing materials



- Effect pigments and functional materials for coatings, plastics, printing and cosmetics
- Functional materials for cosmetics & special applications

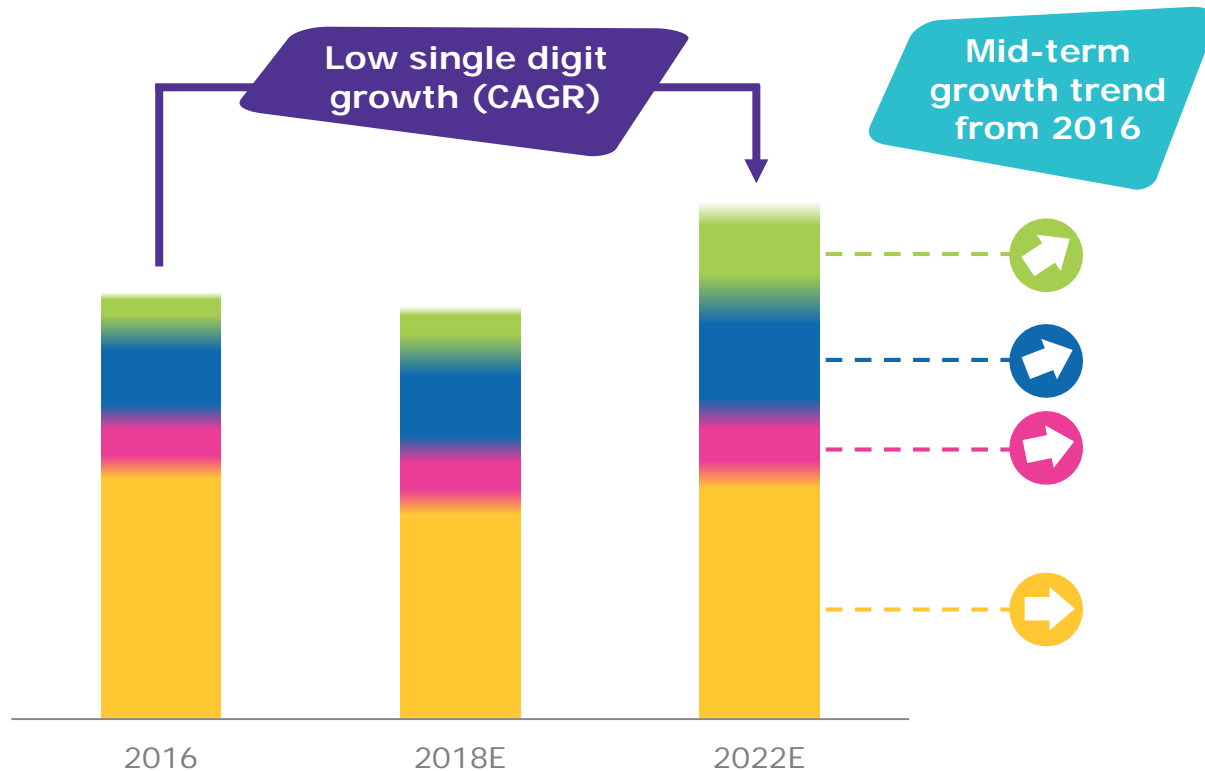


- Organic and inorganic light emitting diodes
- Functional materials for electronics and energy solutions

Performance Materials

On track to achieve low single digit growth

Performance Materials net sales development



Advanced Technologies

- Enhance and exploit leading position in OLED

Integrated Circuit Materials

- Outpace market growth with specialty materials assisting miniaturization

Pigments & Functional Materials

- Expansion into larger functional material markets

Display Materials

- Assumed market share stabilization after 2018
- Area demand and capacity growth of ~4%
- New modes mitigating price declines (e.g. SA-VA, UB-Plus)
- Liquid Crystals initiatives beyond displays to contribute from 2018 onwards (windows, antennas, light guiding)



05

**CONCLUSION &
OUTLOOK**

Group

We are on track to deliver on our key milestones for 2018

growth

profitability

resilience

value creation

challenges

HC

Delivering

- + Sustainability of base business secured
- + Delivering on R&D pipeline

Managing

PM

- + Maintaining leadership position in LC
- + Preparing mid-term return to growth

LS

Outperforming market

- + Outperforming industry average
- + Successful synergy generation

Diligent execution

M

- + Disciplined deleveraging continued
- + Active portfolio optimization ongoing

prioritization

science

launches

innovation

technology

Group Full-year 2017 guidance

▶ Net sales: ~ €15.3 – 15.7 bn ◀

▶ EBITDA pre: ~ €4,400 – 4,600 m ◀

▶ EPS pre: ~ €6.15 – 6.50 ◀



