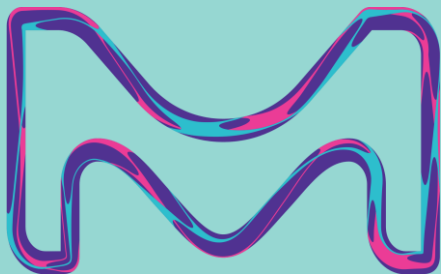


Merck KGaA, Darmstadt,  
Germany

# Q1 22 Roadshow

**Andrew Bulpin, Head of Process Solutions**  
**Dirk Lange, Head of Life Science Service**

June 28, 2022



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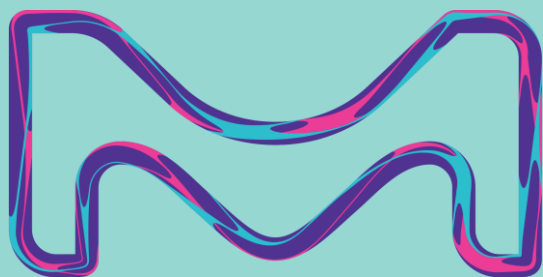


# Agenda

- 01** Business overview
- 02** Transforming the company
- 03** Life Science – Rising to new heights
- 04** Healthcare – Focused leadership driving long-term growth
- 05** Electronics – Leveraging portfolio shift
- 06** Sustainability
- 07** Guidance & executive summary

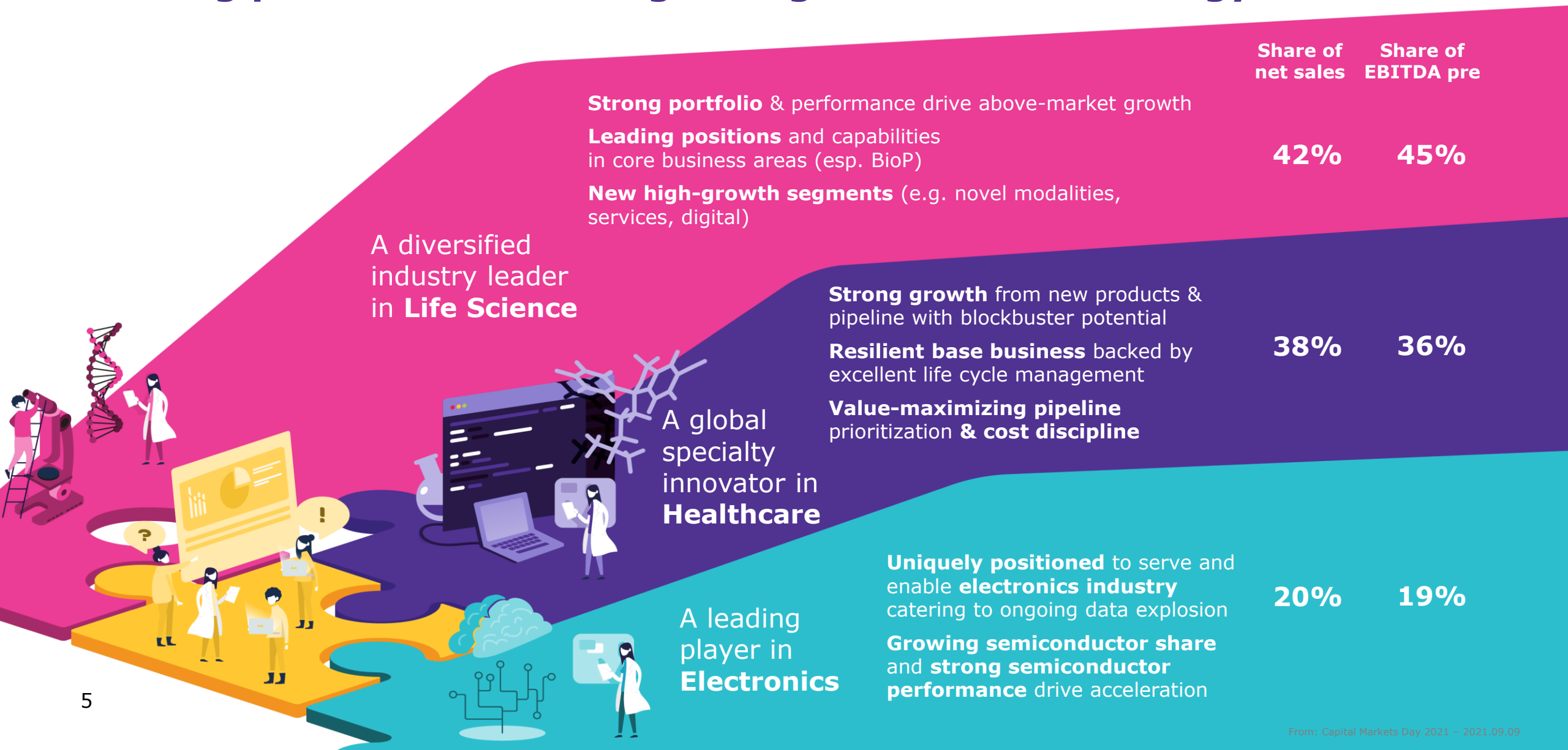


# BUSINESS OVERVIEW



# Group

## Leading positions in fastest growing science & technology markets



# Group

## Accelerated science & tech leadership driving growth

New Strategic Framework		
<b>Direction</b>	<b>Mobilize for growth in the BIG3</b>	Focus on profitable top line growth in BIG3
<b>Frame</b>	<b>Accelerating science &amp; technology leadership</b>	Innovation as key driver for sustainable growth
<b>Foundation</b>	<b>Focused &amp; disciplined capital allocation</b>	No "coffee for all" disciplined and focused investment in Enterprise Planning Units
<b>Values</b>	<b>Continued long-term orientation &amp; sustainability</b>	Continued long-term focus as part of the DNA further reinforced by significant sustainability effort
<b>Drivers</b>	<b>Agility, Diversity, Cost discipline</b>	Strong, diverse, fast, agile & unbureaucratic; cost discipline in non-focus & support areas

Core pillars

Supporting pillars

company innovation center darmstadt



Group

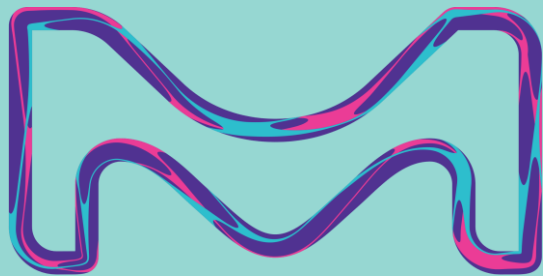
# 2021 and beyond – poised for growth in a challenging environment



Acronym: VBP = volume based procurement



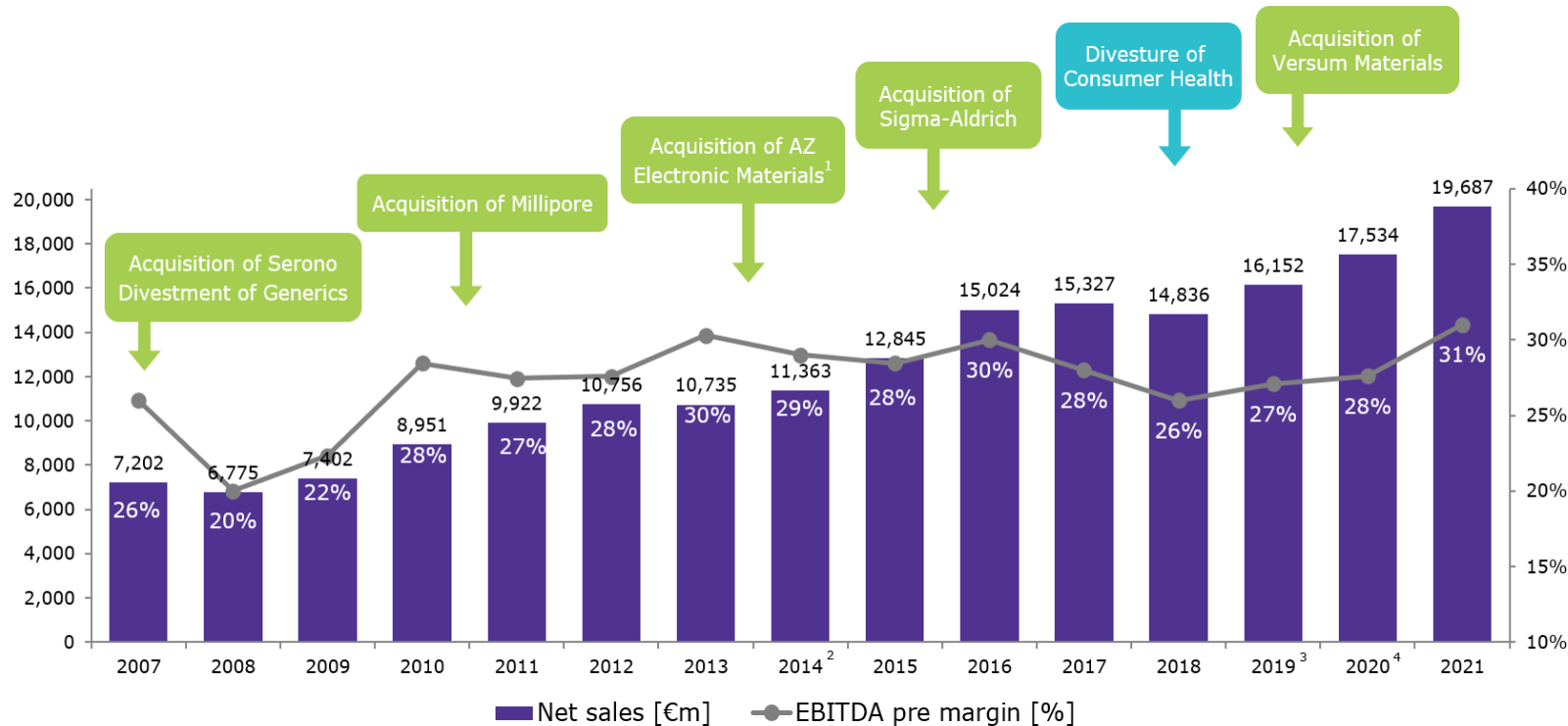
# TRANSFORMING the company



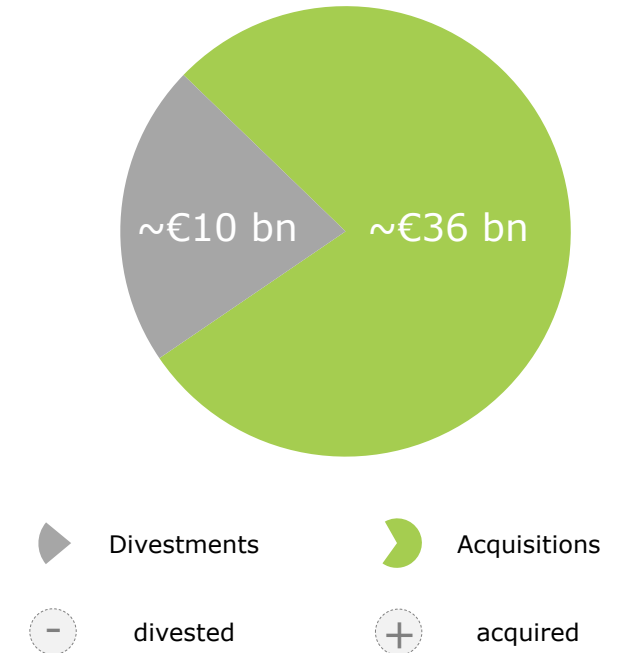
# Group

## Added scale and strengthened attractiveness of portfolio

### Growth trajectory



### Transformation volume<sup>5</sup>



<sup>1</sup>Included since 2 May 2014; <sup>2</sup>2007 and 2014 EBITDA pre margin adjusted for comparability; <sup>3</sup>2018 net sales reflect Consumer Health divestiture (reduction of ~€1 bn net sales p.a.)  
<sup>4</sup>2020 margin restated for €365 m patent litigation provision release; <sup>5</sup> 2007 - 2020



Group

# Well positioned to win in high-growth focus areas

Global economy<sup>1</sup>



Global GDP  
~3% to 4%

End markets<sup>1</sup>



Global pharma industry  
~4% to 5%



Global life science industry  
~5% to 7%



Global electronics industry  
~4% to 5%

Focus market areas<sup>1</sup>

Oncology ~9% to 12%  
Neurology ~3% to 6%

Biologics >10%  
Services >10%

Semiconductor materials  
~5% to 7%

BIG3

New HC Products

Process Solutions

Semi Solutions

$\Sigma$  ~4% to 6%

$\Sigma$  6% +

**Uniquely positioned to address** inevitable market trends  
Diligent execution of **focused & disciplined investments** plan to **fuel BIG3 growth**

<sup>1</sup> Company estimates of mid-term growth outlook based on industry forecasts and reports from public research institutes (e.g. IMF, IQVIA, EvaluatePharma, Prismark, etc.)

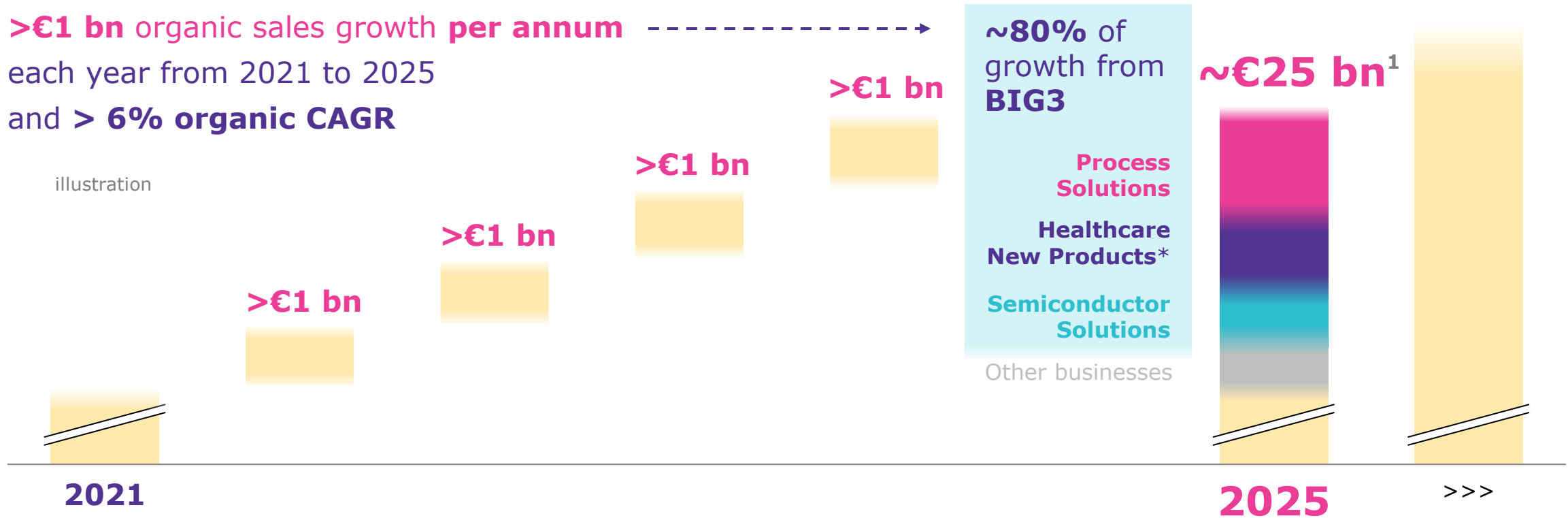


# Group

## #25by25: delivering €5 bn+ organic additional sales by 2025

>€1 bn organic sales growth per annum  
each year from 2021 to 2025  
and > 6% organic CAGR

illustration



▶ **Clear commitment to efficient growth**

1) including potential bolt-on M&A

\*Updated scope: New Products consist of recent launches (Bavencio®, Mavenclad®, Tepmetko® MET-exon 14) and risk-adjusted launches to come until 2025

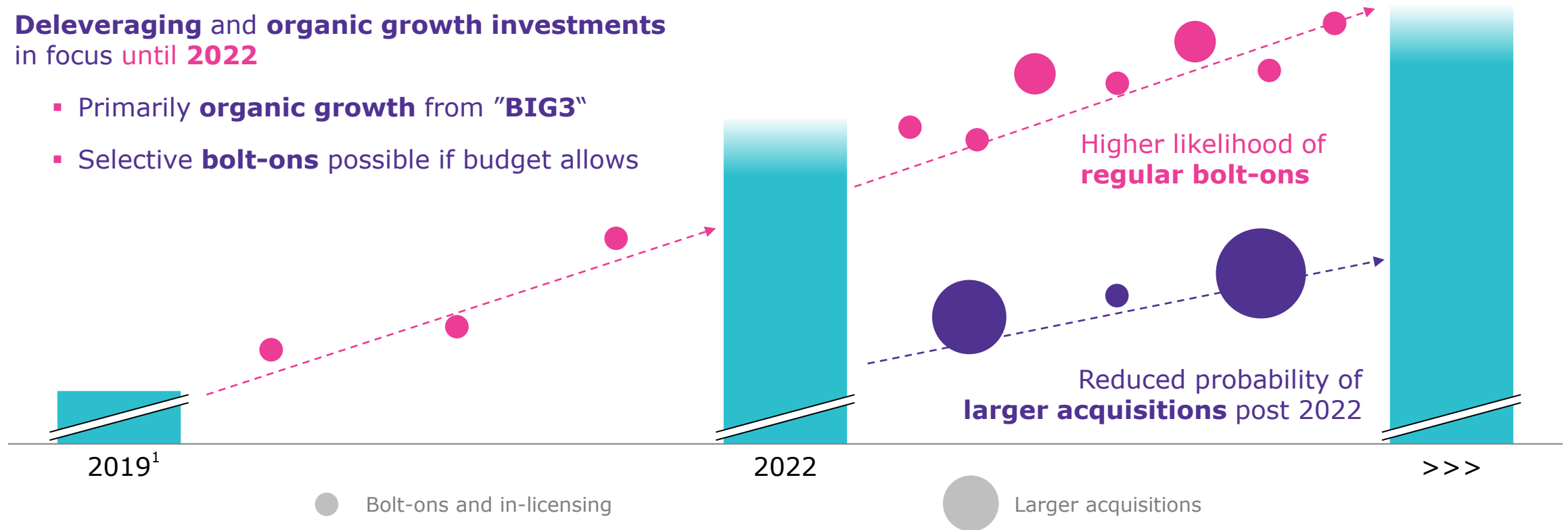


# Group

## Portfolio strategy – from transformation to evolution

**Deleveraging** and **organic growth investments** in focus until **2022**

- Primarily **organic growth** from “**BIG3**”
- Selective **bolt-ons** possible if budget allows



**> €1 bn organic sales growth per annum each year from 2021 to 2025**

<sup>1</sup> 2019 Group sales of €16.2 bn

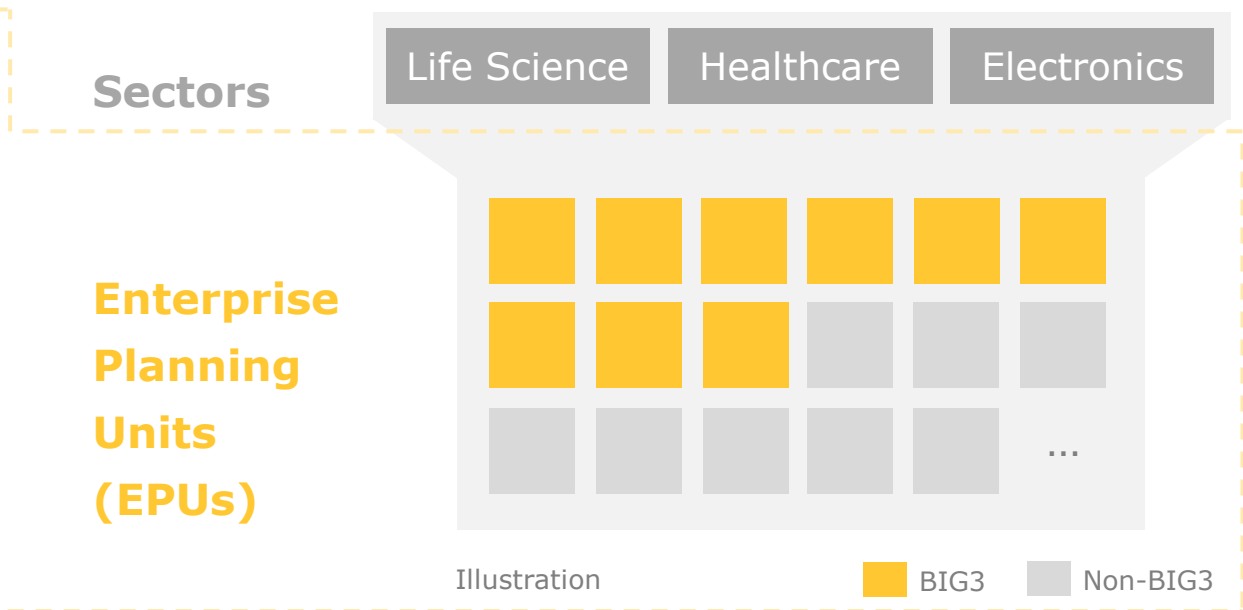
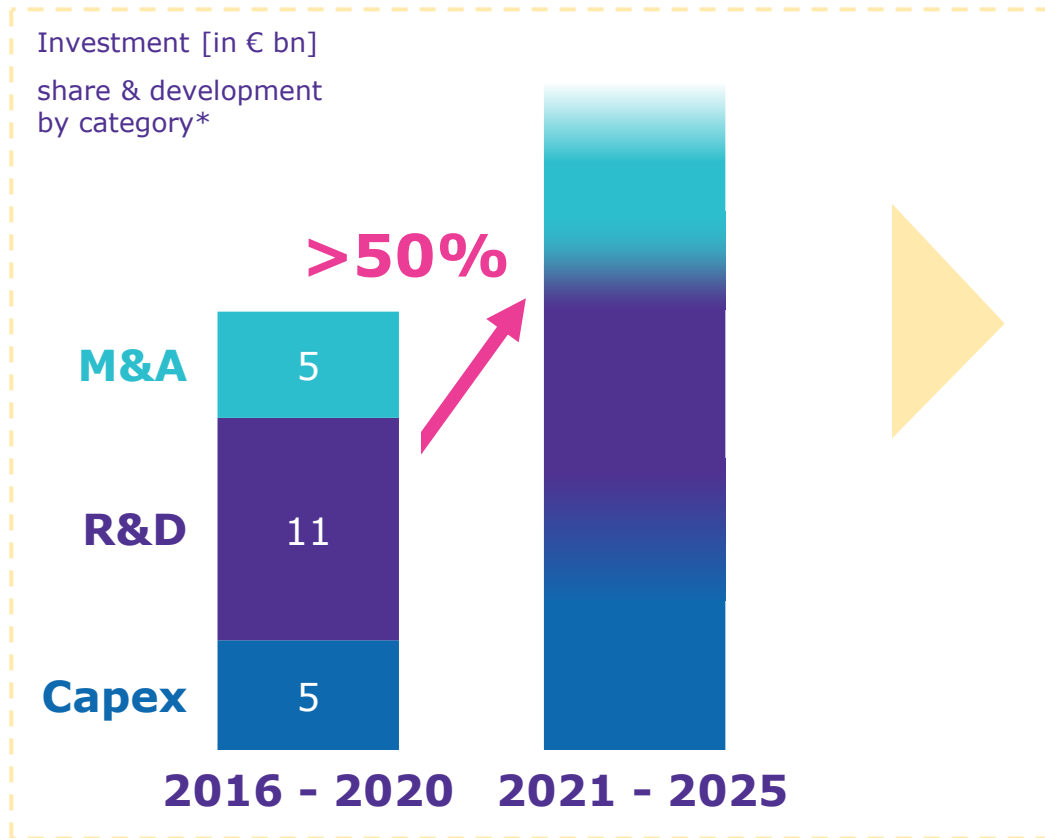


# Group

## Committing to record investments - targeted @BIG3 growth engines

Leading positions in **growth markets** fuel significant **boost in investment capacity**

**Targeted, disciplined & focused** capital allocation across **>20 enterprise planning units**



**BIG3** consist of ~10 planning units with a **capital allocation target of >70%** between 2021 and 2025

\* future M&A purely illustrative as it is deal-dependent

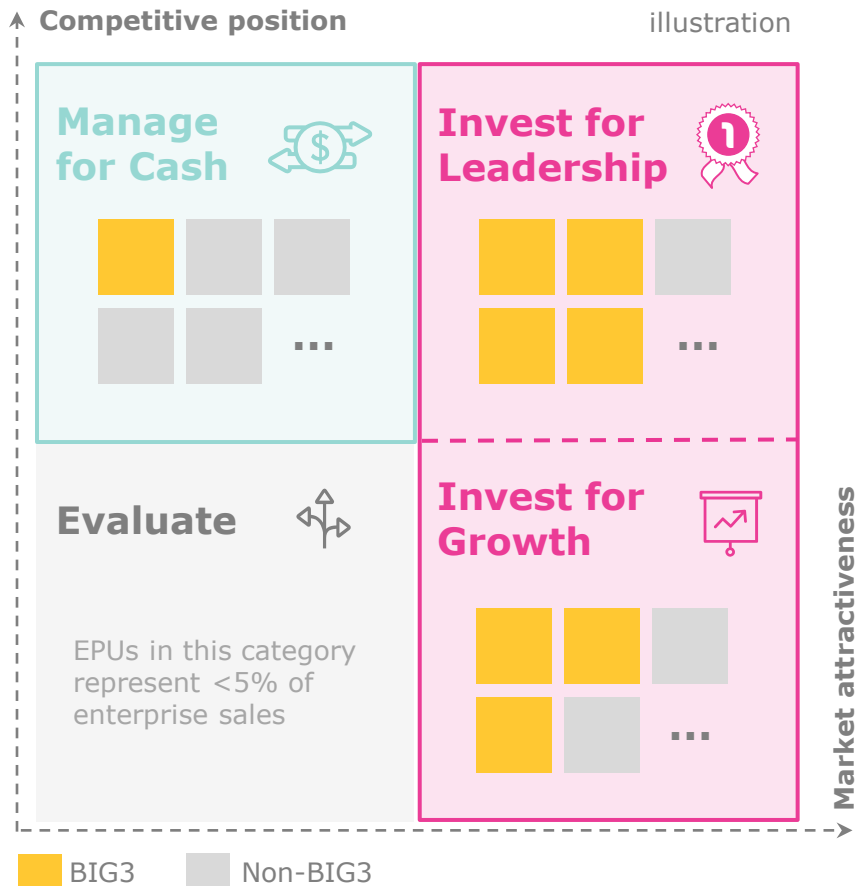


# Group

## Optimized capital allocation through distinct portfolio roles

Roles determined by **thorough analysis** of **markets** and **competitive positions**

**Investment focus** on businesses with **greatest strengths** and **attractive opportunities**



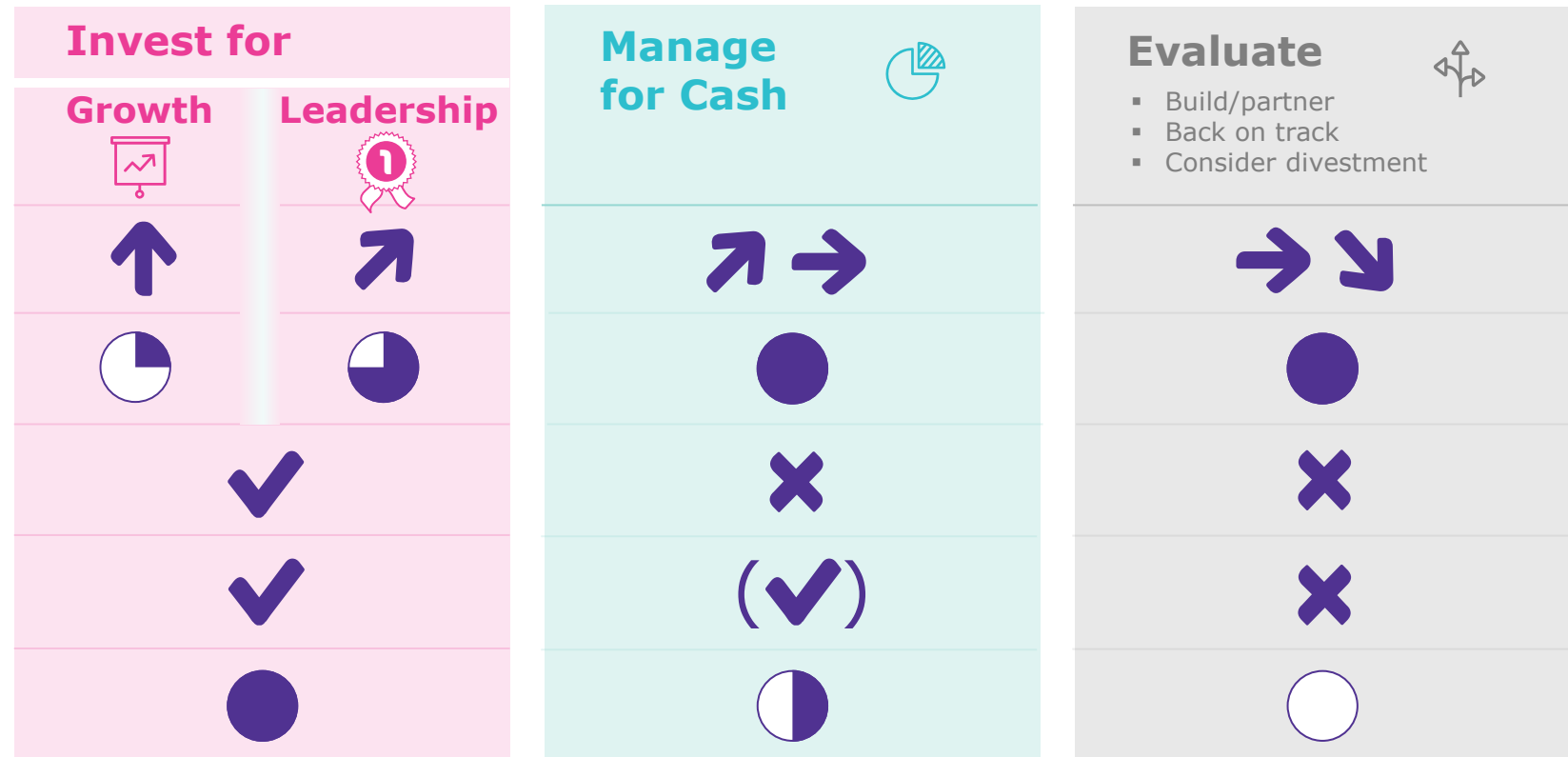
- Segmentation in planning units allows **right level of granularity** in market & competitive analysis (vs. sector level or product level)
- **Enterprise Portfolio Units (EPUs) with different roles** drive balance between **strong cash generation & targeted capital allocation**

- ✓ **Strong, well-positioned portfolio**
- ✓ Enterprise setup allows **boosted investment capacity and optionality** that would be unattainable to 3 standalone businesses
- ✓ **No need for further diversification** (within or across sectors) or target sector ratios

# Group

## Portfolio roles provide clear guidance to resource allocation

Simplified portfolio unit life cycle



● High importance ○ Low importance



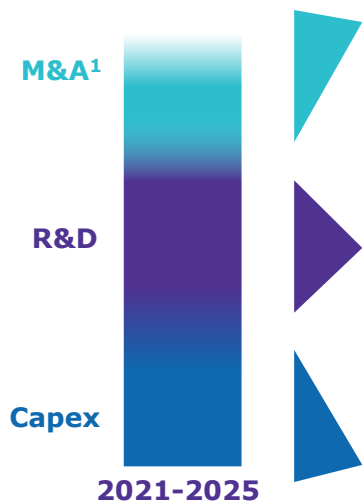
# Group

## Financial flexibility fueling investment capacity

**Accelerated deleveraging** to <2x net debt to EBITDA pre ratio enables **unprecedented financial flexibility**

**>50% higher investment\***  
**with BIG3 capital allocation target of >70%**

Investment € bn share illustration



\* future M&A purely illustrative as it is deal-dependent

<sup>1</sup> M&A: Mergers and Acquisitions

Abundant growth opportunities make **strategic capital allocation** more important than ever

M&A

- **Strong operating cash flow & increased debt capacity**
- **High single-digit C bn financial flexibility by end of 2022**
- Continued higher likelihood of **bolt-on** vs. large transformational deals

R&D

Clear focus on **innovation** & further development of **pipeline productivity**

- **Life Science:** accelerating targeted R&D scale-up to capture trends & strengthen portfolio
- **Electronics:** continuous alignment with customer technology roadmaps incl. new R&D labs
- **Healthcare:** driving "R&D productivity" to benchmark levels with focused leadership

CAPEX

More **complex & multifaceted** CAPEX decisions requiring **discipline**

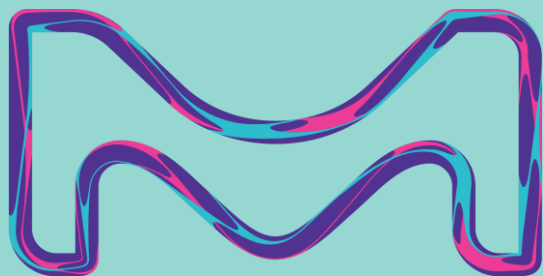
**Rich growth opportunities** driven by demand step changes, e.g.

- Process Solutions **capacity & network expansion**, targeted scaling of **high value CDMO/CTO services** across traditional & novel modalities
- Semi capacity expansion in line with customer demand & smart localization

▶ **Annual capex guidance: from ~€1.6 bn in 2022 to ~€2 bn by 2023**

# Life science

Rising to new heights

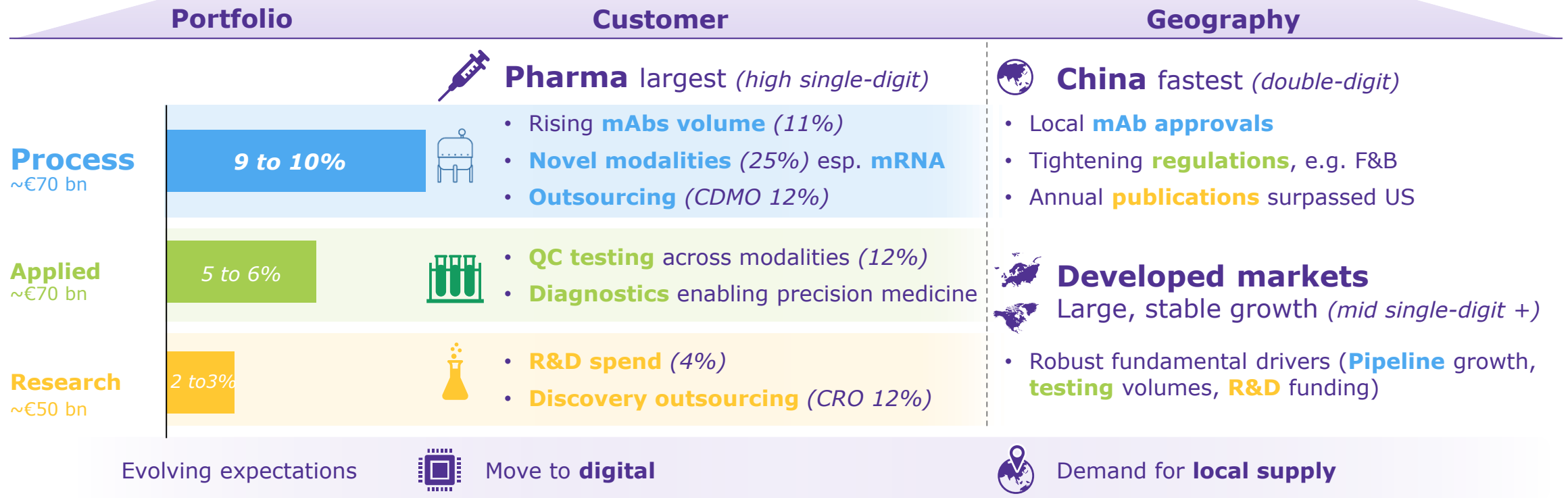


# Life Science Market

## Attractive secular drivers across segments create opportunities

### Life Science market<sup>1</sup>

2021: ~€190 bn ex COVID, growing 5 to 7%



 We continuously pursue key growth trends as a **leading diversified life science player**

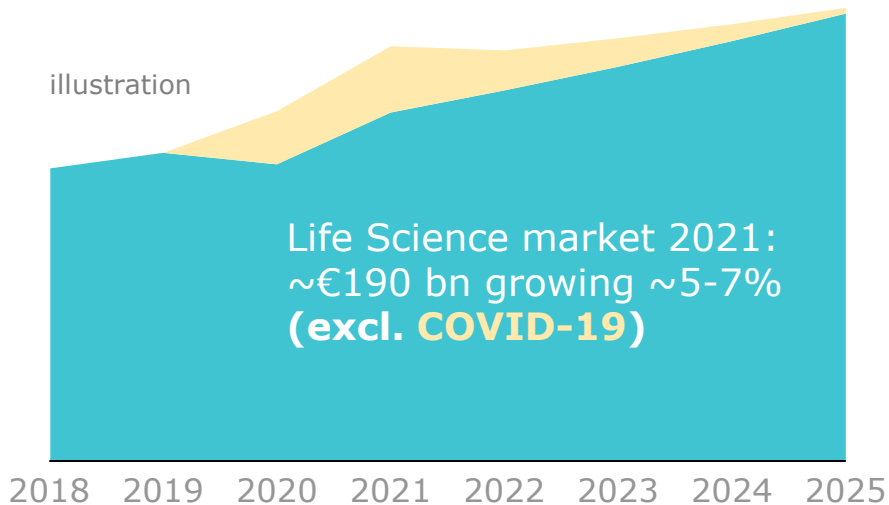
<sup>1</sup> Company estimate based on industry forecast over 5-year horizon for the markets we operate in with all *growth rates* indicating 2021-25 CAGRs; Acronyms: mAbs = Monoclonal Antibodies; mRNA = Messenger Ribonucleic Acid; CRO = Contract Research Organization; CDMO = Contract Development Manufacturing Organization; F&B = Food & Beverage



# Life Science

## Driving growth and expanding leadership in Process Solutions

**Robust market** with diverse growth pockets, **elevated during pandemic**



- Attractive **base market**, on slightly higher growth trajectory post 2021
- Significant **demand from COVID-19**, expected to decline as pandemic recedes

**Life Science** will be fully equipped to capture growth opportunities with a **focus on Process Solutions**

- Major **capacity and network expansion** to fuel growth of key product portfolios, **especially bioprocessing**
- Targeted scaling of **high value CDMO/CTO services** across traditional and novel modalities
- **Relevant and diversified** portfolio in **Research and Applied**, not only for cash and resilience, more importantly for **innovation and trend scouting**
- Programmatic **bolt-on M&A** plus rising focus on **China/APAC, innovation, and digital**

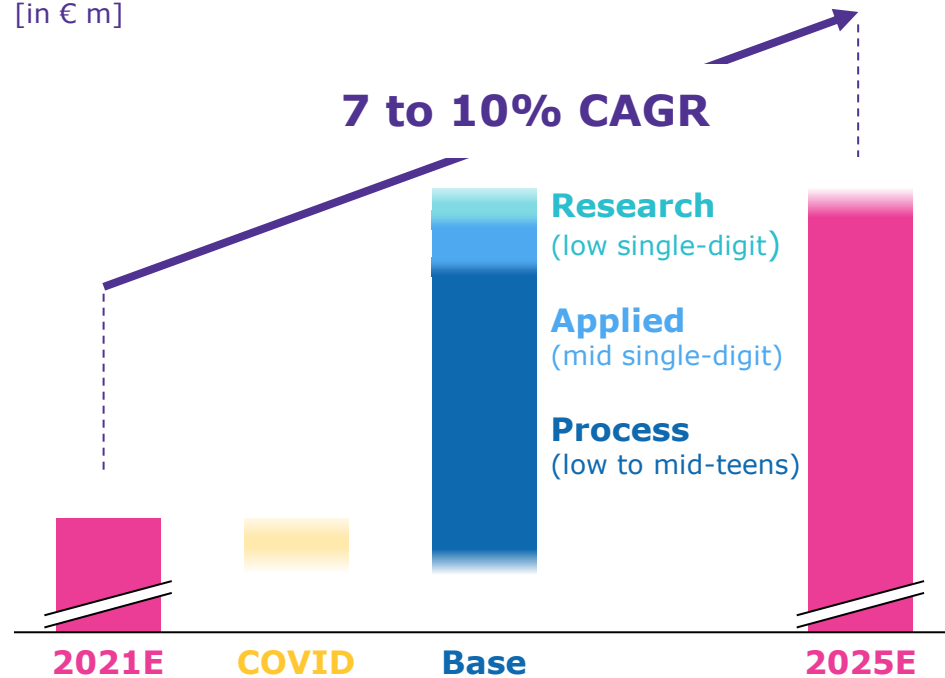
➤ **Upgrading** mid-term financial ambition to **7-10% org. sales CAGR** (incl. fading COVID business)

# Life Science

## Strong growth and improved mid-term outlook

### Life Science mid-term sales outlook

[in € m]



### Drivers of strong mid-term outlook

- **LS-wide: Above-market performance** with continued positive YoY growth rates **despite expected fading COVID-19 demand**<sup>1</sup>
- **Process: Driving ~80% growth** based on three main pillars
  - Capitalizing on strong demand for **products for traditional modalities** via network / capacity expansion and innovation (e.g. BioPharma 4.0)
  - Building scale in **services for all modalities** with a focus on mAbs, hp-APIs, ADCs, viral vectors and mRNA
  - Templating **products for novel modalities**
- **Applied and Research:** Building on strong positions with continued **robust growth** in line with historical trends



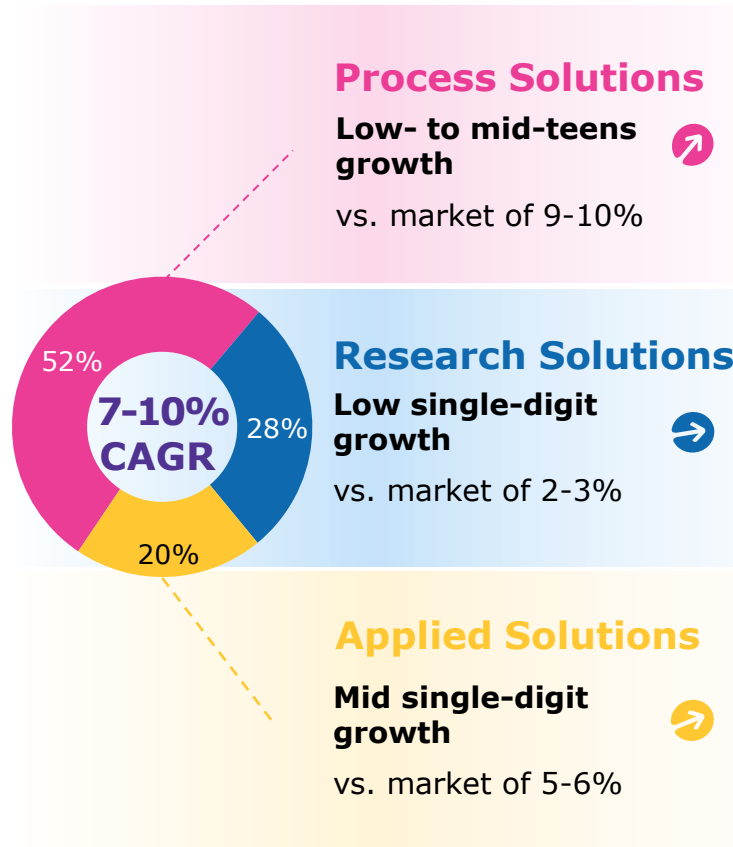
**Confident to deliver above-market growth despite expected fading COVID-19 business**

<sup>1</sup>Mid-term organic sales outlook of 7 to 10% CAGR assumes fading COVID-19 related business between two scenarios: A) zero COVID-19 related business in 2025 [implied CAGR of 6 to 9%] and B) COVID-19 related business in 2025 on 2021 level [implied CAGR of 8 to 11%]

# Life Science

## All business units contributing to strong mid-term outlook

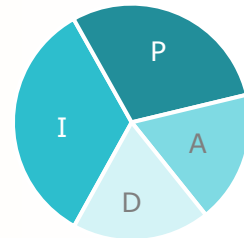
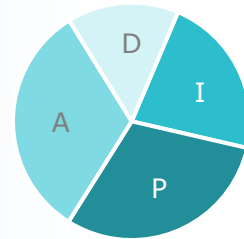
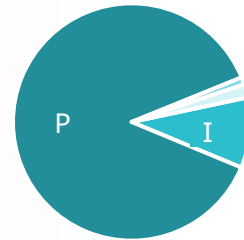
### Sales split<sup>1</sup>



### Mid-term outlook<sup>2</sup>

### Customer Split<sup>3</sup>

### Fundamental growth drivers



- **Biologics:** rising mAbs volume (11% CAGR<sup>4</sup>), growing adoption of single use, and shift to next-gen bioprocessing (intensified, digitized)
- **Novel modalities:** cell & gene therapies, ADCs, and mRNA inflection driving strong growth (25% CAGR<sup>4</sup>) and need for templated processes
- **Outsourcing:** increased role of emerging biotechs contributing to outsourcing in development & manufacturing (CDMO with 12% CAGR<sup>4</sup>)
- **Research activity:** >9,000 pre-clinical projects in research pipelines<sup>5</sup>; rising number of experiments backs healthy growth in biotechs/CROs
- **Public and private funding:** availability, access and predictability drive demand from academia and emerging biotechs
- **Emerging technologies:** high growth technologies for drug discovery and development, e.g. advanced cell culture and AI drug discovery
- **Regulation:** rise in quality standards and increasing demand for testing across customer segments
- **Population and economic growth:** demand for access to more sophisticated products and services rises, e.g. in emerging markets
- **Speed:** need for fast testing results raises requirements for Applied customers, esp. in clinical testing and food & beverage testing

**Customer Segments:** P Pharma and Biotech I Industrial and Testing A Academia D Diagnostics

<sup>1</sup> Based on H1 2021, CAGR is organic mid-term ambition including anticipated fading of COVID contribution; <sup>2</sup> market growth rates are excluding COVID effects; <sup>3</sup> indicative only; <sup>4</sup> Source: company estimate of market growth based on industry forecast over 5-year horizon; <sup>5</sup> Source: statista; Acronyms: mAbs = Monoclonal Antibodies; ADCs = Antibody Drug Conjugates; mRNA = Messenger Ribonucleic Acid, CDMO = Contract Development Manufacturing Organization; CRO = Contract Research Organization; AI = Artificial Intelligence

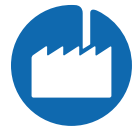


# Life Science Strategy

## Focus on strengthening the core and expanding in high-growth areas



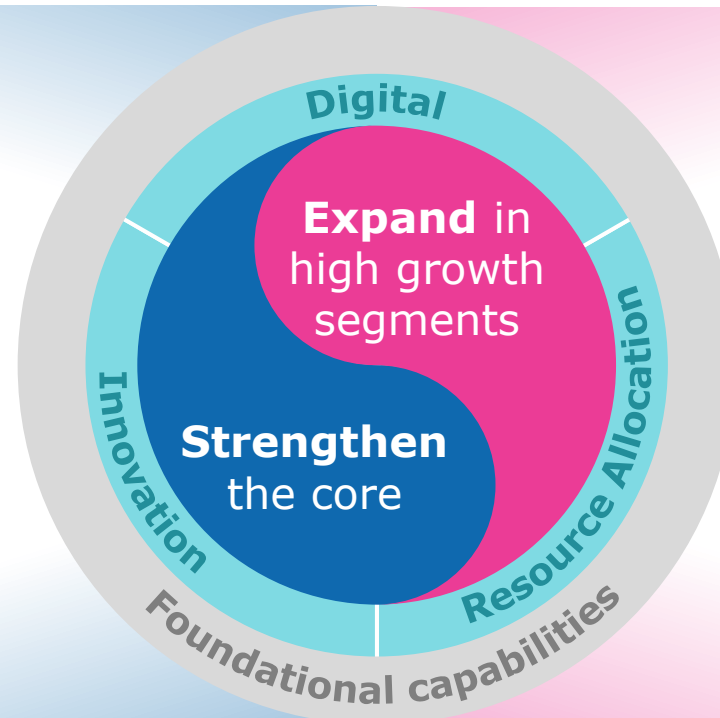
**Productivity Gains**



**Network & Capacity Expansion**



**Go-To-Market Optimization**



**New Business Models**



**Holistic Offering**



**Emerging Regions**



eCommerce • Digital Solutions • Data • R&D • Partnerships • Bolt-on M&A • CAPEX

Regulatory & Quality • Supply Network • People • Culture & Diversity • Sustainability • One Company



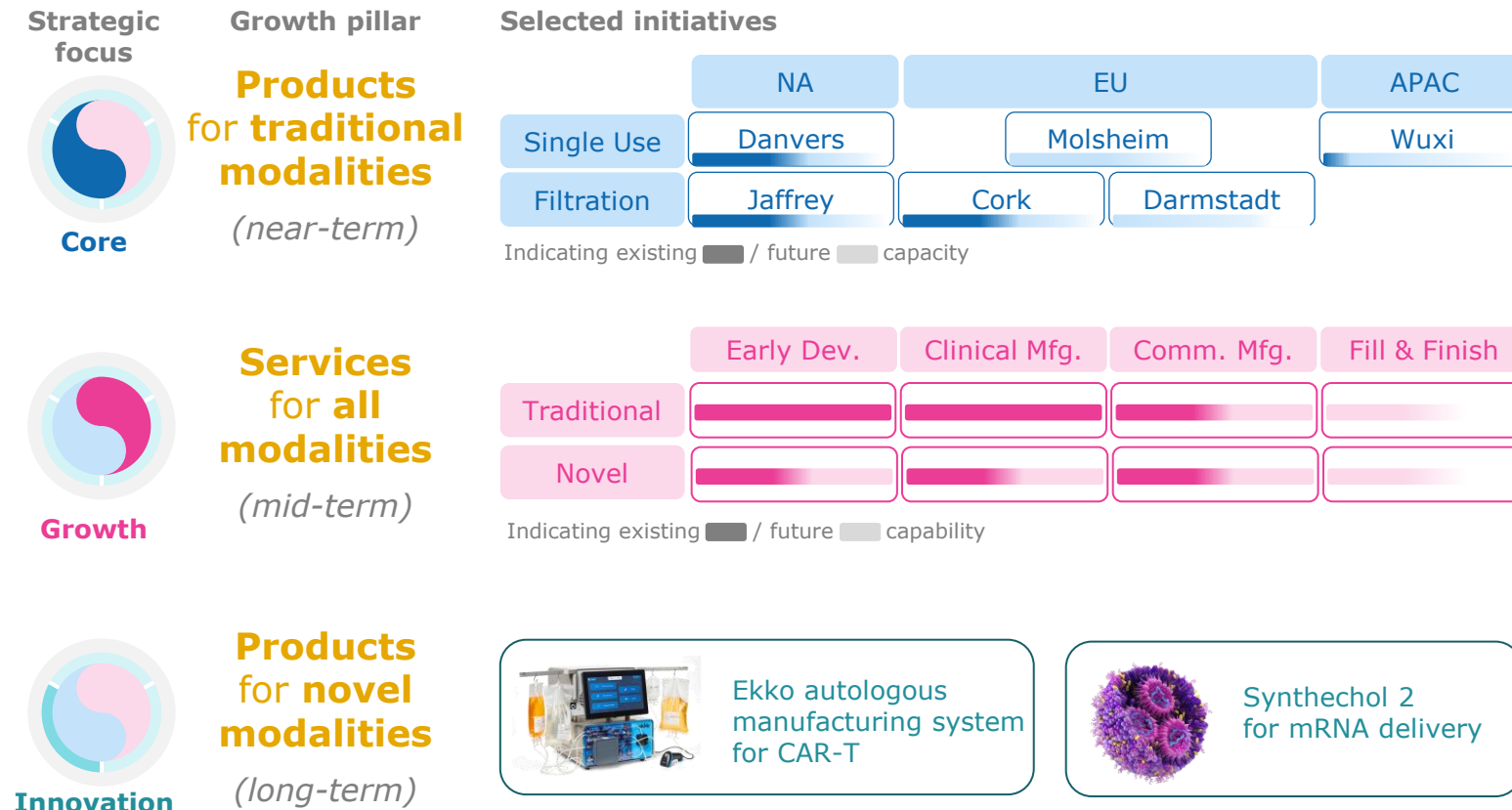
**Stringent execution of strategic priorities driving sustained sales & earnings growth; upgrading mid-term outlook to 7 to 10% org. sales CAGR (incl. fading COVID business<sup>1</sup>)**

<sup>1</sup>Mid-term organic sales outlook of 7-10% CAGR assumes fading of COVID-19 related business between two scenarios: A) zero COVID-19 related business in 2025 [implied CAGR of 6 to 9%] and B) COVID-19 related business in 2025 on 2021 level [implied CAGR of 8 to 11%]



# Process Solutions – the largest of the BIG3

## Fueling the growth engine to accelerate further in a dynamic market



- Proactive **capacity expansions**
- Regionalization**
- Driving **next gen bioprocessing** (BioContinuum™)
- Multimodality scale up:** mAbs (single use), viral vectors, ADCs, HP-APIs
- Venturing** into mRNA (AmpTec, Exelead)
- Developing** robust tools for cell, viral and gene therapy
- Enhancing** lipids portfolio for nonviral delivery

**Robust supply enabling attractive base growth, services and innovation as accelerators**

Acronyms: mAbs = Monoclonal Antibodies; HP-APIs = High Potency Active Pharmaceutical Ingredients; ADCs = Antibody Drug Conjugates; mRNA = Messenger Ribonucleic Acid

# Leveraging strong positions for durable growth in robust markets

## Selected initiatives **Research Solutions**



- ✓ Building on strengths in **research chemistry**
- ✓ Capitalizing on evolving **CRO market**

## Strategic focus



Core

## Selected initiatives **Applied Solutions**

- ✓ **Lab Water** instrument platform innovation
- ✓ Expanding **Pharma QC testing** (biologics & novels)



- ✓ Innovating to accelerate **research biology**
- ✓ Expanding further in **China/APAC**



Growth

- ✓ Enhancing **custom services for diagnostics**
- ✓ Expanding further in **China/APAC**



- ✓ Leveraging **upgraded eCommerce platform**



Digital

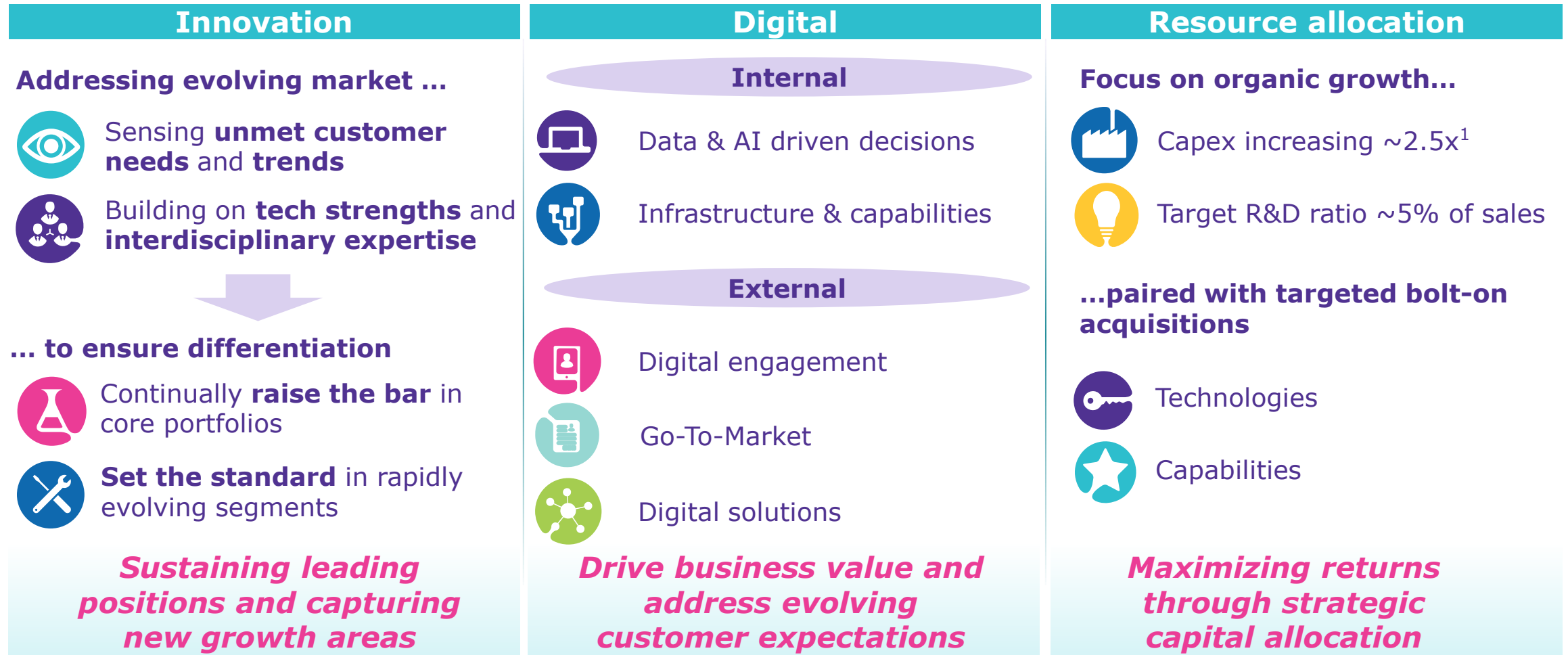
- ✓ Driving **digital solutions**



Strategic focus on **sustaining core positions** and capturing **higher growth segments**

# Innovation, digital and portfolio

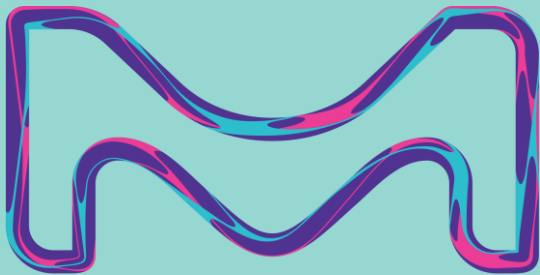
## Key supporting pillars of strategy for value creation



<sup>1</sup>Comparing average capex spend p.a. over the period 2016-20 with the period 2021-25

# Healthcare

Focused leadership driving long-term growth



# Healthcare

## Well positioned to deliver significant long-term growth

### Healthy risk profile



Resilience of our commercialized products<sup>1</sup> across all TAs



Evobrutinib BTKi and Xevinapant as late-stage opportunities with strong proof of concept



Early- to mid-stage pipeline with substantial growth drivers for the Oncology and Immunology portfolio

- Early- to mid-stage pipeline NRA
  - Xevinapant Cis-ineligible NRA
  - Xevinapant Cis-eligible NRA
  - Evobrutinib BTKi NRA
  - Recent Launches
  - Established Portfolio
- NRA = non risk adjusted

illustration

2025 >>>








# Healthcare

## Well positioned in a dynamic environment, focused leadership in R&D


### Existing market trends unchanged...

- High growth in largest TA Oncology
- Precision medicines to further increase share
- Cost pressure and pricing volatility growing

### ... well positioned to grow further

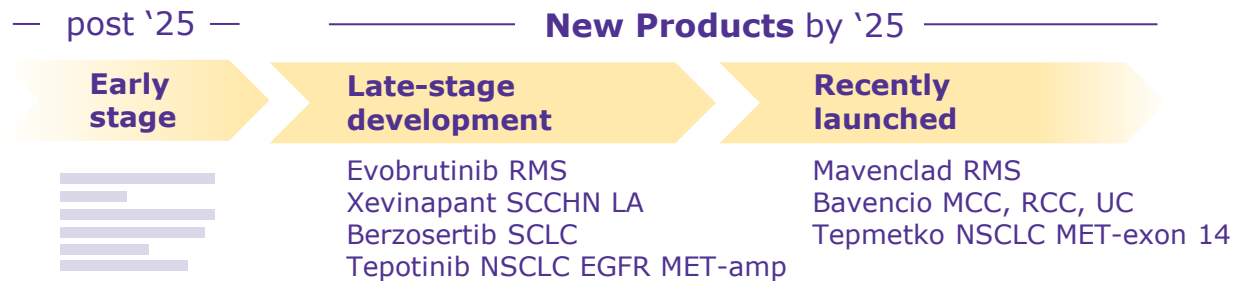
-  Long-term Oncology strategy with diversified clinical portfolio
-  Innovative models of treatment personalization, e.g. in Fertility
-  Diversified geographical sales footprint, lower exposure to potential U.S. pricing reforms
-  Global while local - 18 manufacturing sites and 4 R&D hubs across the globe
-  Broad spectrum of payer types due to TA and geographical variety

### Focused leadership in R&D driven by recent launches & pipeline

-  SCCHN
-  Bladder cancer
-  MET driven tumors
-  ...

✓ From correlated to distinct uncorrelated risks

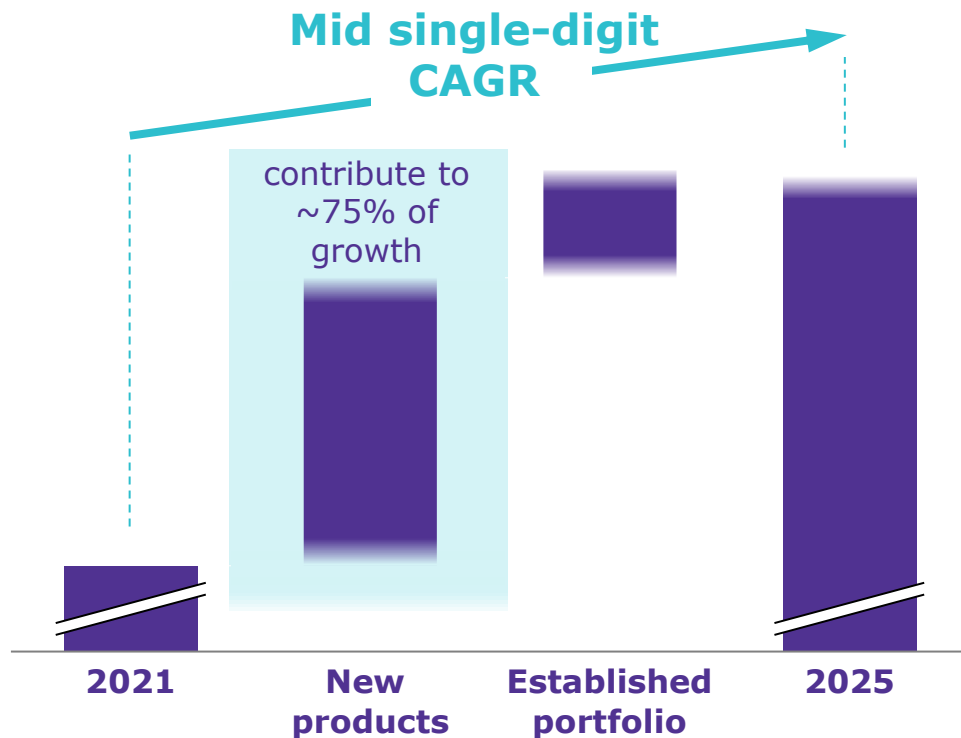
✓ Variety of pathways supported by new modalities e.g. ADCs, Oral ATRi, TIGIT...



**Introducing mid-term financial ambition of mid single-digit org. sales CAGR**

# Healthcare

## Growth driven primarily by innovation, augmenting a solid established portfolio foundation



Risk-adjusted illustration

### Positioned to accelerate science & technology leadership



**Profitable sales growth above global pharmaceutical market** (4.6% across TAs until 2025)<sup>1</sup>



#### New products

- Evobrutinib (BTKi) to strengthen our leadership position in Multiple Sclerosis
- Multiple assets within our targeted Oncology TA focus
- Committed to drive our recent launches Bavencio, Mavenclad<sup>®</sup> and Tepmetko<sup>®</sup>

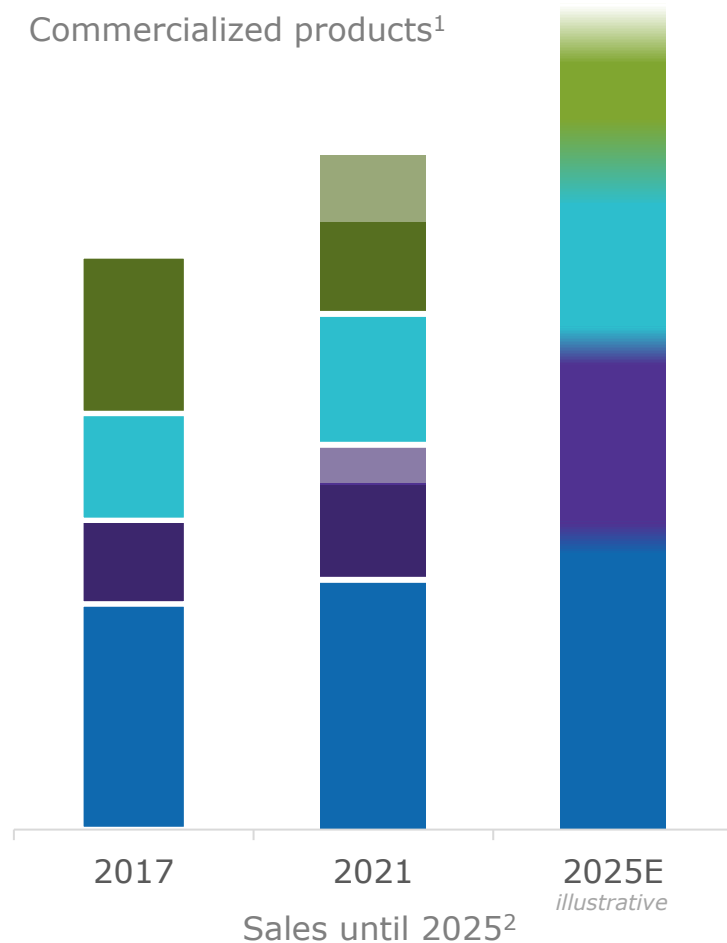


**Sustainable long-term growth** for Healthcare beyond 2025

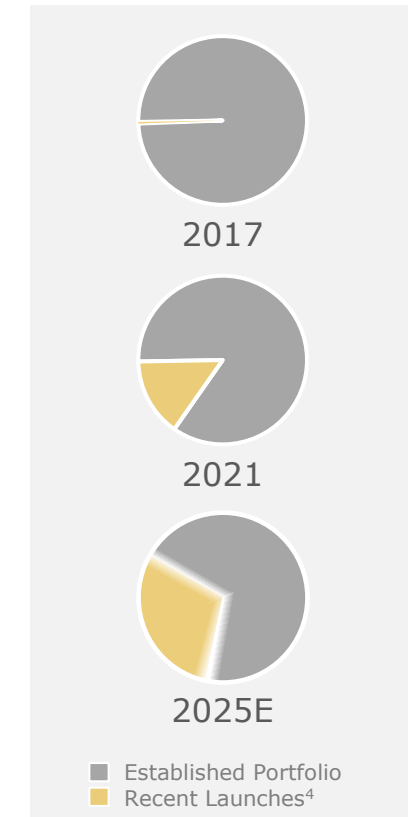
<sup>1</sup> Company estimates of mid-term growth outlook based on industry forecasts and reports from public research institutes (e.g. IQVIA Global Medicine Trend Report from April '21)

# Today's commercialized products foundation for growth until 2025, fueled by recent launches; not yet reflecting further pipeline potential

Commercialized products<sup>1</sup>



<b>N&amp;I</b>		
<b>Mavenclad®</b> MS	▶	▪ On its way to become a blockbuster product. In the short-term, headwind as suppressed dynamic market
<b>Rebif®</b> MS	▶	▪ Decline in line with interferon market
<b>fertility</b>	▶	▪ Mid single-digit growth, capitalizing on increasing awareness and access to treatment
<b>oncology</b>		
<b>Bavencio®</b> UC, RCC, MCC	▶	▪ Strong growth driven by mUC 1L
<b>Tepmetko®</b> METex14 NSCLC	▶	▪ Targeted launch in niche indication
<b>Erbix®</b> mCRC, SCCHN	▶	▪ Stable outlook <sup>3</sup> , leading in mCRC continuum of care
<b>CM&amp;E</b>	▶	▪ Mid single-digit growth ▪ Increasing prevalence of diabetes and cardiovascular diseases ▪ Mitigate VBP pressure in China through EM growth, life cycle management and portfolio expansion



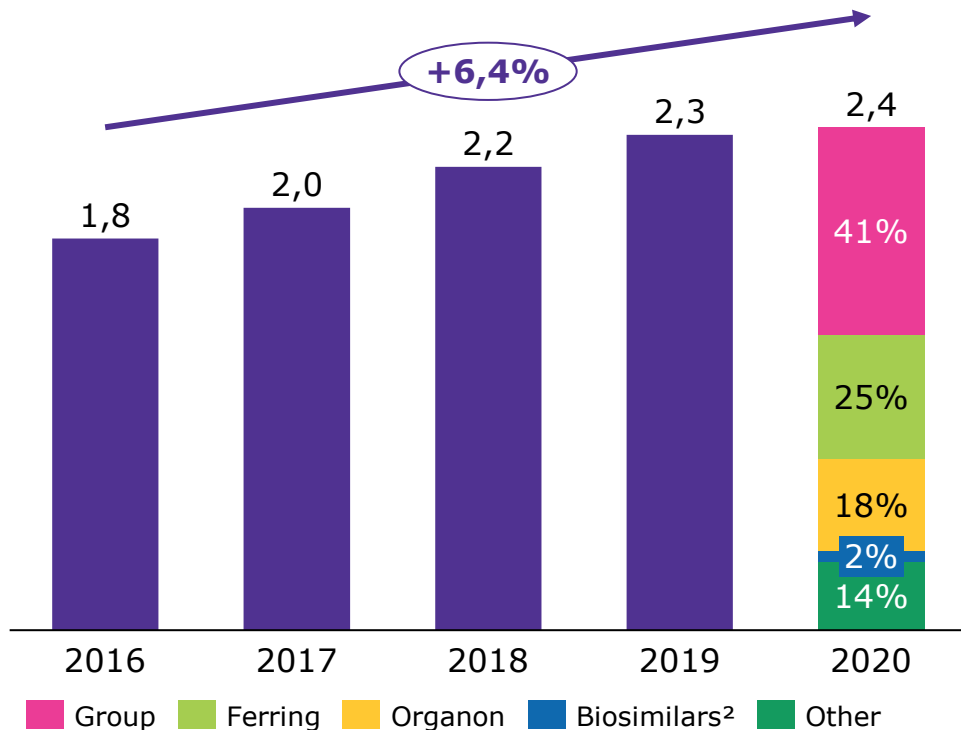
<sup>1</sup> Commercialized products = Established Portfolio + Recent Launches, excludes future launches/indications until 2025; <sup>2</sup> Graph excludes Consumer Health Business, Biosimilars Business and others; <sup>3</sup> Sales in 2021 fueled by €59 m due to Eli Lilly supply agreement; <sup>4</sup> Includes Bavencio® (UC, RCC, MCC), Mavenclad®, and Tepmetko® METex14



# Healthcare

## Strengthening our leadership in Fertility

### Global Gonadotropin market in € bn<sup>1</sup>



### Strategies to expand our leadership position

#### **GONAL-f** The world's most prescribed r-hFSH treatment<sup>3</sup>

- Growing prevalence of infertility driven by delayed parenthood and lifestyle habits
- Increasing awareness and access to treatment

#### **Pergoveris:** Only recombinant FSH + LH product in the market

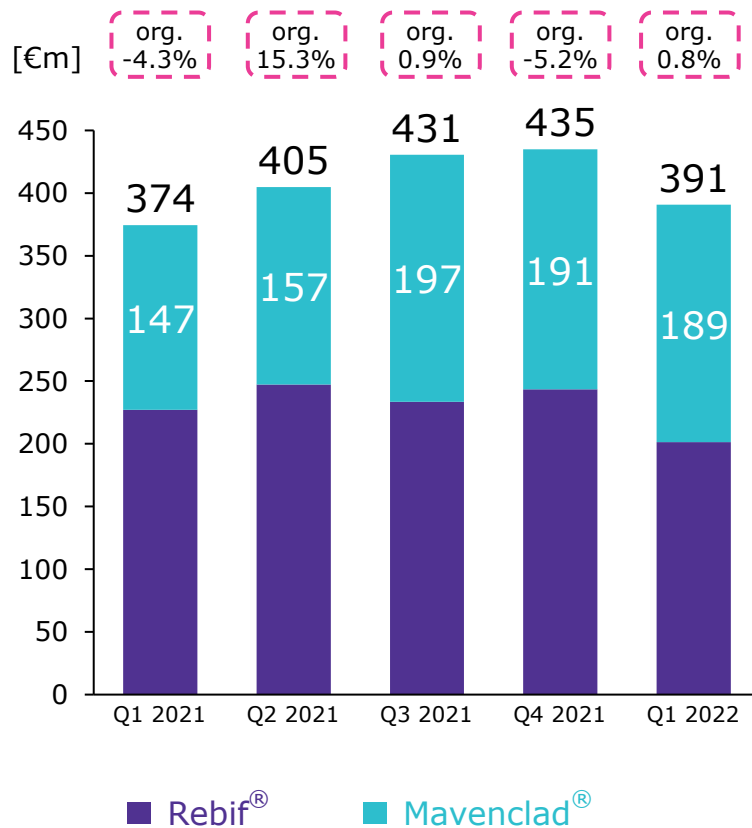
- Doubling sales and market share since 2017
- Strong growth potential by geographical expansion

#### **Innovations & digital solutions** (e.g. Philips partnership)

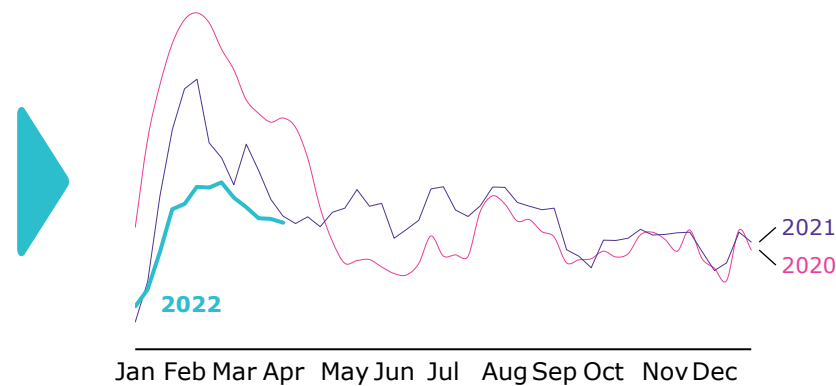
- Better treatment insights & improved convenience
- Contributing to higher live birth rates

# Neurology & Immunology: Q1 Mavenclad<sup>®</sup> sales up +25% organically, amid flat U.S. dynamic market

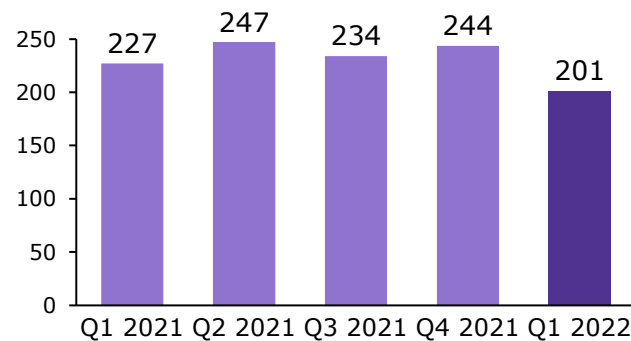
## Sales development N&I, [€m]



## Dynamic market volume [R3W]<sup>1</sup>



## Rebif<sup>®</sup> net sales, [€m]

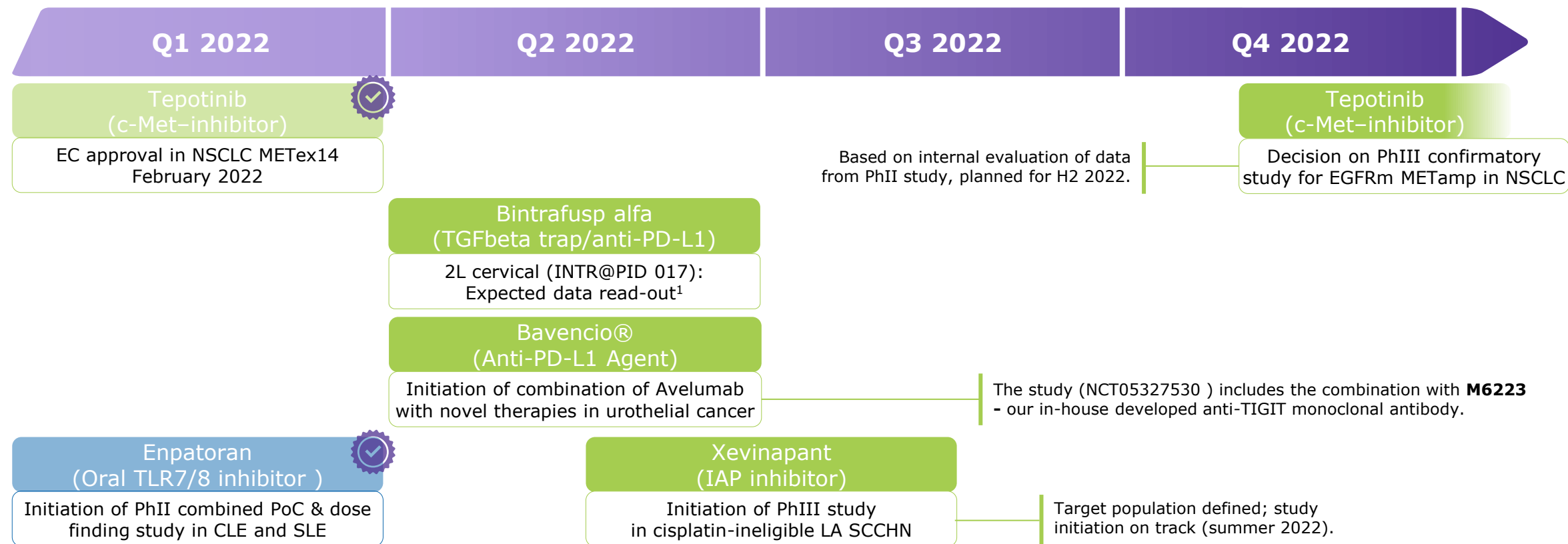


- Mavenclad<sup>®</sup> new patient up ~15% vs. Q4 2021. Sales flat sequentially driven by low number of Y2 patients from Q1 2021
- Within HE market Mavenclad<sup>®</sup> share remains stable in the U.S. and growing in major European markets

- Stable N&I franchise (+1% org.), Mavenclad<sup>®</sup> outweighs Rebif<sup>®</sup> decline
- Rebif<sup>®</sup> decline in line with interferon market trend



# Healthcare catalysts



■ Oncology ■ Immunology

Acronyms: EMA = European Medicines Agency, LA = locally advanced, SCCHN = squamous cell carcinoma of the head and neck, NSCLC = non-small cell lung cancer, TLR = toll-like receptor, TIGIT = T cell immunoreceptor with Ig and ITIM domains,  
 1: Clinical timelines are event-driven and may be subject to change



# Pipeline with uncorrelated risk and significant potential to drive topline growth from 2025

	PROMISE	INDICATION	EARLIEST SUBMISSION	
<b>Tepotinib (MET inhibitor)</b>	Overcoming resistance of Osimertinib (third gen. EGFR inhibitor)	2L EGFR+ NSCLC post Tagrisso	<b>2023</b>	Timeline visibility
<b>Evobrutinib (BTK inhibitor)</b>	Addressing chronic inflammation and progression between relapses, in addition to reducing acute inflammation with BIC ARR	RMS	<b>2024</b>	
<b>Xevinapant (IAP inhibitor)</b>	Transformative benefit – Maximizing chances for Cure for patients with locally advanced SCCHN	Cis-fit LA SCCHN Cis-unfit LA SCCHN	<b>2025</b> <b>≥ 2027<sup>1</sup></b>	
<b>Berzosertib<sup>2</sup> (ATR inhibitor)</b>	Blocking ATR “aster regulator” of DNA repair to enhance efficacy of TOP I inhibitors for patients with few treatment options	rSCLC		
<b>M1231 MUC1/EGFR bi-specific ADC</b>	Next generation “Triple Innovation” ADC for patients with solid tumors, aiming for effective delivery of potent chemotherapy payload with reduced in & off target toxicity	NSCLC ESCC	<b>2025</b> <b>2025</b>	
<b>Enpatoran TLR7/8 inhibitor</b>	Small molecule for targeted inhibition of important lupus mediator TLR7/8, aiming for improved efficacy with low infection risk	CLE SLE	<b>2026</b> <b>2027</b>	

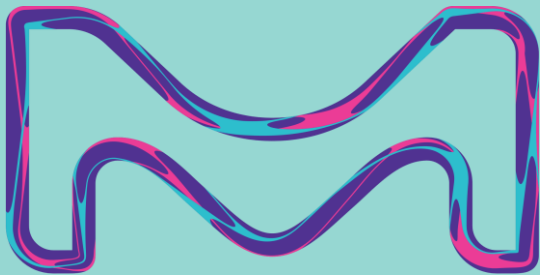
<sup>1</sup> depending on trial design

<sup>2</sup> Communicated June 3rd 2022: Following an interim analysis of DDRiver SCLC250, decision has been made to discontinue the study. Open innovation approach will be continued



# electronics

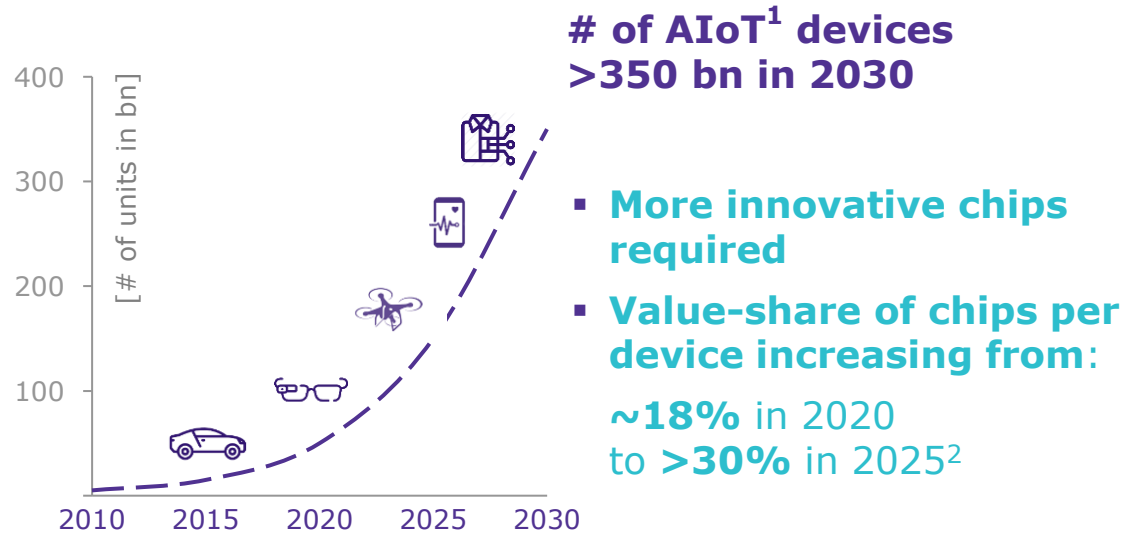
Shifting gears to growth execution



# Electronics industry has clear roadmaps with vast market potential and substantial need for materials innovation

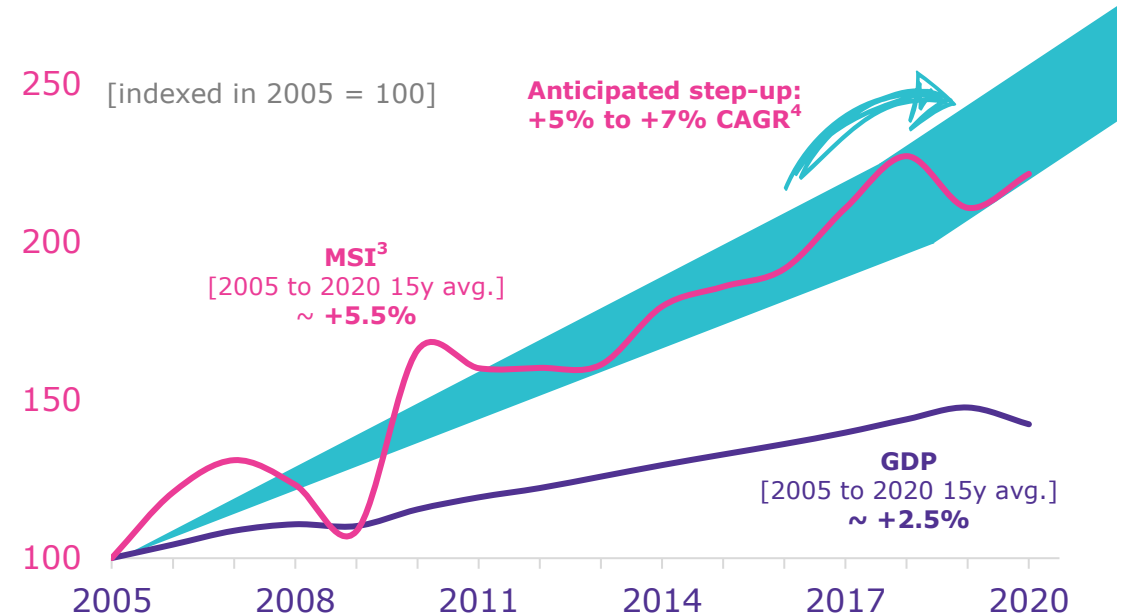
## More applications than ever before to fuel Semiconductor growth

- 12% Automotive
- 7% Server / Storage / Communication infrastructure (5G)
- 6% Consumer (wearables/IoT)
- 5% Industrial/Medical/Military/Aviation
- 4% PC/Computing
- 4% Mobile phones / tablets



## Growth expected to accelerate...

...with reduced upward cyclicality



- Diverse end applications & higher capital discipline expected to reduce future cyclicality
- Semiconductor **Materials** show **lower cyclicality than Semiconductor market**

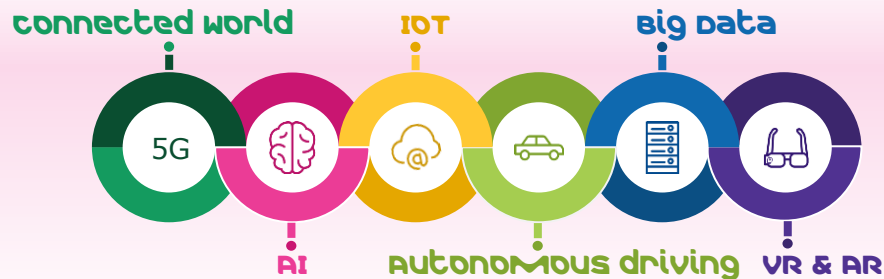
1) AIoT = Artificial Intelligence + Internet of Things; 2) McClean, Prismark Semiconductor and packaging report Q4 2020; 3) Million Square Inch of silicon wafers; 4) Company estimate based on industry forecasts



# Electronics

## Building on leading positions in semiconductor materials

### External trends drive strong demand



**Tech trends inevitably drive exponential data growth** requiring semiconductors and displays in virtually all data applications

- Customers & governments significantly **accelerating semi capacity expansions**
- **Semiconductor materials market** expected to **accelerate growth** based on **broader demand**

### Electronics well positioned to capture it

- ✓ **One of the strongest portfolios** – providing solutions necessary to **enable industry growth**
- ✓ **Enabling breakthrough technologies**, in **high value areas** of wafer processing & display innovation
- ✓ **Pioneering in high-throughput experimentation** and **Big Data & AI projects** with key customers
- ✓ **Shift to executing growth** accelerating **investment and innovation in sync** with customer plans

**Further upgrading** mid-term financial ambition **to 3 to 6% org. sales CAGR**

Abbreviations: AI = Artificial Intelligence; IoT= Internet of Things; VR = Virtual Reality ; AR = Augmented Reality

# Electronics

## Shifting gears from transformation to growth execution

### From building a platform...

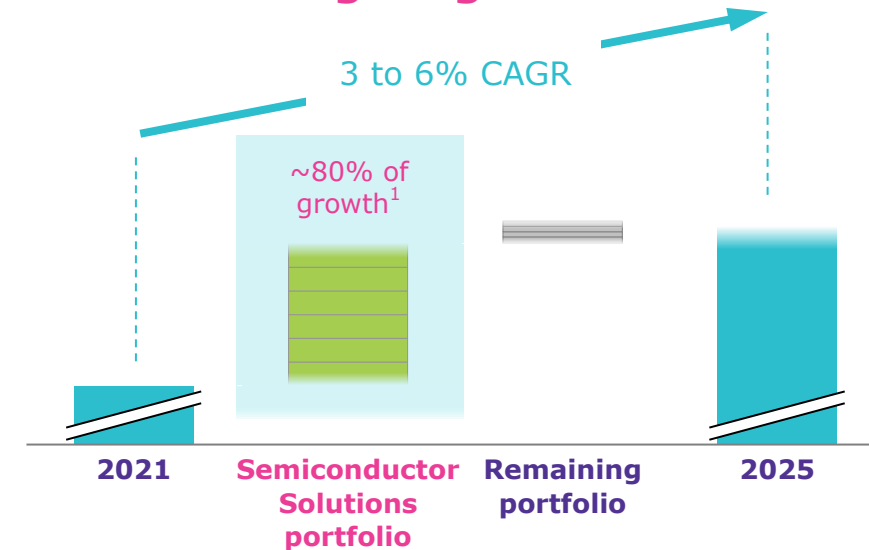
#### Successful "Bright Future" transformation

- **Superior business composition**
  - ~10 equally sized, differentiated tech platforms
  - Wider customer base than ever before
  - Balanced presence in all major customer hubs
- Clear **focus on Semi & innovation**

#### Significantly higher Versum synergies

- **Accelerated capex** investment plan
  - Smart localization
  - Global presence & local proximity
- **Display & Surface well managed** according to Enterprise Planning Unit role

### ...to executing on growth



- **Semiconductor Solutions:** to grow **200 to 300bps<sup>2</sup>** above faster underlying market of 5% to 7%
- **Display Solutions:** low-single digit decline in the coming years expected to return to growth until 2025
- **Surface Solution:** low single-digit growth post COVID-19 turnaround

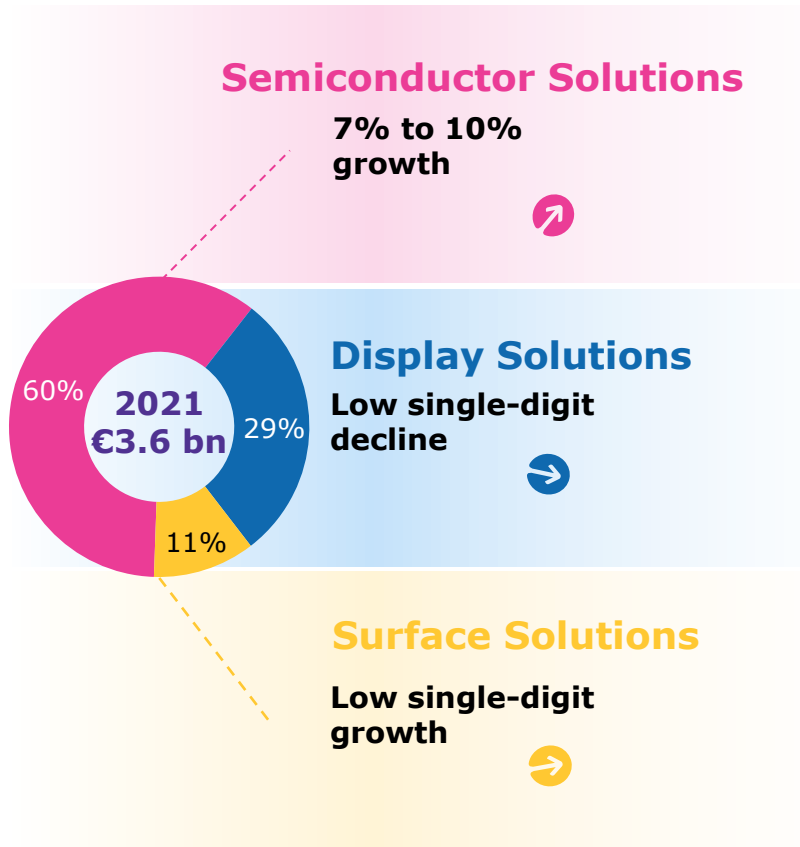
1) illustrative split by semiconductor solutions technology platform

2) „Basis points”

# Electronics

## Portfolio refocus drives mid-term guidance upgrade to 3 to 6% CAGR

### Sales split<sup>1</sup>



### Mid-term outlook<sup>2</sup>

#### Semiconductor Solutions

7% to 10% growth



#### Display Solutions

Low single-digit decline

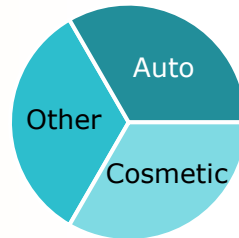
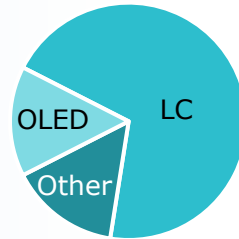
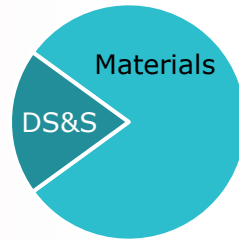


#### Surface Solutions

Low single-digit growth



### Business Split<sup>3</sup>



### Fundamental growth drivers

- Continued market growth due to technological advances (Artificial intelligence, 5G, Big Data and cloud, Internet of Things) serving customers in **Logic, Memory, Packaging and others**
- 5 to 7% market growth<sup>4</sup>
- 200 to 300bps above-market growth from share gains & better portfolio (incl. 100 to 150bps additional growth from integration top-line synergies)
- Driven by trend to **bigger TV size, higher resolutions, more mobile devices**
- 3 to 4% growth of total LCD m<sup>2</sup> area<sup>5</sup>, while price pressure continues
- 18 to 22% growth of total OLED m<sup>2</sup> area<sup>5</sup> with slight to moderate market share gains
- OLED material market to exceed LC material market by 2021<sup>6</sup>
- Well balanced exposure to **automotive** and **cosmetics** end market
- Drivers: rising living standards, higher disposable income in growing markets & higher demand for high value products at reasonable prices
- Light vehicle production and relevant cosmetics end markets returning to growth in 2021 and reaching 2019 levels by 2022 and beyond<sup>7</sup>

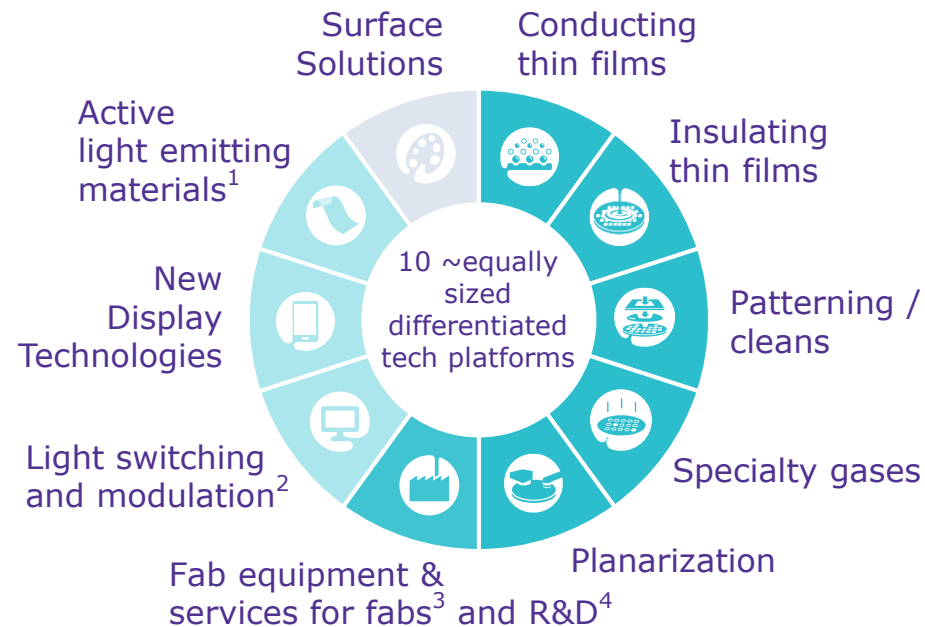
<sup>1</sup> Based on FY 2020, CAGR is organic mid-term ambition; <sup>2</sup> growth rates are organic CAGRs; <sup>3</sup> indicative only

<sup>4</sup> Source: Company estimate based on industry forecasts; <sup>5</sup> Source: Omdia Display Market Outlook, Q1 2020; <sup>6</sup> Internal Business Intelligence; <sup>7</sup> Sources: LMC Automotive Light Vehicles Forecast, Aug 2020 & Euromonitor BPC (Beauty & Personal Care) Aug 2020



# Electronics: Successful transformation, ready for accelerated growth

An integrated electronics innovation leader with one of strongest industry portfolios



1) Incl. materials for OLED displays 2) Incl. liquid crystal displays  
3) Delivery Systems & Services 4) Intermolecular

## Delivering on promises and above

- ✓ **Bright Future program**  
key deliverables & savings
- ✓ **€3.3 bn sales with ~90% of sales focused on electronics**
- ✓ **Successful integration of Versum**
- ✓ **Attractive, stable EBITDA pre margins**
- ✓ **Display & Surface well managed**  
according to Enterprise Planning Unit role
- ✓ **Upgraded mid-term guidance of 3% to 6% sales CAGR**

**Everything in place to gain further speed as vital growth engine for Group**



# “Level Up” - Shifting gears from transformation to growth execution

## Level up **scale**

- **Capacity investments** synchronized to **customers’ expansion plans**
- Ability to **tackle industry challenges** & supply reliability
- Continue **localizing footprint** close to customers in **Korea, Taiwan, China, and U.S.**

## Level up **portfolio**

- Commitment to **relevant portfolio breadth** in **high growth areas**
- Diligent **bolt-on** acquisitions
- Targeted expansion of **portfolio**

**Enabling ambition  
of 3 to 6% org. CAGR  
2021 to 2025+**



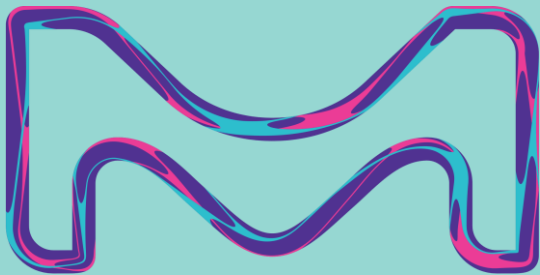
## Level up **tech**

- Further sharpen **focus on profitable innovation**, addressing key inflection points
- Address **sustainable innovation**
- **Expand R&D** and keep one of the highest **R&D rates in the industry**

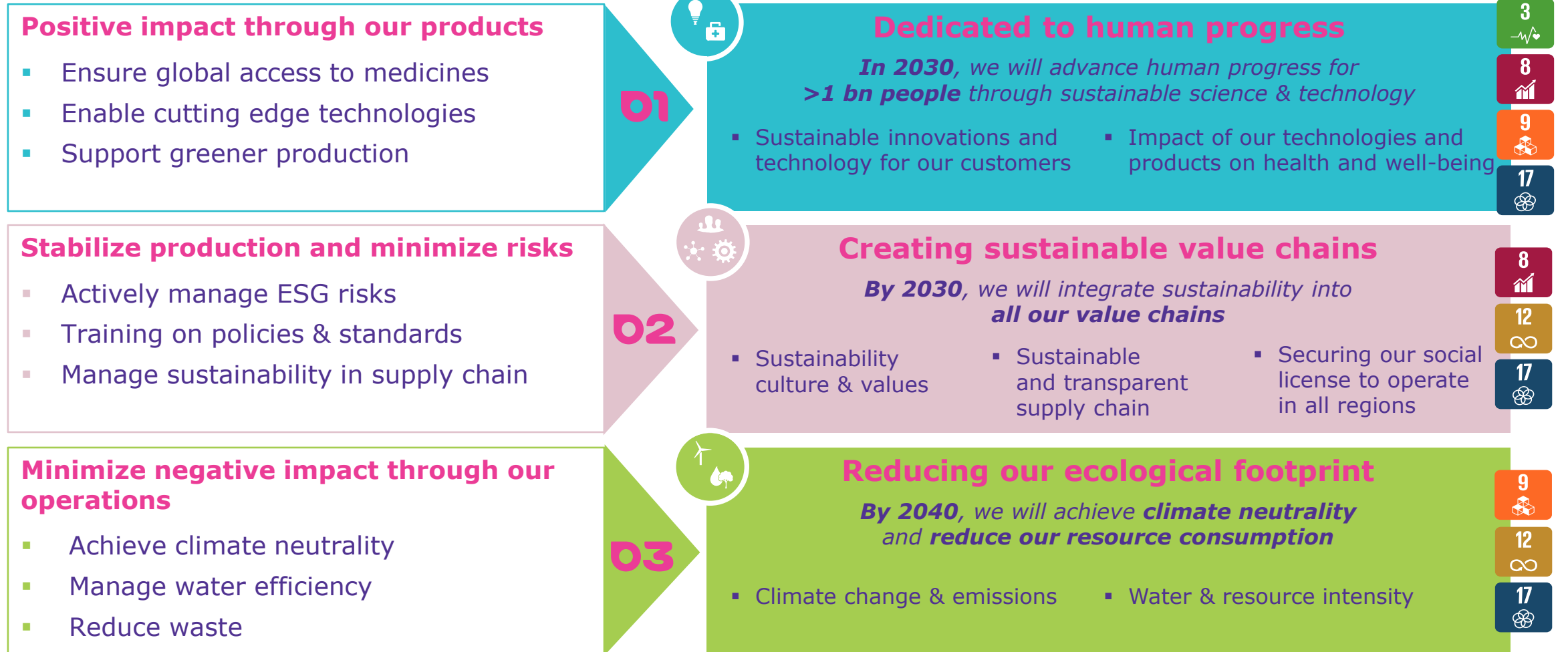
## Level up **people & capabilities**

- **Attractive** employer for **NextGen talents**
- Drive **safety, quality & sustainability**
- Drive **data analytics & digital transformation**

sustainability



# Boundaries of human progress today will become reality tomorrow: Our sustainability goals



# Clear metrics to drive execution and progress towards 2030 ambition

Goal	Metric	2021 (2020)	Target
1	Percentage of newly published patent families with positive sustainability impact	from 2022	n.a.
	People treated with our Healthcare products*	2021 (April)	1 bn people ambition <sup>1</sup> : HC
2	Percentage of women in leadership positions	36% (35%)	Gender parity by 2030 <sup>2</sup>
	Percentage of employees trained on sustainability	from 2022	n.a.
	Percentage of relevant suppliers covered by valid sustainability assessment*	21% <sup>3a</sup> /65% <sup>3b</sup> (n.a.)	visible increase until 2024 <sup>3</sup>
	Environment, Health and Safety (EHS) Incident Rate	3.9 (3.4) <sup>4</sup>	As low as possible
	Violations of Global Social and Labor Standards Policy	41 (29) <sup>5</sup>	n.a.
	Lost Time Injury Rate (LTIR)	1.2 (1.3)	<1.0 by 2025 <sup>6</sup>
3	Greenhouse gas emissions Scope 1+2*	1,843 kt (2,028 kt)	-50% by 2030 <sup>7</sup>
	Scope 3 intensity: kg Greenhouse gas emissions per € gross profit	0.46 (0.48)	-52% intensity by 2030 <sup>8</sup>
	Percentage of purchased electricity from renewable resources	30% (27%)	80% by 2030
	Company Waste Score (WS)	2021 (April)	-5% by 2025 <sup>9</sup>
	Company Water Intensity Score (WIS)	from 2022	-10% by 2025 <sup>10</sup>
	Wastewater quality: no harmful emission residues	from 2022	100% completion by 2030 <sup>11</sup>

\*LTIP relevant

<sup>1</sup>92 mio HC + 90.5 mio Prazi in 2020  
<sup>2</sup>considers room for non-binary people  
<sup>3</sup>by a)number, b)purchase volume  
<sup>4</sup>incidents + severity vs. man-hours  
<sup>5</sup>confirmed violations

<sup>6</sup>accidents with min. 1 day of missed work per 1 mio. man-hours  
<sup>7</sup>vs. 2020 ~2,100 kt CO<sub>2</sub>e  
<sup>8</sup>vs. 2020 0.48 intensity ratio (kg scope 3 emissions per € gross profit)

<sup>9</sup>vs. 2016 WS 443  
<sup>10</sup>vs. 2020 (updated) WIS considering local availability of water and no. of man-hours  
<sup>11</sup>below scientifically defined threshold







# Diverse human capital: Thinking, talking, and leading differently

Focus areas	Indicator	Status 2021 (2020)	Aspirations
Gender	Percentage of women in leadership globally	36% (35%)	Gender parity until 2030
Culture & Ethnicity	Percentage of underrepresented ethnic colleagues in US leadership	21% (20%)	Increase to 30% until 2030
	Percentage of nationals from Asia, Latin America, Middle East & Africa in leadership	16% (16%)	Increase to 30% until 2030
Inclusion	Inclusive Leadership Programs and participation of leaders across all business	37%	Participation of all leaders by 2026

The **uniqueness** of our people brings our **curiosity** to life. It contributes to our success in **science & technology**.



# Reduce our environmental footprint: Emissions, Water and Waste

Goal 3	 <b>Climate neutrality by 2040</b>	 <b>Enhance water efficiency &amp; purity</b>	 <b>Reduce waste impact</b>
Target	<ul style="list-style-type: none"> <li>Lower <b>scope 1+2</b> GHG<sup>3</sup> emissions by <b>-50%</b><sup>4</sup></li> <li>Source <b>80%</b> of purchased electricity from <b>renewable</b> sources until 2030</li> <li>Intensity <b>reduction of Scope 3</b> per € gross profit by <b>52%</b> until 2030<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>Enhancing water efficiency: improve Company water intensity score by <b>-10%</b> by 2025<sup>4</sup></li> <li>Harmful emission residues should be lowered below a scientifically defined threshold by 2030</li> </ul>	<ul style="list-style-type: none"> <li>Based on the Company Waste Score, we have set ourselves the goal of reducing the environmental impact of our waste by <b>-5%</b> by 2025 compared to 2016</li> </ul>
Status	<ul style="list-style-type: none"> <li>➤ Scope 1+2: <b>1,843 kt<sup>1</sup></b> (2,028 kt<sup>2</sup>)</li> <li>➤ Renewable energy: <b>30%</b><sup>1</sup> (27%<sup>2</sup>)</li> <li>➤ Scope 3: <b>5,716 kt<sup>1</sup></b> (5,030 kt<sup>2</sup>); emissions/profit ratio: <b>0.46</b><sup>1</sup> (0.47<sup>2</sup>)</li> <li>➤ Scope 1-3 targets approved as Science Based Targets </li> </ul>	<ul style="list-style-type: none"> <li>➤ 2025 target achievement will be reported from fiscal year 2022 onwards</li> <li>➤ 2020 target of -10% water use in stressed areas has been overachieved: -27%</li> </ul>	<ul style="list-style-type: none"> <li>➤ Reduction of waste impact (Company Waste Score): <b>-5,6%</b><sup>1</sup> (-4,6<sup>2</sup>)</li> </ul>



# Merck KGaA, Darmstadt, Germany, confirmed as “1.5°C Company” by SBTi



**New!**

SBTi certification of Scope 1-3 targets

Work on **SBTi roadmap** towards **climate targets 2030**

Aiming for **climate neutrality by 2040**

## Scope 1+2

Absolute reduction of Scope 1+2 GHG<sup>1</sup> emissions by 50% until 2030 (vs. 2020)

## Scope 3

Intensity reduction of kg Scope 3 GHG<sup>1</sup> emissions per € gross profit by 52% until 2030 (vs. 2020)



## Renewable energy

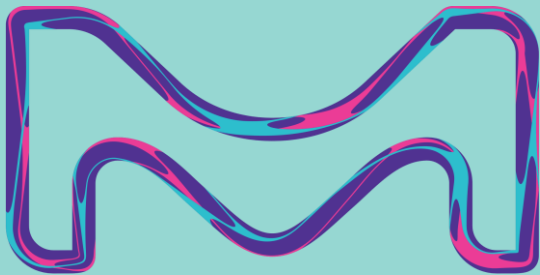
Cover 80% of purchased electricity with renewables by 2030

### Science Based Target initiative (SBTi):

- Science-based targets provide a clearly defined pathway for companies to reduce GHG<sup>1</sup> emissions, helping prevent the worst impacts of climate change and future-proof business growth
- Targets are considered ‘science-based’ if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement, pursuing efforts to limit global warming to 1.5°C



# Guidance and Executive Summary



# Well positioned to navigate operating challenges amid highly dynamic geopolitical situation

## War in Ukraine



## Input price pressures & supply chain disruptions



## COVID-19 lockdowns



### Situation

- High degree of uncertainty
- Russia sanctions might increase
- Increasing call to stop “financing” war with oil and gas



### Assumption (Guidance scenario)

- Energy supply shortages throughout 2022
- Impact mainly limited to EMEA
- No outages expected

- Inflation rates rising worldwide
- Global production bottlenecks
- Risk of stagflation increasing

- Freight costs remain elevated
- Higher & volatile energy cost
- Selected materials see further price increases, very minor shortages
- Tightening labor markets

- Global trend: shift to endemic
- China: Shanghai & other provinces locked down to prevent spread of Omicron

- Limited duration of sales and production impact
- Normalization in June latest
- Only few provinces affected



### Mitigation (incl. in Guidance)

- Higher safety stocks for critical raw materials, actively monitoring supply base (tier 2+)
- Evaluating & adjusting pricing case-by-case, depending on situation (e.g. temporary surcharges)
- More e-commerce & additional channels in lockdown-affected areas, primarily in Life Science
- Leveraging production sites outside of lockdown-affected areas wherever possible

# Full-year 2022 guidance

## Net sales:

Organic: +6% to +9% YoY  
FX: 3% to 6% YoY  
**~€21.6 bn to €22.8 bn**

## EBITDA pre:

Organic: +5% to +9% YoY  
FX: 4% to 8% YoY  
**~€6.6 bn to €7.1 bn**

## EPS pre:

**~ €9.60 to €10.50**

# 2022 business sector guidance<sup>1</sup>

## Life Science



### Net sales

- Organic: +7% to +10%
- Strong core business, Process Solutions COVID-19 sales of up to ~€700 m
- Process Solutions as main growth driver

### EBITDA pre

- Organic: +6% to +10% YoY
- FX: 3% to 6% YoY
- ~€3,600 m to €3,850 m

## Healthcare



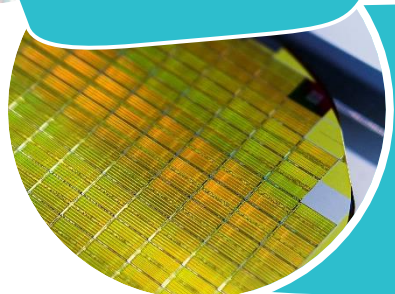
### Net sales

- Organic: +4% to +7%
- Mainly driven by Mavenclad<sup>®</sup> and Bavencio<sup>®</sup>
- CM&E back to growth post VBP

### EBITDA pre

- Organic: +3% to +5% YoY
- FX: 8% to 12% YoY
- ~€2,350 m to €2,500 m

## Electronics



### Net sales

- Organic: +5% to +8%
- Underlying demand in key electronic end markets remains strong
- Strong contribution by Semiconductor Solutions

### EBITDA pre

- Organic: 0% to +4% YoY
- FX: 9% to 12% YoY
- ~€1,200m to €1,300 m

# Additional financial guidance 2022

## Further financial details

Corporate & Other EBITDA pre	<b>-€510 m to -€570 m</b>
Interest result	<b>~ -€110 m to -€150 m</b>
Effective tax rate	<b>~22% to 24%</b>
Capex on PPE <sup>1</sup>	<b>~€1.6 bn to €1.7 bn</b>
Hedging/USD assumption	<b>FY 2022 hedge ratio ~50% at EUR/USD ~1.16</b>
2022 Ø EUR/USD assumption	<b>~1.06 to 1.10</b>

<sup>1</sup>Based on gross additions to PPE on balance sheet in fiscal year to reflect planned Capex expansion more accurately



# Executive Summary

4 key priorities to deliver on our science & tech ambitions



**Mobilizing for  
Efficient growth**



**Leveraging  
Innovation  
in the BIG3**



**Driving  
Culture & Leadership**



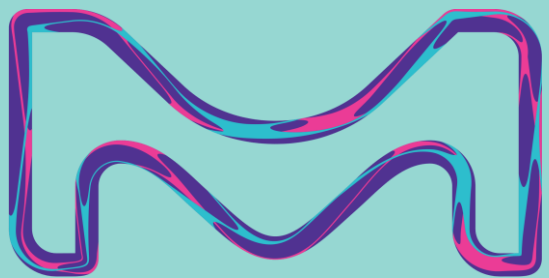
**Focusing on  
Sustainability**



# Appendix



GROUP



# Group

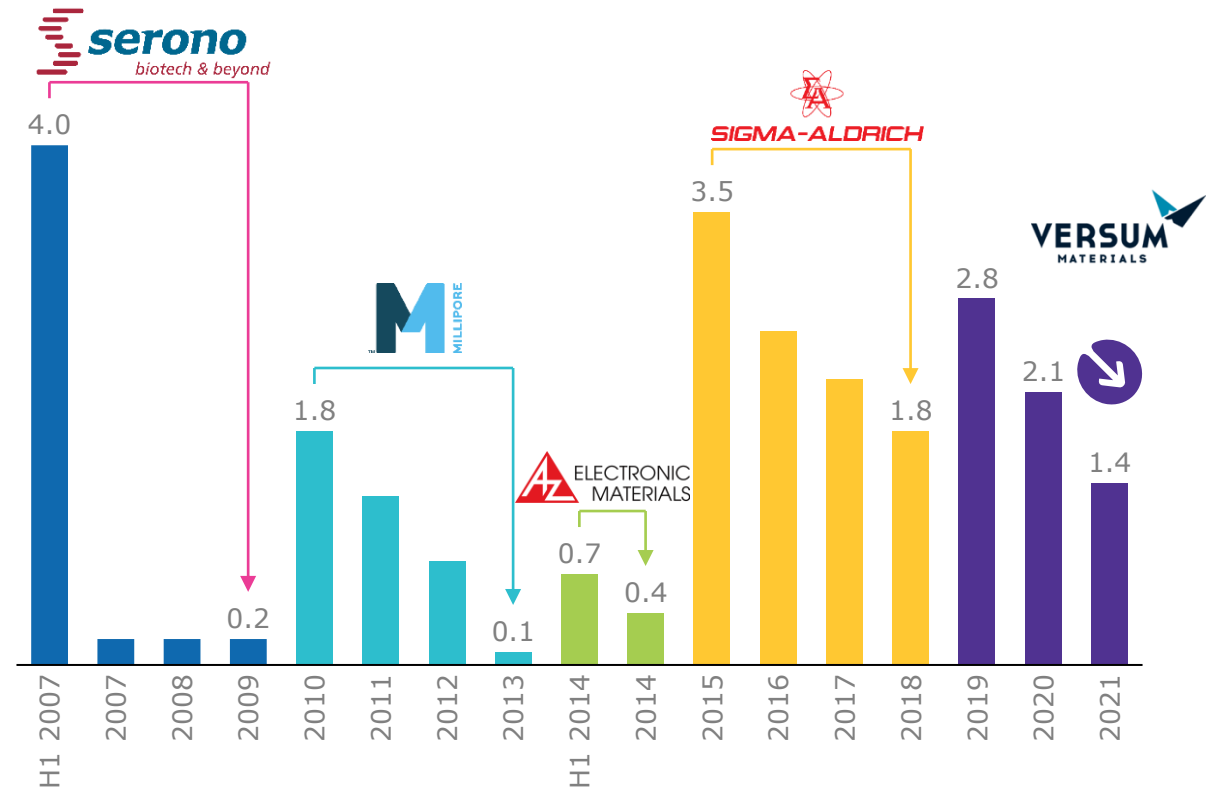
## Focus on organic growth and further deleveraging

### Proven swift deleveraging after major acquisitions

**UPDATE**

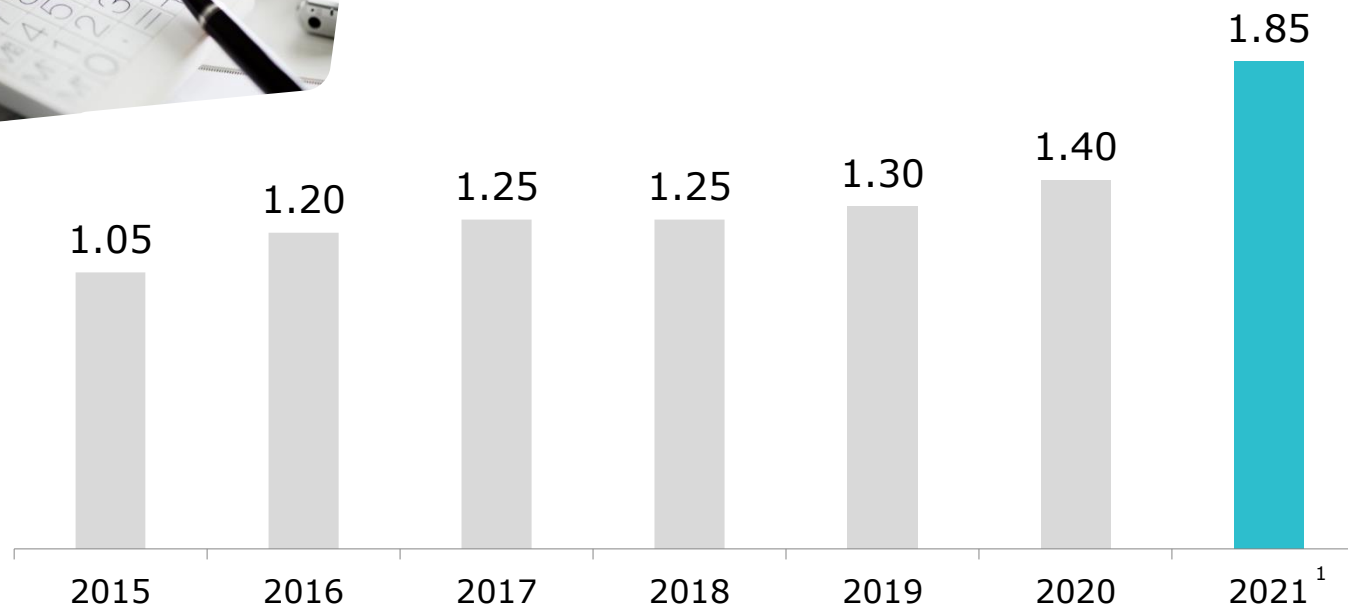
- **Deleveraged to ~1.4x** net debt/EBITDA pre in 2021
- **M&A on agenda from 2022**; higher likelihood for small & medium sized deals
- Annual capex guidance: from ~€1.4 bn in 2021 to ~€2 bn by 2023 and **increased focus on organic investment**
- Dividend policy mirrors **sustainable earnings trend**

### Net debt / EBITDA pre track record & outlook



# Strong company performance drives all time high payment to shareholders

## Dividend<sup>1</sup> development 2015 - 2021



## 2021 dividend

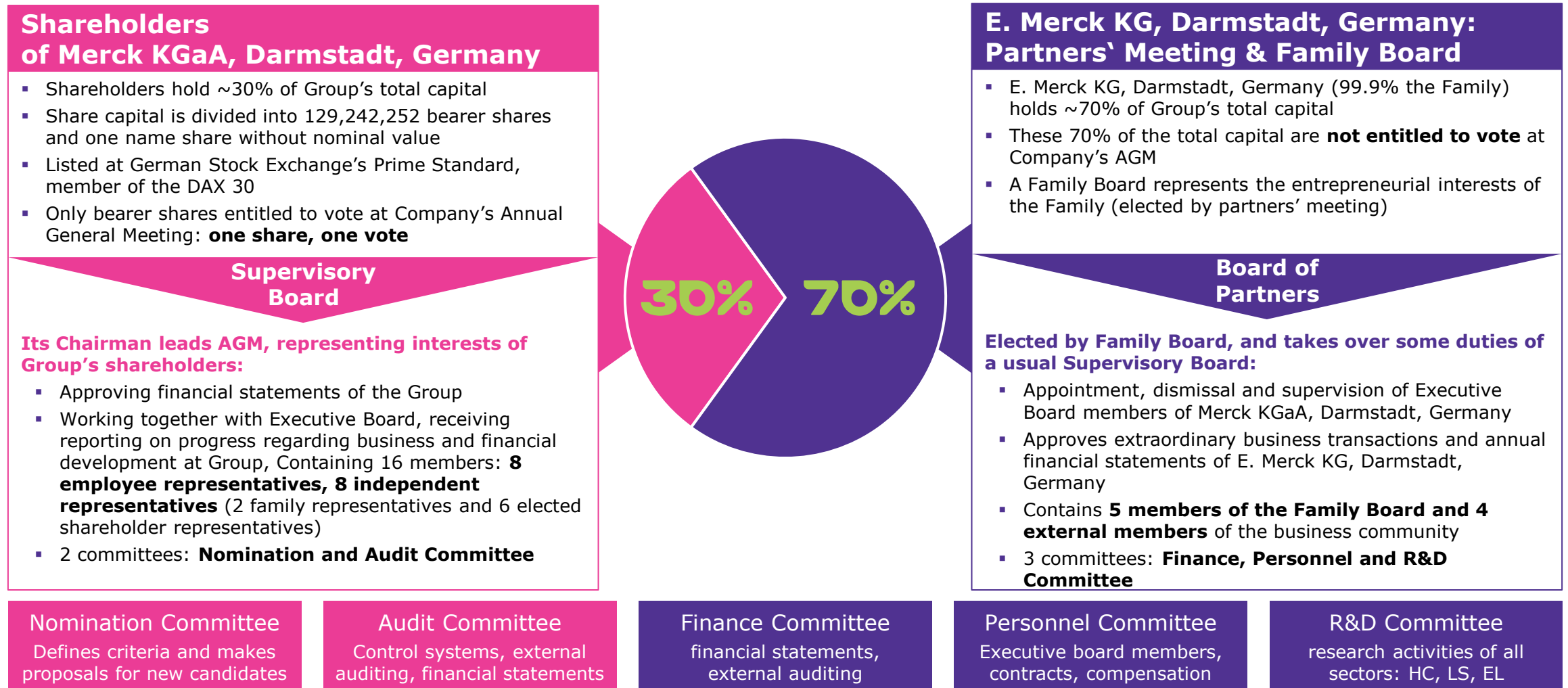
- Dividend of €1.85 (+32% YoY) per share proposed<sup>1</sup> for 2021
- Payout ratio of 21.2% of EPS pre in 2021; aiming for 20% to 25%
- Dividend yield<sup>2</sup> of 0.8%

<sup>1</sup>Final decision is subject to Annual General Meeting approval

<sup>2</sup>Calculated with 2021 year-end share price of €227.00 per share.

# Group

## Company's ownership structure



# Group: Executive board compensation

## Pay for performance reflecting the company's long-term strategy

Variable	40-50%	<h3>Long-Term Incentive Plan</h3> <ul style="list-style-type: none"> <li>Reflecting the long-term strategy for Company's <b>growth and (from 2022) sustainability ambition</b></li> <li><b>4 years performance cycle:</b> 3 years target achievement + 1 year holding period</li> <li>Based on virtual Group Share Units (Grant € divided through start share price, multiplied with the end share price)</li> <li><b>Financial targets:</b> 50% Group Share Price vs. DAX + 25% EBITDA pre margin + 25% Organic sales growth</li> <li><b>From 2022</b> multiplied with <b>sustainability factor (0.8-1.2)</b> reflecting KPIs from each of the sustainability goals</li> <li>Corridors for each target and achieved targets <b>published transparently</b> ex-post in the compensation report</li> <li><b>Maximum cap:</b> Maximum pay out 250%, maximum € cap for LTIP for each board member published</li> <li><b>Claw-back</b> allows to retain amounts allocated from the Long-Term Incentive Plan</li> </ul>	<ul style="list-style-type: none"> <li>+ Performance of Group share price vs. the DAX <b>50%</b></li> <li>+ EBITDA pre margin in relation to target value <b>25%</b></li> <li>+ Organic sales growth in relation to target value <b>25%</b></li> <li>✗ <b>0.8-1.2</b> Sustainability factor</li> <li>= <b>0-180%</b> of allocated units</li> </ul>
	25-35%	<h3>Profit Sharing</h3> <ul style="list-style-type: none"> <li><b>Three-years average profit after tax</b> of the E. Merck KG, Darmstadt, Germany, multiplied with individual permille rate</li> <li><b>From 2021 reduced individual performance factor of 0.8-1.2</b> can increase (bonus) or decrease (malus) the amount based on a set of criteria, incl. the 3 sustainability goals, disclosure of catalogue and reasons for if performance factor ≠ 1.0</li> <li><b>Individual permille rate</b> for each board member and maximum € cap for each board member published</li> <li><b>Staggered incentivization</b> and <b>minimum threshold value</b> and maximum limit for profit after tax (€0.75/2.0 bn)</li> <li>Mandatory <b>personal investment in Group Shares</b> amounting to one third of the net payment of the profit sharing (4 year holding period)</li> </ul>	
Basic	6-9%	<b>Pension Entitlements</b> Defined contribution	
	0-3%	<b>Additional Benefits</b> Mainly contributions to insurance policies, personal security expenses, company car...	
	15-20%	<h3>Basic Compensation</h3> <ul style="list-style-type: none"> <li><b>Fixed and non-performance related compensation</b></li> <li>Paid in 12 equal monthly installments</li> <li>€1.4 million for the chairman / up to €1.1 million for the members of the executive board</li> </ul>	
<b>Maximum total compensation: reduced to €11.5 m Chairman, €9.5 m other executive board members</b>			



# Executive Board long-term incentive linked to sustainability

- Starting from fiscal year 2022, our sustainability strategy will be even more firmly embedded in the compensation system for the members of the Executive Board
- The sustainability factor encompasses three performance criteria according to the sustainability strategy and measures the performance indicators over a three-year target achievement cycle
- The sustainability factor depends on the degree of target achievement and may increase or decrease the outcome of the financial performance indicators of the LTIP (Performance Group Share vs. DAX, EBITDA pre margin, organic sales growth) in the range of 0.8x and 1.2x

## Parameters for the sustainability factor for the 2022 tranche of the LTIP<sup>1</sup>:

Performance Criteria	%	Performance Indicators
Dedicated to human progress	20%	People treated with our Healthcare products
Creating sustainable value chains	40%	Percentage of relevant suppliers (in terms of number and purchase volume) that are covered by a valid sustainability assessment
Reducing our ecological footprint	40%	Scope 1 + 2 greenhouse-gas emissions

# Group

## Strategic focus areas in sustainability

### Sustainability innovation and technology for our customers

- Sustainability as integral part of **product design**
- Enable **customers** to reduce sustainability footprint
- SBV as a tool to assess net sustainability **impact**

### Health and wellbeing impact of our technologies and products

- Health (Healthcare, Life Science) & wellbeing (Life Science, Electronics)-related impact of:
  - Company **products**
  - Company's **activities**

### Climate change and emissions

- **Greenhouse gas emissions** Scope 1, 2, 3
- **Renewable energy**
- **Energy efficiency** in operations



# Group

## External stakeholders assess our engagement



As of 2021, Group received an MSCI **ESG\* Rating of AAA.**

\*Environment, Social, Governance



In September 2021, we improved our **ESG Risk Rating** to 18,3 and were assessed by Sustainalytics to be at **low risk** of experiencing material financial impacts from ESG factors.



Since 2008, Group is part of **FTSE4Good Index**, measuring the performance of companies with strong ESG practices, ranking percentile rank 95 (top 5%).



In 2020, Group has once more achieved **prime status** by **ISS Oekom.**



Since 2019, the Group share is again **included in STOXX Global ESG Leaders Index**, a sustainability index based on key environmental, social and governance criteria.



Company has been **reconfirmed** as a constituent of the **Ethibel Sustainability Index (ESI)** Excellence Europe since May 2020, based on VigeoEiris.



The Group received gold status in 2022, stating Company is among the **top 3% of companies.** **EcoVadis** annually examines ~75,000 suppliers from 160 countries.



**CDP Climate:** In 2021, we scored "B" (2020: B). **CDP Water:** In 2021, we received a "A-" (2020: B).



In the 2021 **Access to Medicine Index** Group ranked **eighth place.** We were recognized for our performance in R&D, where we ranked fifth.

# Group

## Regular portfolio review remains key to success

### strong track record

- Acquisitions and divestments are part of Group's history
- Licensing and partnerships remain on our agenda
- All prior transactions earned their cost of capital



### defining portfolio guard rails

- Three strong pillars with no business marginalized
- Leading market position in attractive markets
- Focus on innovation and sustainability through science and technology



### clear financial M&A criteria

- Supporting profitable growth strategy
- $IRR > WACC$
- EPS pre accretive
- Maintain investment grade rating



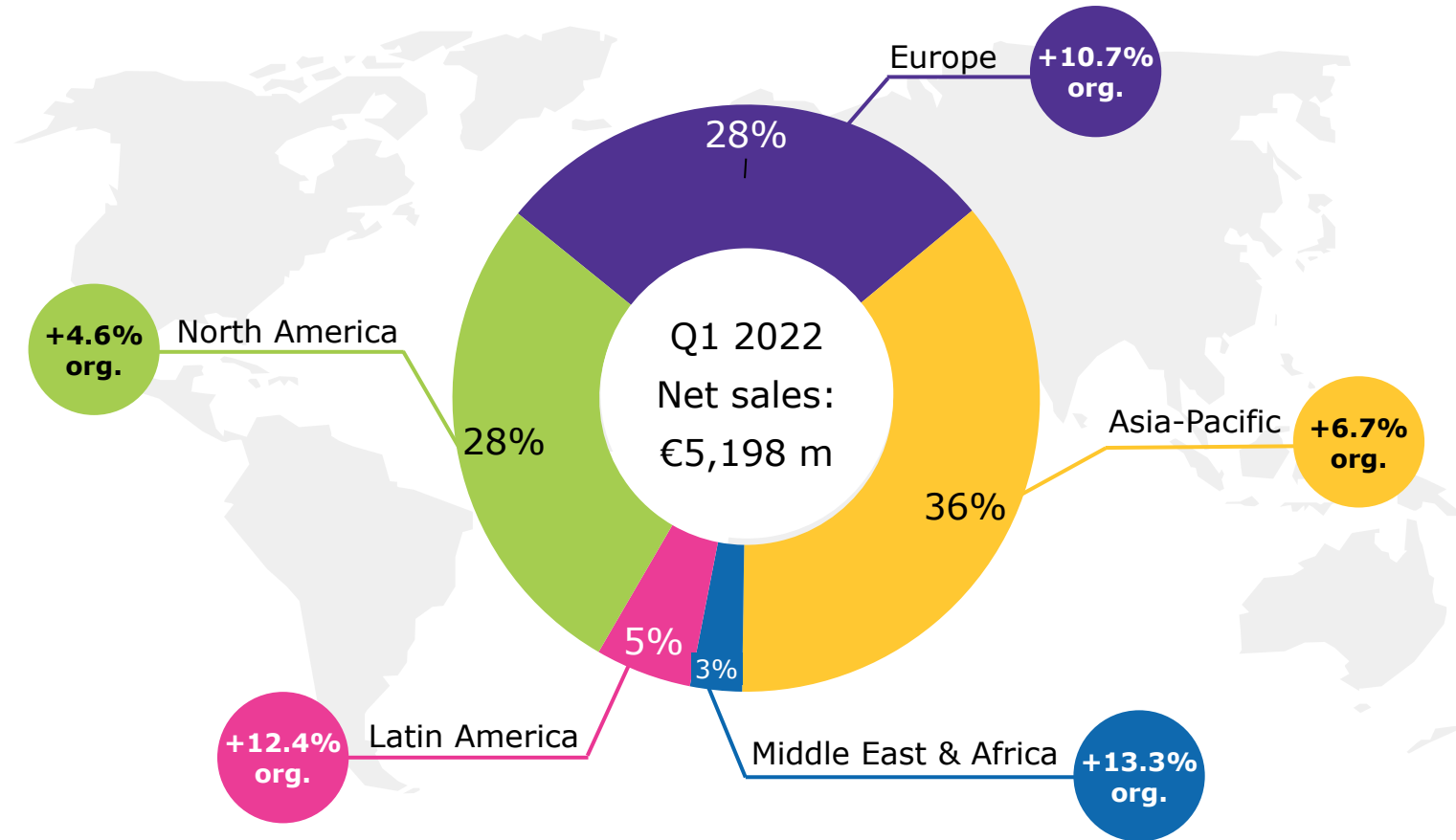
**Current set-up is strong and organic investment opportunities are attractive**

**Ready to pursue external growth opportunities following swift deleveraging post Versum**

**Targeted and more regular bolt-on approach more likely than large transformative deals**

# Strong Life Science and Healthcare are primary growth drivers across all regions

## Regional breakdown of net sales [€m]



## Regional organic development

- APAC: Semiconductor Solutions main growth driver, supported by Process Solutions and Bavencio®
- Europe: Process Solutions, Bavencio® and Mavenclad® primary growth drivers
- North America: Life Science, especially Process and Applied Solutions drive growth; Bavencio® supporting further
- LATAM: CM&E primary growth driver, further supported by Applied Solutions, Process Solutions and Fertility
- Fertility & CM&E main contributors to ME&A growth

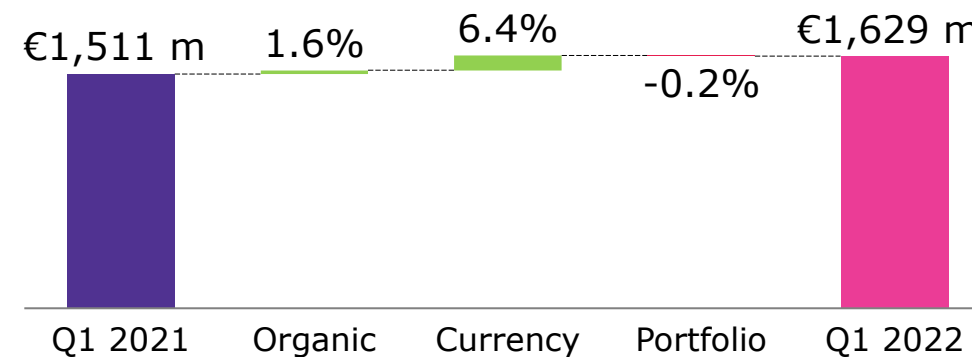
## All sectors contribute to strong organic sales growth; Sales and EBITDA pre further supported by significant positive FX effects

### Q1 YoY Net Sales

	Organic	Currency	Portfolio	Total
Life Science	9.7%	4.8%	0.2%	14.7%
Healthcare	6.5%	3.0%	0.0%	9.5%
Electronics	5.2%	6.0%	0.0%	11.2%
<b>Group</b>	<b>7.8%</b>	<b>4.4%</b>	<b>0.1%</b>	<b>12.2%</b>

- Life Science: Strong organic growth driven by all business units with Process and Applied Solutions both up +13% org.; Research Solutions growing (+2% org.) despite tough comps
- Healthcare: Recent launches up +50% organically (continued strong Bavencio® uptake) driving strong sector growth
- Electronics: +16% org. growth in Semiconductor Solutions more than offset organic decline in Display Solutions; Surface Solutions growing slightly

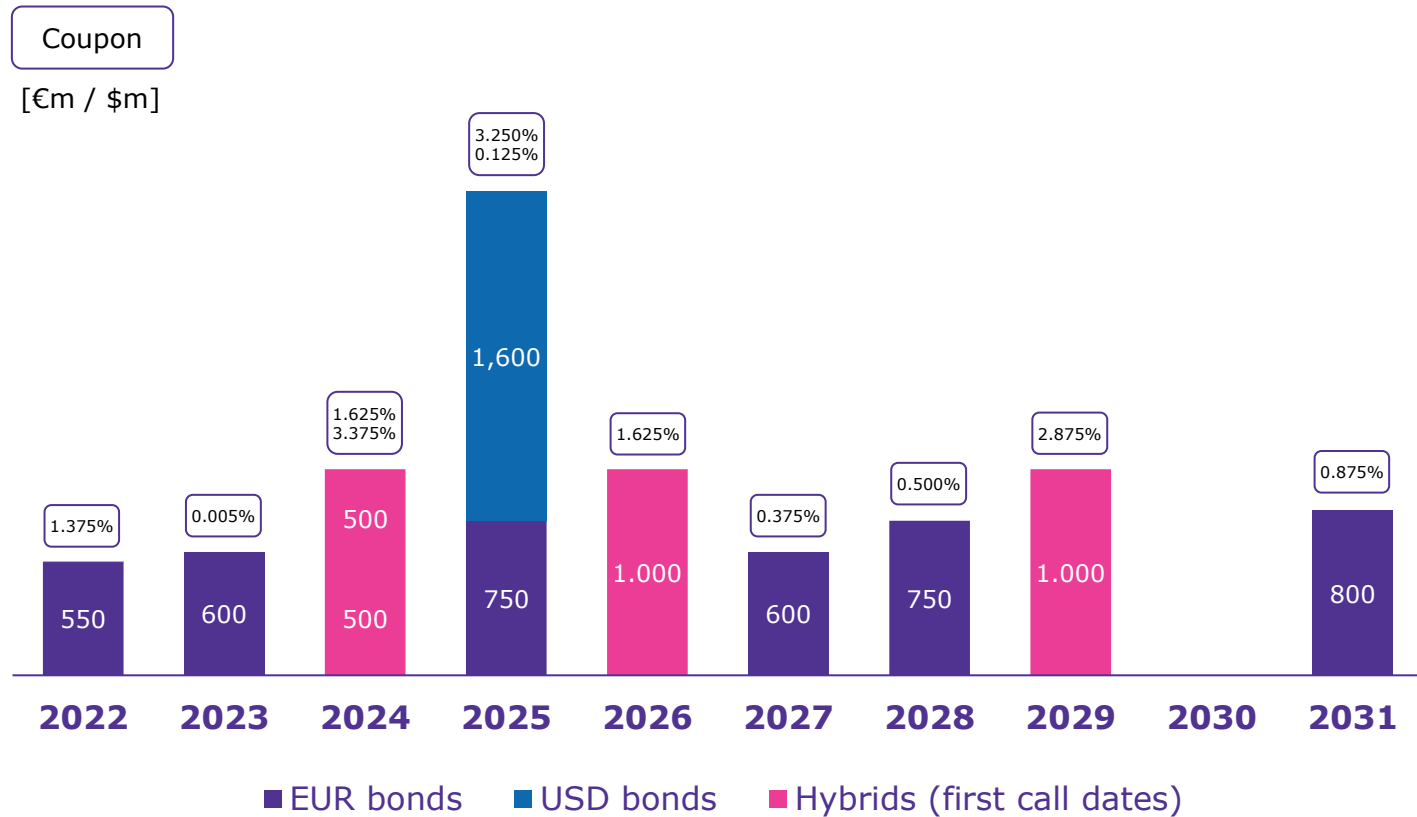
### Q1 YoY EBITDA pre



- EBITDA pre growing 2% org. despite higher non-recurring income in Healthcare comps amid inflationary price pressures
- Life Science entirely drives org. EBITDA pre growth
- Positive FX effect of +6% across various currencies with largest positive impact from USD, CNY and TWD; partly offset by TRY and hedging

# Credit details

## Maturity profile as of March 31, 2022



## Credit rating information

	LT Rating	Since	Outlook	ST Rating
MOODY'S	A3	21.10.21	Stable	P-2
S&P Global	A	29.05.13	Stable	A-1
SCOPE	A-	11.10.21	Positive	S-1



# Q1 2022: Overview

## Key figures

[€m]	Q1 2021	Q1 2022	Δ
Net sales	4,631	<b>5,198</b>	12.2%
EBITDA pre	1,511	<b>1,629</b>	7.8%
<i>Margin (in % of net sales)</i>	32.6%	<b>31.3%</b>	-1.3pp
EPS pre	2.18	<b>2.41</b>	10.6%
Operating cash flow	1,216	<b>840</b>	-30.9%

[€m]	Dec. 31, 2021	March 31, 2022	Δ
Net financial debt	-8,753	<b>-9,228</b>	5.4%
Working capital	4,207	<b>4,811</b>	14.4%
Employees	60,335	<b>61,518</b>	2.0%

## Comments

- Sales up +12%, driven by strong organic performance and FX tailwinds
- Life Science primary driver of organic EBITDA pre growth; FX upsides
- EPS pre growth driven by EBIT pre contribution, better financial result
- Operating cash flow decline driven by net working capital (favorable phasing in prior year payables) & tax payments
- Net financial debt increases, mainly driven by Exelead acquisition

# Q1 2022: Reported figures

## Reported results

[€m]	Q1 2021	Q1 2022	Δ
EBIT	1,043	<b>1,173</b>	12.5%
Financial result	-59	<b>-34</b>	-41.9%
Profit before tax	984	<b>1,139</b>	15.8%
Income tax	-236	<b>-255</b>	8.1%
<i>Effective tax rate (%)</i>	24.0%	<b>22.4%</b>	-1.6pp
Net income	747	<b>880</b>	17.9%
EPS (€)	1.72	<b>2.02</b>	17.4%

## Comments

- EBIT growing +13% despite lower non-recurring income in Healthcare amid inflationary pressures
- Improved financial result primarily driven by reduced interest expenses from lower interest on tax liabilities & ongoing repayment of financial debt
- Lower effective tax rate within guidance range, driven by positive country mix in Life Science
- Net income and EPS growth reflect EBIT growth, improved financial result and lower tax rate



# Cash flow statement

## Q1 2022 – Cash flow statement

[€m]	Q1 2021	Q1 2022	Δ
Profit after tax	748	<b>884</b>	136
D&A	424	<b>430</b>	6
Changes in provisions	-34	<b>22</b>	55
Changes in other assets/liabilities	160	<b>-149</b>	-309
Other operating activities	6	<b>-24</b>	-30
Changes in working capital	-88	<b>-322</b>	-234
<b>Operating cash flow</b>	1,216	<b>840</b>	-376
Investing cash flow	-346	<b>-1,089</b>	-743
thereof Capex on PPE	-309	<b>-413</b>	-105
Financing cash flow	6	<b>-315</b>	-321

## Cash flow drivers

- +18% profit after tax growth driven by strong business performance, improved financial result and lower tax rate
- Delta in other assets & liabilities driven by elevated 2021 level from phasing in tax positions and a pension related shift between provisions and other assets
- Delta in working capital mainly explained by payables phasing (+ ~ €300 m in Q1 2021); higher inventories and receivables amid strong sales growth
- Higher investing cash flow driven by Exelead acquisition; higher PPE Capex supporting capacity expansions
- Financing cash flow driven by repayment of financial debt



# Adjustments in Q1 2022

## Adjustments in EBIT

[€m]	Q1 2021		Q1 2022	
	Adjustments	thereof D&A	Adjustments	thereof D&A
Healthcare	10	0	<b>4</b>	1
Life Science	14	0	<b>7</b>	1
Electronics	17	3	<b>11</b>	0
Corporate & Other	6	0	<b>6</b>	0
Total	47	3	<b>28</b>	3

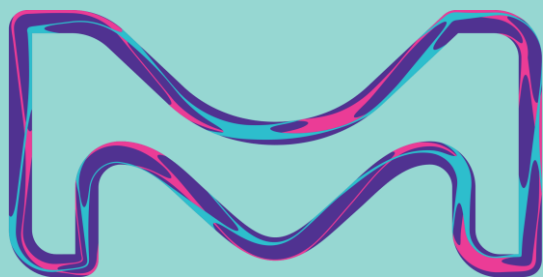


# Financial Calendar

Date	Event
May 12, 2022	Q1 2022 Earnings release
August 4, 2022	Q2 2022 Earnings release
October 6, 2022	Capital Markets Day
November 10, 2022	Q3 2022 Earnings release
March 2, 2023	Q4 2022 Earnings release
May 11, 2023	Q1 2023 Earnings release



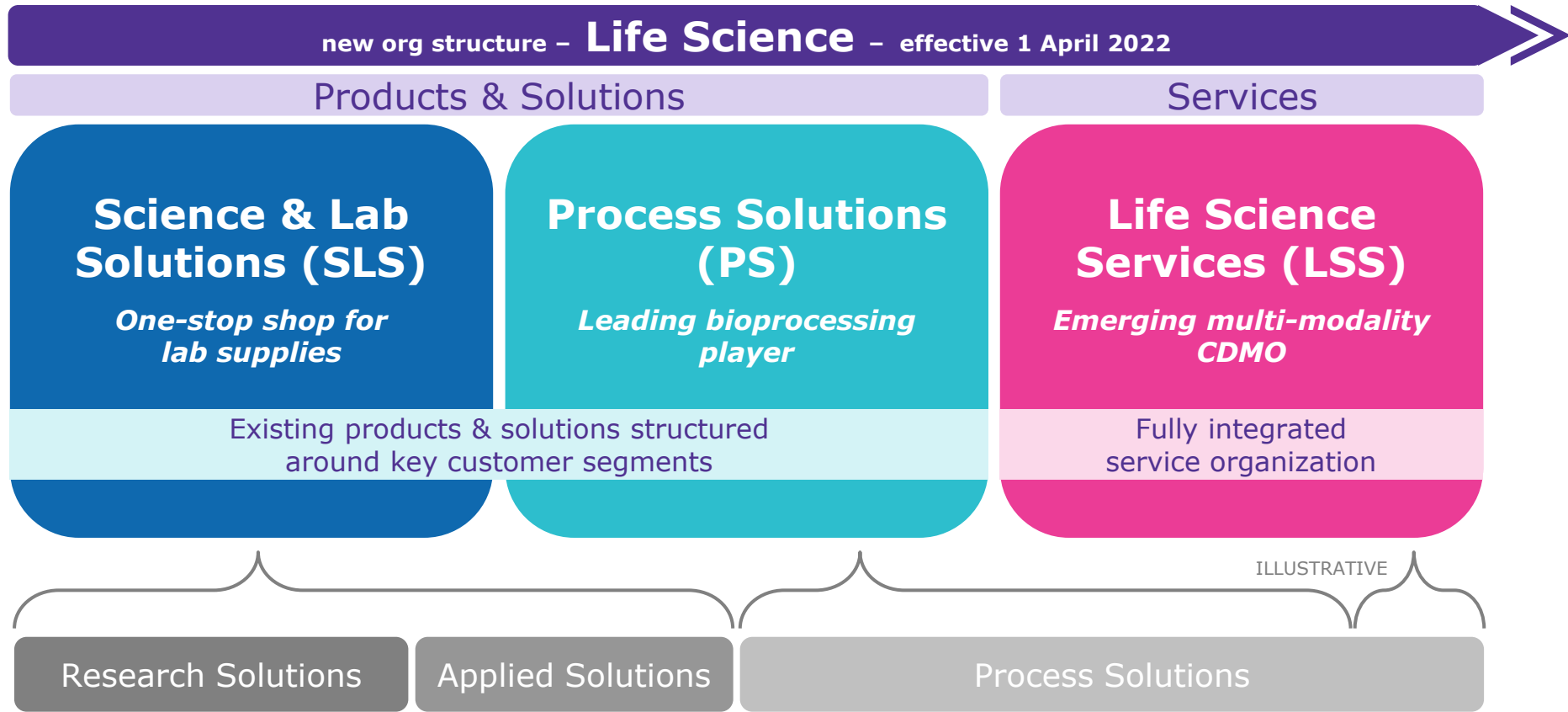
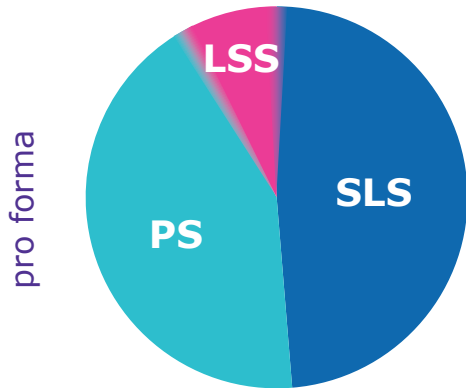
Life science



# Life Science

## New organizational structure and operating model to support long-term growth strategy and better serve evolving customer needs

Life Science sales split by business unit (9M-21)



**Accelerating ability to provide best-in-class products and services to customers across pharma & biotech, industrial & testing, academic & government, and diagnostics**



# Life Science

## New enablement function & leadership to complement existing capabilities and deliver expert value to the business

new org structure – **Life Science** – effective 1 April 2022

### Capabilities & Enablement



Continue to deliver expert value & support

Ensure flawless execution of transformation agenda

Further establish standardized & best-in-class processes & structures

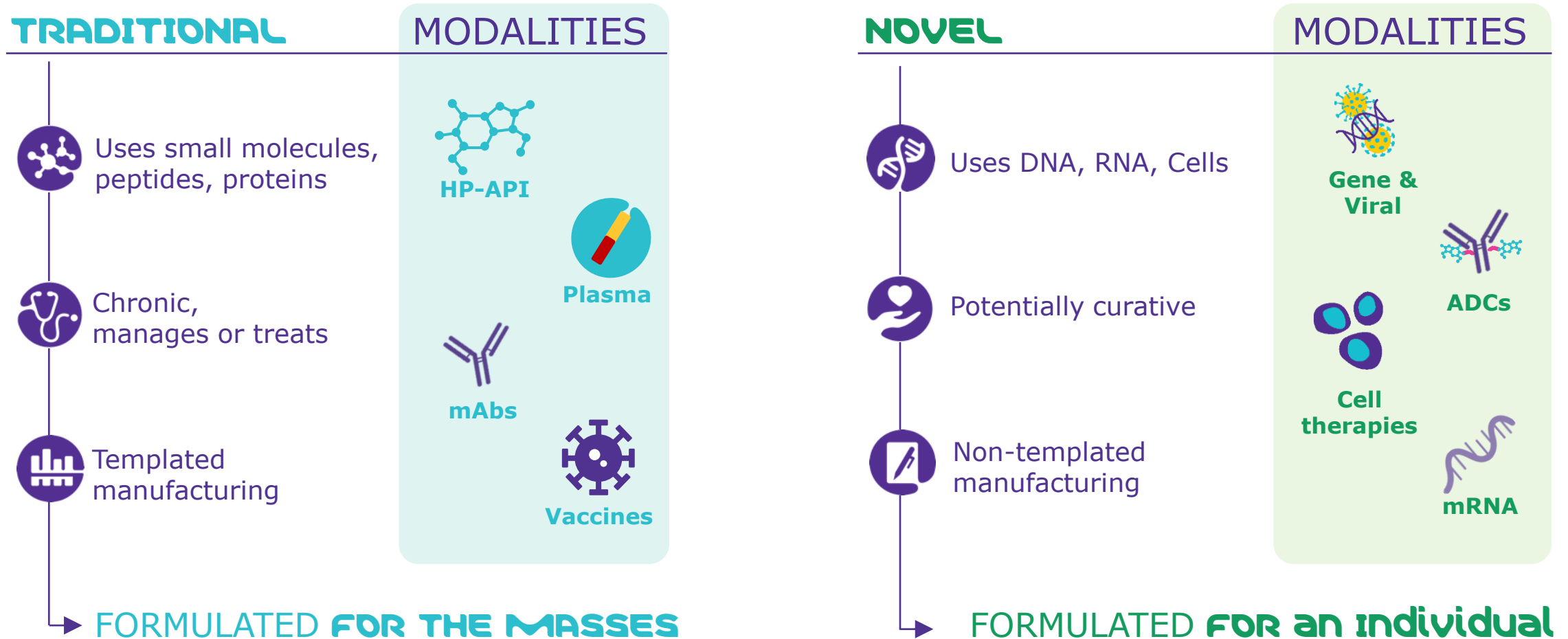


<sup>1</sup> New leadership since 1 Dec 2021; <sup>2</sup> New leadership since 1 Aug 2021



# Process Solutions: Therapies are evolving from treatments to cures

## Advancing traditional is critical as novel modalities develop



Acronyms: HP-API = highly potent active pharmaceutical ingredient; mAbs = monoclonal antibodies; DNA = deoxyribonucleic acid; (m)RNA = (messenger) ribonucleic acid; ADC = antibody drug conjugate



# Process Solutions

## Moving from today's technology to BioPharma 4.0

unit operations		 PALL	ThermoFisher SCIENTIFIC	SARTORIUS
Cell culture media	●	●	●	●
Biopharm materials	●	●	●	●
Chromatography	●	●	●	●
Hardware	●	●	●	●
Single use	●	●	●	●
Sterile	●	●	●	●
Virus	●	●	●	●
Clarification	●	●	●	●
Tangential flow filtration	●	●	●	●

● = A leading player   
 ● = Significant presence   
 ● = No offering

Sources: press releases, company reports, and internal assessments

### Intensified, integrated, digitally-enabled

mAbs templated  
30 years ago

➔

Next generation  
bioprocessing

---

### Intensified Processing

*Value for customers*

Perfusion  
BioRx

Natrix  
chrom

In-Line  
Dilution

Single  
Pass TFF

---

### Process Analytics

*Insight for customers*

control  
Application  
Control  
Engine

connect  
Orchestrator

collaborate  
Customer  
Portal

collect  
ProcessPad  
ProCellics

▶ Progress   
 ○ Launched

---

### Real-time Release

*Assurance at speed*

Microbial cont./  
Bioburden

Biosafety

CQA

In-  
process

**Core technologies**



# Process Solutions: Strategic direction

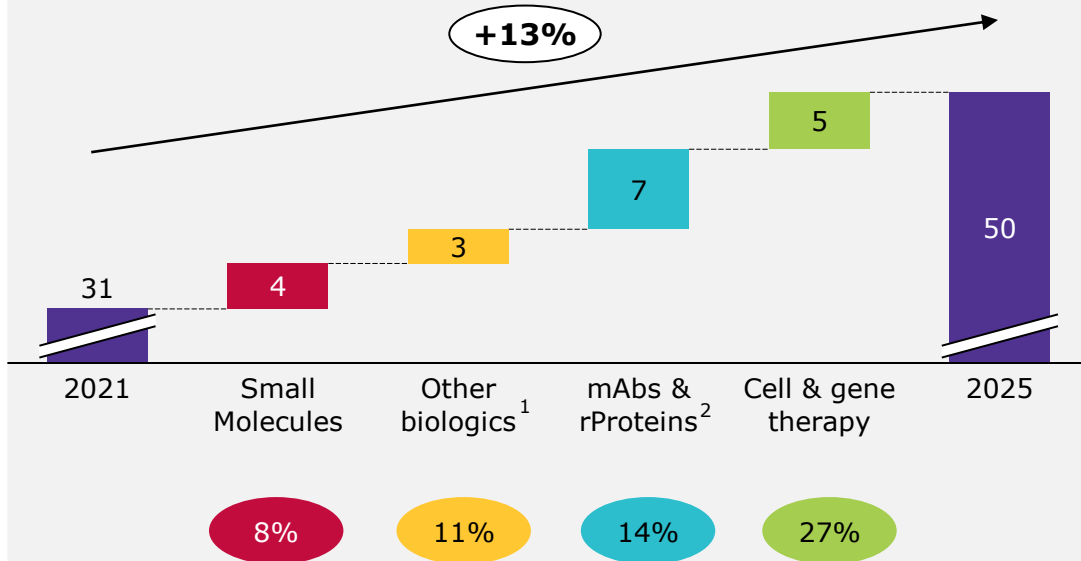
## Innovate and invest today to continue above market growth in the future



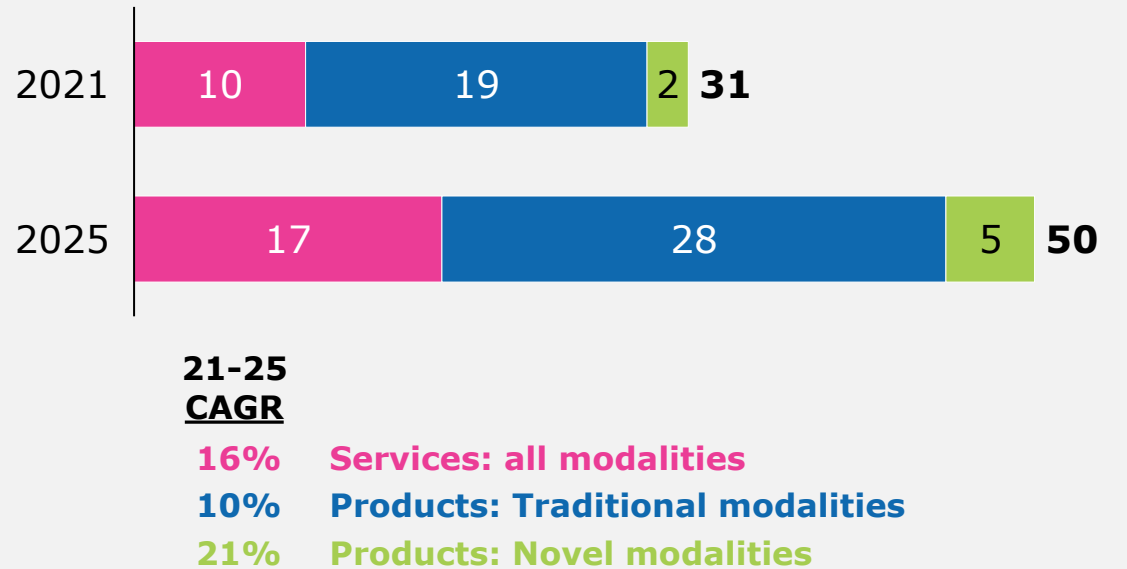
## Opportunities in services to accelerate double-digit growth

### Accessible Market (€ bn)

#### mAbs dominate; Novels fastest



#### Importance of services and novel modalities increases



Sources: Evaluate Pharma, internal market models, CSR sales data; <sup>1</sup> Other biologics include plasma, vaccines, insulin, microbial and non-mAb biosimilars; <sup>2</sup> mAbs include ADCs here  
 Acronyms: mAbs = monoclonal antibodies, rProteins = recombinant proteins, ADCs = antibody drug conjugates



# Process Solutions

## Next-generation bioprocessing on the cards

Today's process & portfolio

**CHOZN** Cell Line

**Ex-Cell<sup>®</sup> Advanced<sup>™</sup>** media

**Mobius<sup>®</sup>** bioreactor

**Clarisolve<sup>®</sup>** Depth Filters

**Eshmuno<sup>®</sup>** Chrom. resin

**Viresolve<sup>®</sup>** Pro Solution

**ProSep<sup>®</sup>** Ultra Plus Resin

**Opticap<sup>®</sup>** Filters

**Pellicon<sup>®</sup>** Ultrafiltration Cassettes **Launched 2018**

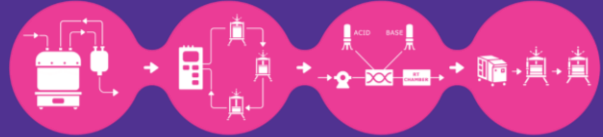
**Durapore<sup>®</sup>** Filtration

**Millipak<sup>®</sup>** Final Fill Filter **Launched 2018**

**BioReliance<sup>®</sup>**    **cGMP SOLUTIONS & SERVICES**    **EMPROVE<sup>®</sup>**

Tomorrow's process

### mAb process intensification 2017 - 2020+



### continuous processing >2025



### Continuous bioprocessing will ...

- be an evolution in mAb bioprocessing
- take time to establish
- leverage the present
- lead to hybrid solutions

# Process Solutions

## Our single-use technologies drive flexibility in modern bioprocessing



30,000 l  
stain-less  
steel tank



500 l  
single-use  
tank

### Traditional Multi-use facility

CAPEX* required	~\$500 m to \$1 bn
Time to construct	5 to 10 years
Change over time	4 weeks
Footprint	~>70,000 m <sup>2</sup>

### Innovative single-use facility

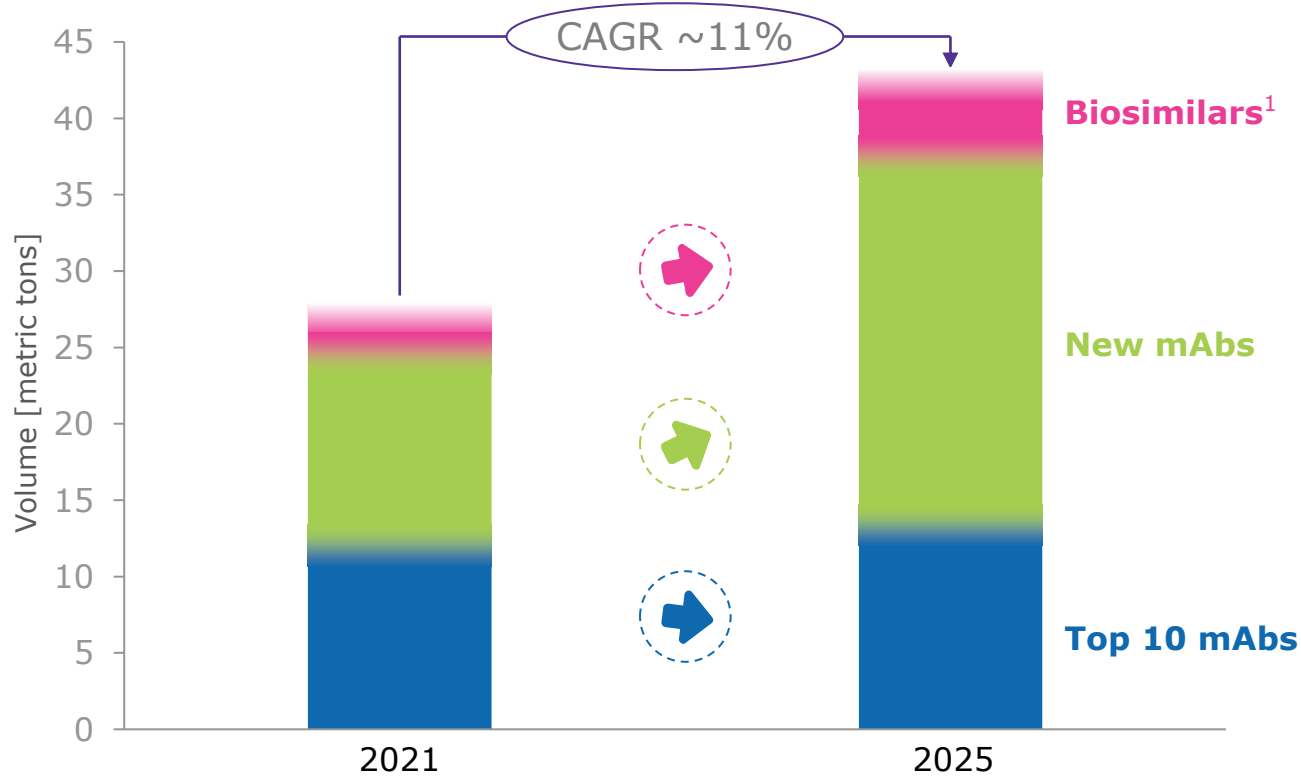
CAPEX required	\$20 m to \$100 m
Time to construct	1.5 years
Change over time	0.5 days
Footprint	~11,000 m <sup>2</sup>

**Strong demand for single-use technologies and Process Solutions' broad offering was and will remain a key source of growth for Life Science**



## mAbs market democratization will drive diversification, change & variability

### mAb volume projections 2021 to 2025



### Market development

- mAbs market will grow ~11% CAGR
- Top 10 originator mAbs represent ~45% (11mT) of volume today; volume grows but share declines to ~35% (14mT) in 2025
- Biosimilars continue to gain share

<sup>1</sup>Biosimilars scaling factor = 2.8 based off internal estimates and McKinsey analysis; Source: company estimate based on industry forecasts, EvaluatePharma; Acronyms: mAbs = Monoclonal antibodies



# Acquisition of Exelead – a leading LNP player with strong manufacturing expertise and longstanding track record




## Transaction overview

- Rationale**
- **Targeted bolt-on acquisition** to accelerate innovation in Process Solutions (“BIG3”)
  - Strengthening CDMO offering in **rapidly emerging mRNA** market
- 
- Terms**
- USD ~780 m in cash
- 
- Timing**
- Deal closed on February 22, 2022

## Company overview

- Location**
- 1 site in Indianapolis, USA
- 
- Employees**
- ~200+
- 
- Business description**
- **>10 years experience** as CDMO for LNP and PEGylated formulations
  - **Full service CDMO** covering all development phases (pre-clinical / clinical / commercial)
  - GMP and ISO certified manufacturing processes

## Key products

-  • mRNA Covid-19 vaccine
-  • Fungal infections in patients with compromised immune systems
-  • Acute lymphoblastic leukemia and hypersensitivity to native forms of L-asparaginase

## Key customers



**Global reach:** manufacturing of drugs tested or approved for market in over 20 countries worldwide

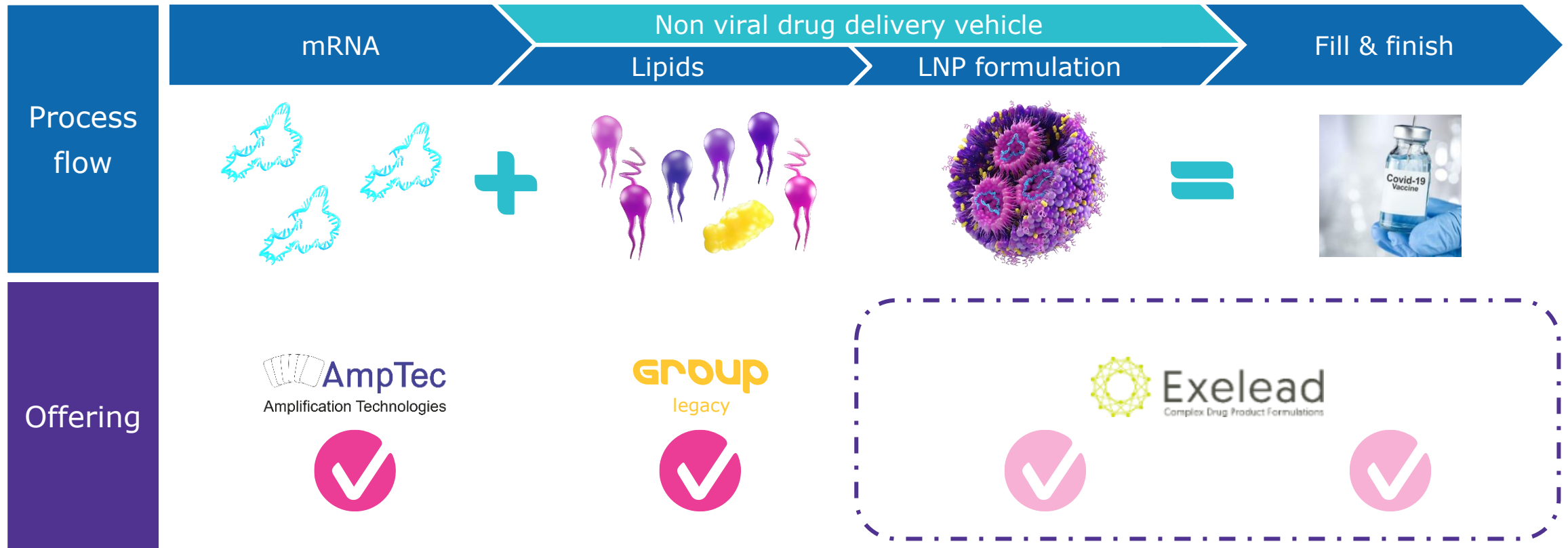
**Underlines ambition to become a leading integrated multi-modality CDMO**

<sup>1</sup>Agreement with Pfizer for COVID vaccine since May-21; Acronyms: LNP = liquid nanoparticle, CDMO = contract development and manufacturing organization, mRNA = messenger ribonucleic acid; PEG = polyethylene glycol; GMP = good manufacturing practice; ISO = International Organization for Standardization



# Life Science

## The addition of Exelead's capabilities advances our integrated offering from mRNA-API manufacturing to final drug product



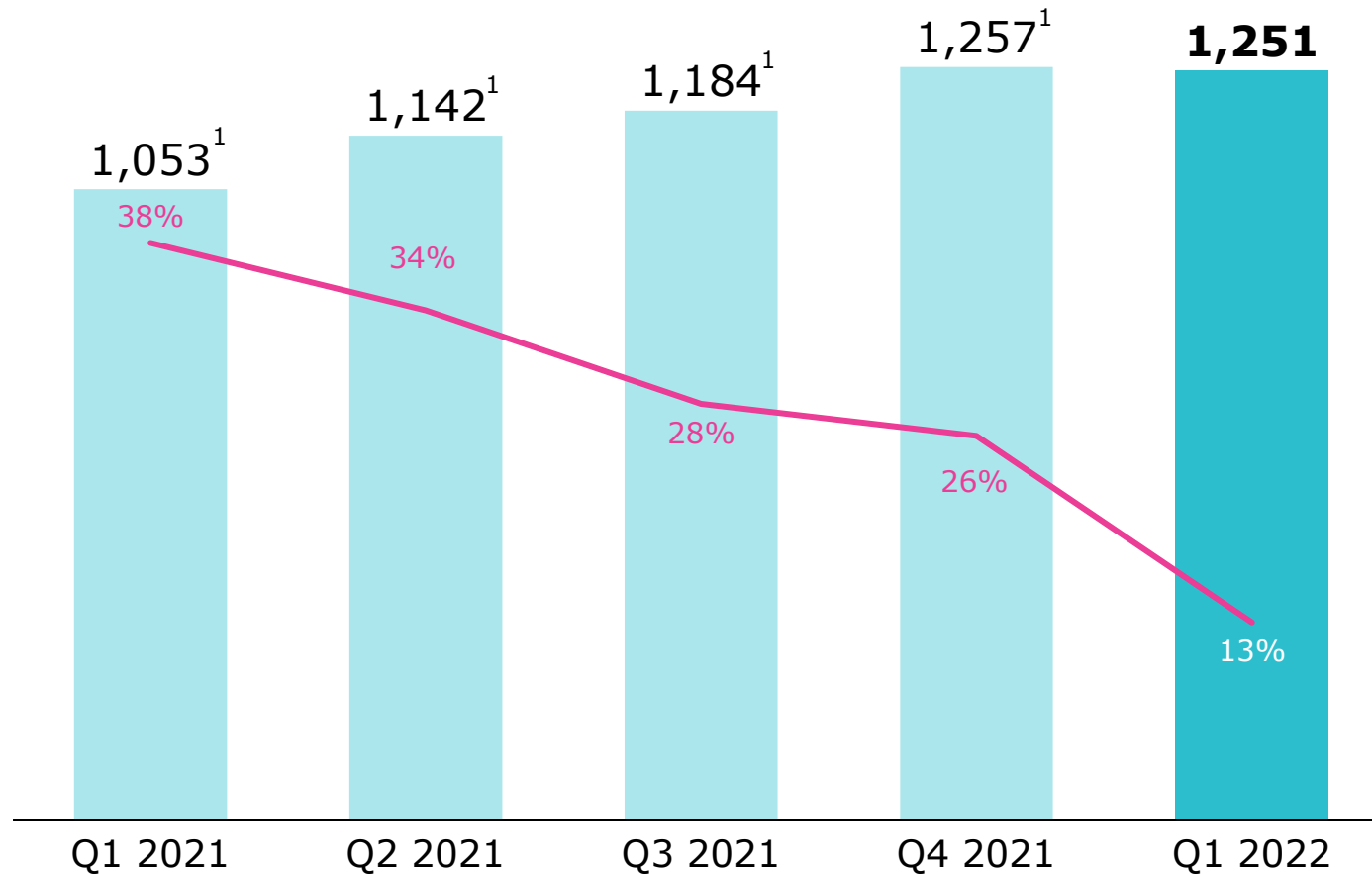
**Establishing uniquely integrated CDMO offering in rapidly emerging mRNA market**

Additional acronyms: API = active pharmaceutical ingredient



# BIG 3 - Process Solutions: Double-digit growth rate against high comps and fading COVID-19 demand

Sales development [€m] - org. growth [%]



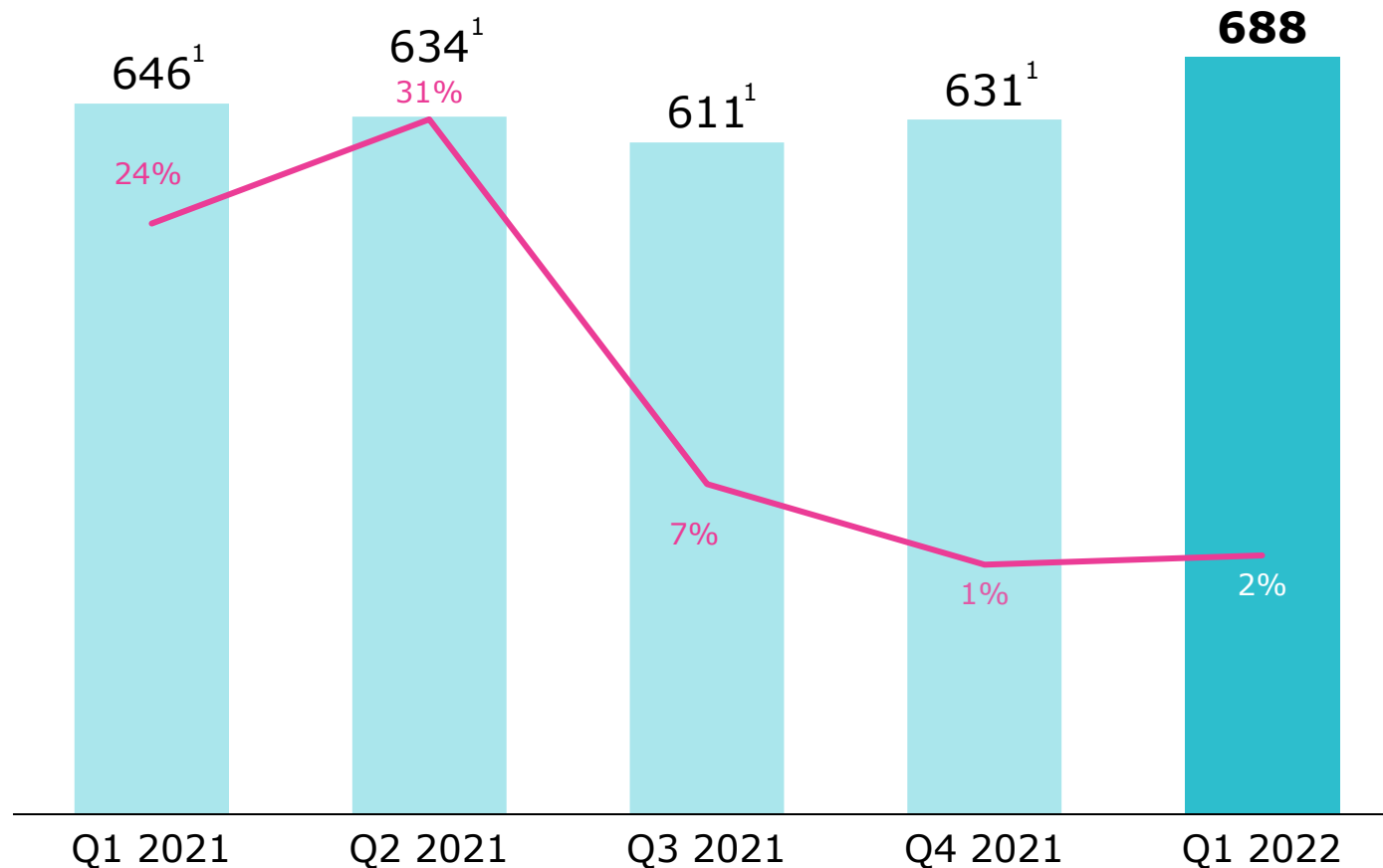
<sup>1</sup>Prior-year figures have been adjusted due to product reallocations between Life Science and Electronics, as well as between Process Solutions and Research Solutions. Prior year growth rates as previously shown, not reflecting product reallocations.

- **Continued strong core business performance** drives entire Q1 organic growth
- **COVID-19 sales stable YoY**; significant sequential decline vs. previous quarter
- **Bioprocessing biggest growth driver**, followed by **active ingredients & formulations** (e.g. lipids for mRNA)
- **Growth moderating further and approaching mid-term guidance** as COVID-19 demand fades as anticipated
- Sales sequentially stable with **ongoing capacity ramp-up** mitigated by temporary supply challenges at the start of the quarter
- **All major regions** record **double-digit organic growth**, with highest growth rate in EMEA
- **Order intake still growing** despite tough comps



# Research Solutions: normalizing growth against strong comps, returning to mid-term guidance

Sales development [€m] - org. growth [%]



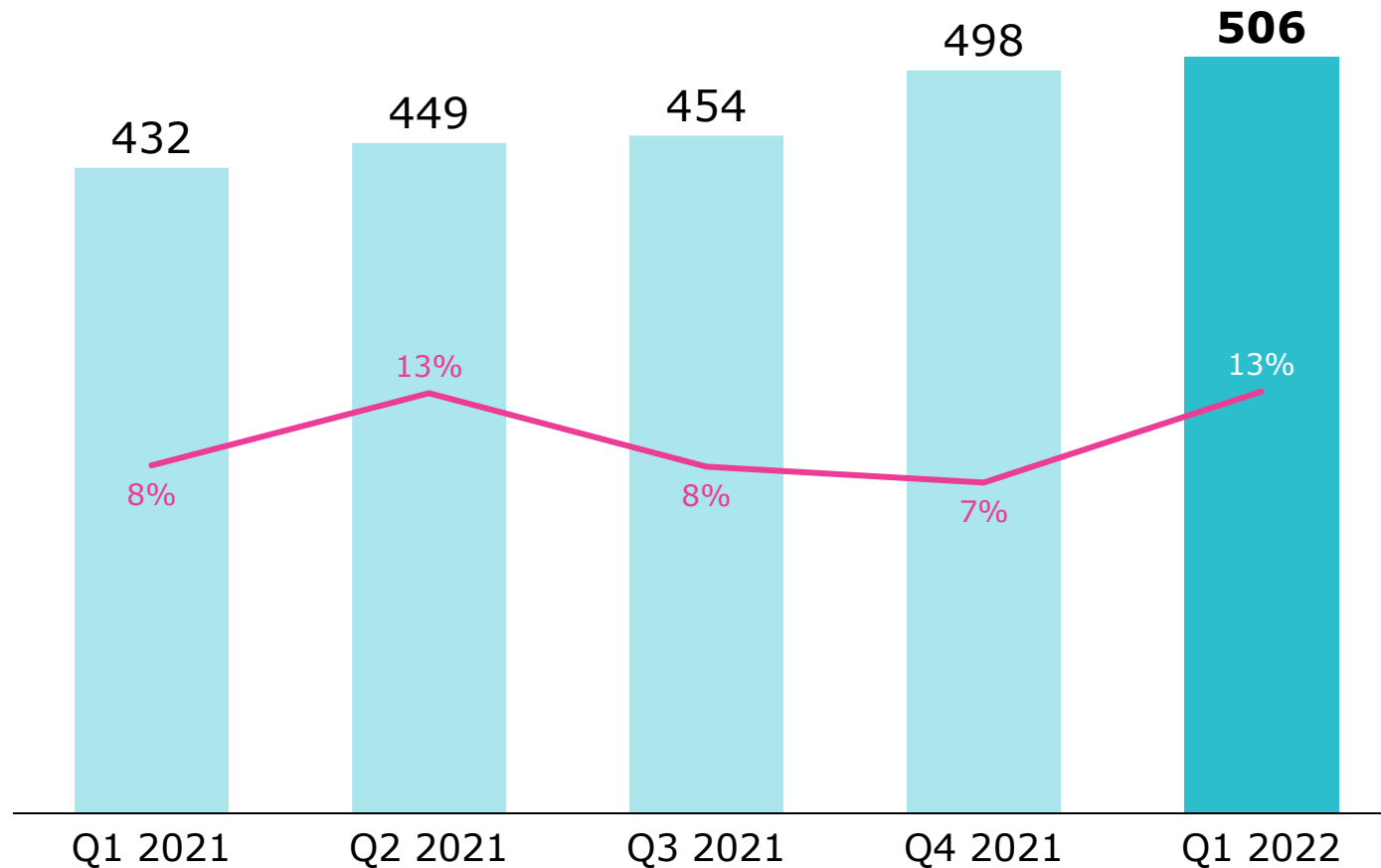
- **Organic growth rising to +2%** despite tough comps
- **Core business with robust growth** above business unit mid-term guidance
- **COVID-19 business declining YoY** against elevated Q1 2021 levels, but up sequentially amid temporary Omicron spike
- Growth particularly reflecting **strong demand in APAC region**
- **Pharma & Biotech** and **Industrial & Testing** customer segments growing

<sup>1</sup>Prior-year figures have been adjusted due to product reallocations between Life Science and Electronics, as well as between Process Solutions and Research Solutions. Prior year growth rates as previously shown, not reflecting product reallocations.



# Applied Solutions: Record absolute sales and double-digit growth

Sales development [€m] - org. growth [%]



- Excellent start to the year with **double-digit organic growth** in a strong market
- **Core business main driver** with robust performance across all business lines
- **COVID-19-related sales** remain negligible
- All regions contribute to double-digit growth, **North America** and **Western Europe** key drivers, emerging markets further supporting growth
- All customer segments growing, led by **Pharma & Biotech**

# Life Science Q1: Core business drives sequential growth & another record quarter

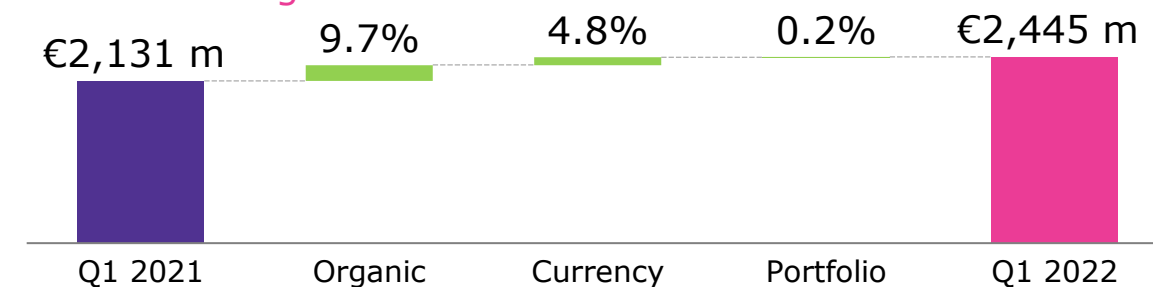
## Life Science P&L

[€m]	IFRS		Pre	
	Q1 2021	Q1 2022	Q1 2021	Q1 2022
Net sales	2,131	2,445	2,131	<b>2,445</b>
M&S*	-501	-552	-500	<b>-552</b>
Admin	-82	-91	-74	<b>-84</b>
R&D	-75	-88	-75	<b>-88</b>
EBIT	594	723	608	<b>730</b>
EBITDA	780	922	-	-
EBITDA pre	794	927	794	<b>927</b>
(in % of net sales)	37.2%	37.9%	37.2%	<b>37.9%</b>

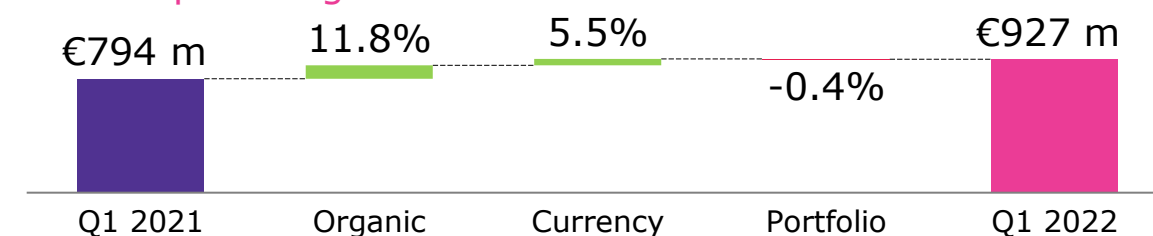
## Comments

- Process Solutions: +13% org. growth, driven by strong core business performance; COVID-19 business declining sequentially as anticipated
- Research Solutions: growing +2% organically against strong comps, elevated by Q1 2021 post lockdown rebound & COVID-19 business
- Applied Solutions: +13% org. growth with strong performance across all businesses and customer segments, particularly in analytics & diagnostics in the pharma & biotech customer segments
- M&S in % of sales declining from 24% to 23% due to strong top line leverage, higher in absolute terms with logistics being the largest driver
- Higher R&D in absolute terms as well as in % of sales with continued investments in high growth & emerging segments, e.g. novel modalities
- EBITDA pre growing +12% org., exceeding sales growth despite significant investment in future growth and inflationary environment; driven by operating leverage and favorable product mix in core business

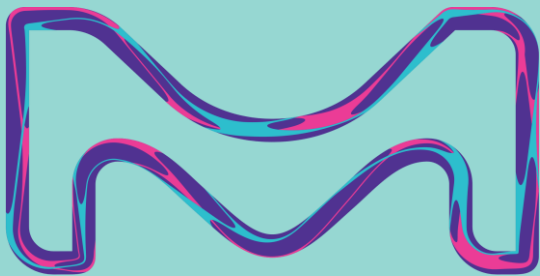
## Net sales bridge



## EBITDA pre bridge



healthcare



# Healthcare

## Pioneering patient benefit in MS for > 30 years

**Rebif**<sup>®</sup>  
(interferon beta-1a)

- Blockbuster **platform therapy**
- Well-established clinical profile
- >1.8m patient-year experiences<sup>1</sup>
- Continued upgrading (pregnancy label, injection devices)



EMA 1998 | FDA 2002  
>100 countries

**MAVENCLAD**<sup>®</sup>  
cladribine tablets

- Oral **high-efficacy therapy** with unique posology & mode of action<sup>2,3</sup>
- Only product to demonstrate full antibody response to COVID-19 vaccines<sup>4</sup>
- Growing in HE dynamic market
- >40,000 patients<sup>1</sup>



EMA 2017 | FDA 2019  
84 countries

**EVobrutinib**  
BTKi

- Designed for **best-in-class efficacy**<sup>5</sup>
- Full covalent binding and dosing regimen expected to enable constant, near complete BTK occupancy<sup>6</sup>
- Dual mode of action targeting both B-cells and immune cells in the CNS and periphery<sup>6,7</sup>



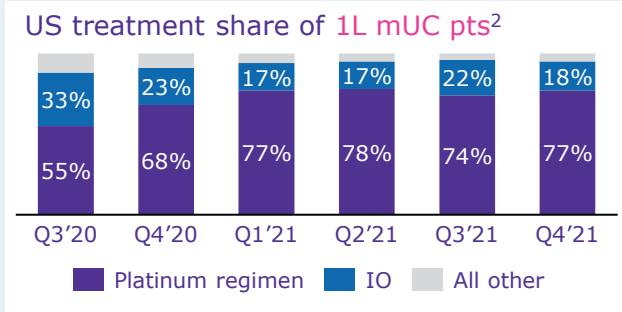
Phase 3 Clinical Development

# Healthcare

## Building focused leadership positions in Oncology

### Building leadership in mUC<sup>1</sup>

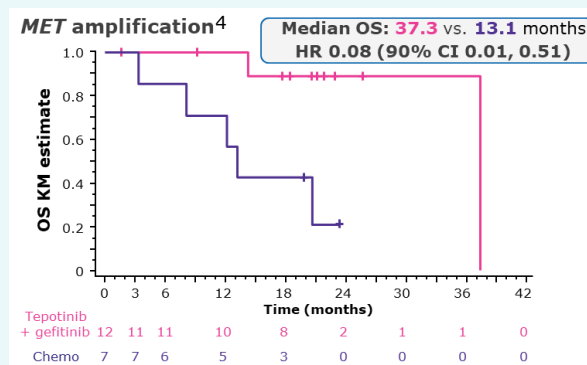
- **Bavencio** redefined SoC in mUC with unique 1L maintenance Tx. Since launch, platinum-based regimen has grown substantially



- Significant opportunity to drive further growth by increasing adoption of 1L maintenance Tx
- Strengthen Bavencio as SoC with novel combinations (e.g. Q2 2022 intended start of Javelin Bladder Medley study)

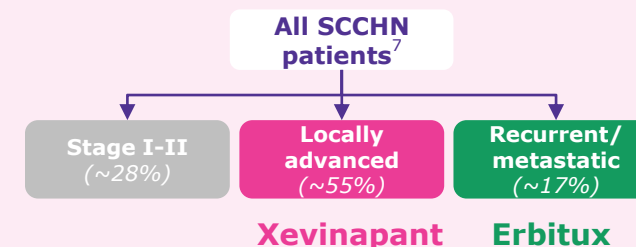
### Defining leadership in MET-driven tumors

- **Tepmetko** - discovered and developed inhouse, highly potent and selective c-MET inhibitor
- Has shown consistent efficacy in METexon14 mutation across treatment lines<sup>3</sup> and strong tolerability profile
- Foundation for expansion with MET-amplified tumors indications

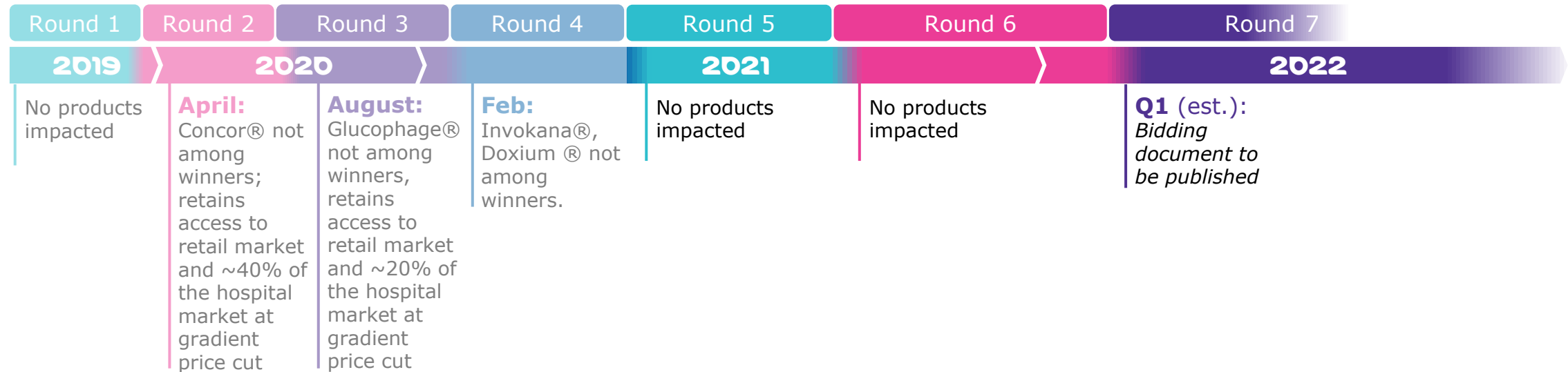


### Expanding leadership in SCCHN

- **Xevinapant<sup>5</sup>** focuses on a novel mechanism with curative intent in a large segment with high unmet need, complimentary to Erbitux
- Strong clinical POC, doubling OS in Phase II study<sup>6</sup>
- Untreated and unresectable LA SCCHN patient candidates for chemoradiotherapy ~40K US & EU5



# China's VBP: Rounds 5 and 6 with no impact on Group. Confidence in approx. stable established portfolio business in 2022













- ▶ Glucophage back to QoQ growth Q4'21 post VBP impact with a positive outlook for 2022
- ▶ Erbitux successfully included in NRDL for **both mCRC and SCCHN** for reimbursement (effective January 1<sup>st</sup>, 2022)

Acronyms: VBP = Volume-Based Procurement, NRDL = National Reimbursement Drug List, mCRC = metastatic Colorectal Cancer, SCCHN = Squamous Cell Cancer of the Head and Neck



# Pipeline with uncorrelated risk and significant potential


























## Five focus assets with FIC potential

	FIC POTENTIAL	COMPETITION	PROMISE
<b>Evobrutinib (BTK inhibitor)</b>			Tackling unmet need for patients in RMS: Addressing chronic inflammation and progression between relapses, in addition to reducing acute inflammation with BIC ARR Comprehensive PhII data supports BIC profile
<b>Xevinapant (IAP inhibitor)</b>			Transformative patient benefit – Maximizing chances for cure for patients with locally advanced SCCHN
<b>Berzosertib<sup>1</sup> (ATR inhibitor)</b>			Blocking ATR “master regulator” of DNA repair to enhance efficacy of TOP I inhibitors for patients with few treatment options
<b>M1231 MUC1/EGFR bi-specific ADC</b>			Next generation “Triple Innovation” ADC for patients with solid tumors aiming for effective delivery of potent chemotherapy payload with reduced on & off target toxicity
<b>Enpatoran TLR7/8 inhibitor</b>			Small molecule for targeted inhibition of important lupus mediator TLR7/8, aiming for improved efficacy with low infection risk

<sup>1</sup>Press Release June 3rd 2022: Following an interim analysis of DDRiver SCLC250, decision has been made to discontinue the study. Open innovation approach will be continued

# Focused Leadership

## Leveraging and extending deep expertise

	VOBRUTINIB	XEVINAPANT	BERZOSERTIB <sup>1</sup>	M1231	ENPATORAN
Disease insights/ Wealth of data	MS leadership  	SCCHN leadership  		NCSLC Lung Cancer (Likely indication) 	Depth & breadth of clinical trial experience and data 
Biologic expertise	Immune receptor & immune complex signaling  	Apoptosis 	DNA damage response (DDR)  	Oncogenic signaling/ EGFR receptor  	Innate and adaptive immunity  
Platform capabilities	FIC small molecule  	<i>In-licensed</i>	<i>In-licensed</i>	Next generation ADCs/ bi-specific antibody  	FIC small molecule  
World-Class Collaborations		Existing collaboration on IO combo 	NCI Tempus 	Sutro 	Academic collaborators (for TLR8 structure & disease modelling) 



# Potential FIC BTK inhibitor, designed for BIC efficacy

## FIC BTK INHIBITOR EVOBRUTINIB

- **Pioneering program**, developing breakthrough mechanism of action with potential to change SoC in RMS
- Aiming to **address chronic inflammation and progression between relapse** in addition to **reducing acute inflammation, delivering BIC ARR**
- **Strong clinical data** supporting our confidence in Evobrutinib BIC profile
- **PhIII studies** (Evolution MS 1&2) ongoing

	EVOBRUTINIB	TOLEBRUTINIB	FENEBRUTINIB	REMIBRUTINIB/ ORELABRUTINIB
ARR at 48 weeks (PhII)	0.11 <sup>1</sup>	0.17 <sup>7</sup>	No PhII conducted	No PhII conducted
PhIII dose supported by robust data?	✓ <sup>2,3</sup>	✓ <sup>8</sup>	⊖ No dose finding study in MS	⊖ No dose finding in MS
95% occupancy at trough in patients	✓ <sup>3,4</sup>	Not shown	Not available	Not available
Disease relevant CNS concentration?	✓ <sup>5,4</sup>	⊖ Only single dose effect in HV (120mg dose)	⊖ Not studied	⊖ Not studied
Statistically significant effect on SEL volume based on MRIs over 48 weeks	✓ <sup>6</sup>	⊖ Not seen	⊖ Not studied	⊖ Not studied
Safety/Tolerability? <sup>11</sup>	✓ <sup>1,4</sup>	✓ <sup>8,4</sup>	✓ <sup>10</sup>	Not available

<sup>1</sup> Montalban X, et al. N Engl J Med 2019;380:2406–17; <sup>2</sup> Papasouliotis O, et al. PAGE 2021;29:Abstr 9801; <sup>3</sup> Papasouliotis O, et al. Eur J Neurol 2021;28(Suppl. 1):120 [OPR-084]; <sup>4</sup> Montalban X, et al. Mult Scler 2020;26 (Suppl. 3):213 [Abstract P0197]; <sup>5</sup> Piasecka-Stryczynska K, et al. Mult Scler Relat Disord 2021;51:103001 [Abstract P013]; <sup>6</sup> Arnold D, et al. ECTRIMS 2021 [OP115]; <sup>7</sup> Oh J, et al. ECTRIMS 2021 [P667]; <sup>8</sup> Reich D, et al. Lancet Neurol 2021;20(9):729-38; <sup>9</sup> Owens T, et al. Clin Transl Sci. 2021; doi: 10.1111/cts.13162; <sup>10</sup> Oh J, et al. Neurology 2021;96(Suppl. 15):Abstr 4564; <sup>11</sup> Evobrutinib, Tolebrutinib and Fenebrutinib have shown asymptomatic & reversible ALT elevations that have been reversible on treatment withdrawal

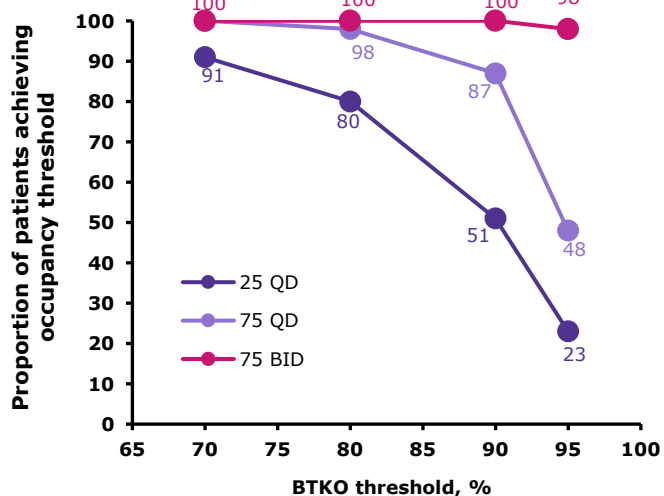
# Protein turnover of BTK requires BID dosing to achieve optimal BTK occupancy for best efficacy

98% of patients receiving 75mg BID achieved >95% trough BTKO<sup>1</sup>

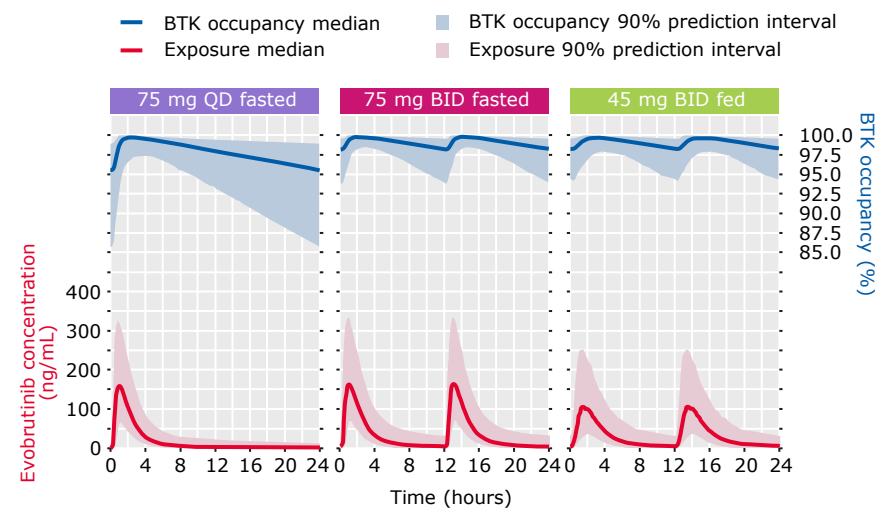
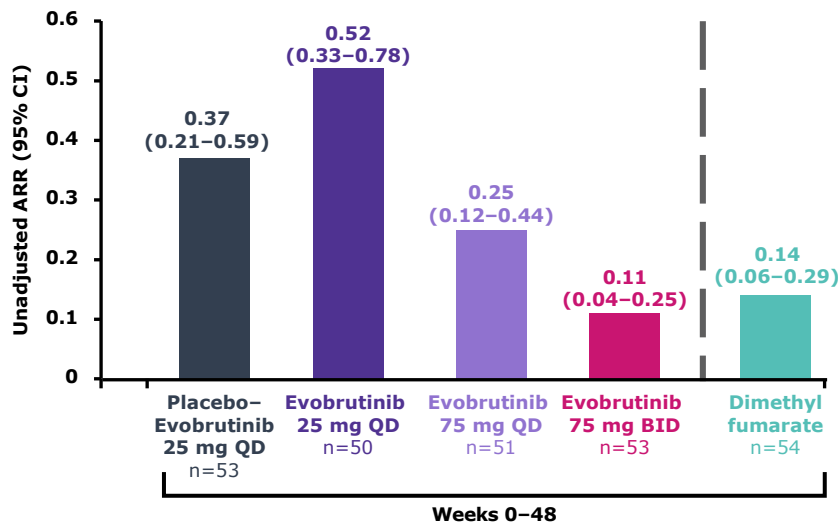
Patients achieving >95% BTKO experienced greatest ARR reduction<sup>2</sup>

Food effect enables a lower dose in PhIII<sup>1</sup>

**PATIENTS ACHIEVING BTKO THRESHOLD, %**



**PhII SECONDARY ENDPOINT**



Due to continuous BTK protein turnover QD dosing of a covalent inhibitor with short half-life results in suboptimal BTKO

ARR reduction in the Evobrutinib 75mg BID group was sustained over 108 weeks<sup>1,2</sup>

PhIII dose (45mg BID fed) reaches comparable Evobrutinib exposure and BTK occupancy to PhII dose (75mg BID fasted) despite modestly lower plasma peak concentration

<sup>1</sup> Papasouliotis O. et al. Eur J Neurol 2021;28(Suppl. 1):120 [OPR-084]

<sup>2</sup> Montalban X. et al. N Engl J Med. 2019 Jun 20;380(25):2406-2417. doi: 10.1056/NEJMoa1901981. Epub 2019 May 10.



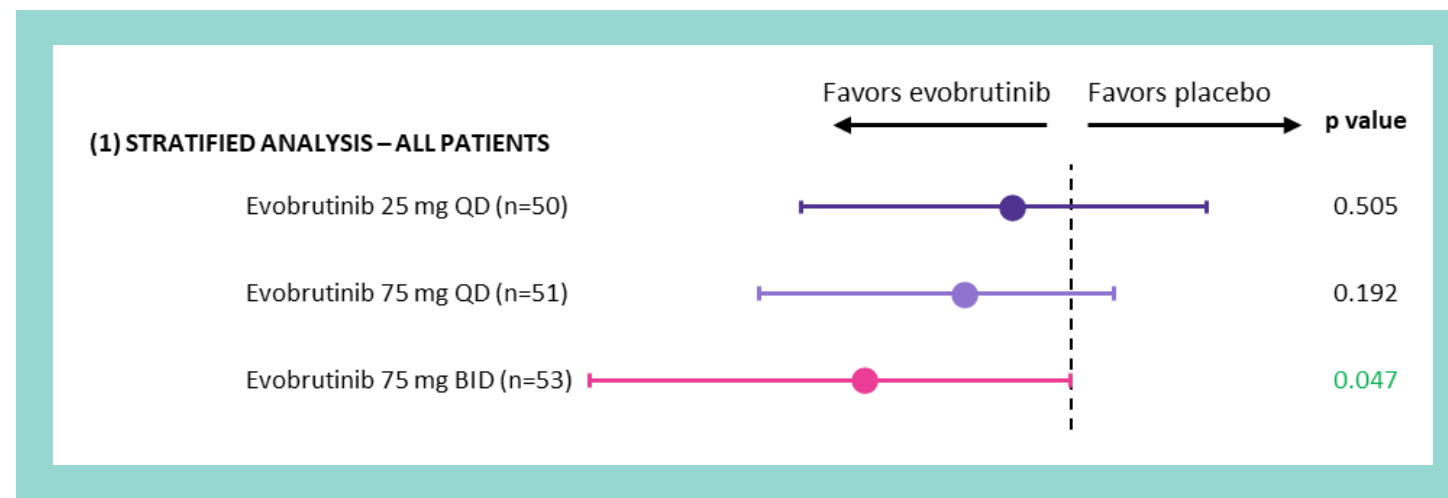
# First clinical evidence of impact on brain lesions associated with chronic inflammation<sup>5,6</sup>

## SELs – A BIOMARKER FOR CHRONIC TISSUE LOSS IN THE ABSENCE OF ACUTE INFLAMMATION

- Slowly expanding lesions (SELs) (also known as “smouldering lesions”) are chronically active, demyelinated MS lesions, thought to be driven by sustained microglial activity, resulting in the progressive accumulation of irreversible neural tissue damage and axonal loss<sup>1</sup>
- SELs are visible on conventional MRI/T2 images MRI and show gradual, radial expansion over time
- SEL activity and ongoing tissue damage within SELs predict long-term disability<sup>2</sup>
- Approved MS therapies have shown little impact on SELs<sup>3</sup>, - consistent with their main treatment effect on acute inflammation

ECTRIMS 2021  
oral presentation

## EVOBRUTINIB REDUCED SEL VOLUME IN A DOSE-DEPENDENT MANNER AT 48 WEEKS<sup>4</sup>



<sup>1</sup> Elliott C, et al. *Mult Scler* 2019;25:1915-25; <sup>2</sup> Elliott C, et al. *Brain* 2019;142:2787-99; <sup>3</sup> Preziosa P, et al. *Mult Scler* 2021;27(10):1520-32; <sup>4</sup> Arnold D, et al. ECTRIMS 2021 [OP115]; <sup>5</sup> Montalban X, et al. ECTRIMS 2018 [232075; 322]; <sup>6</sup> Montalban X, et al. *N Engl J Med*. 2019 Jun 20;380(25):2406-2417. doi : 10.1056/NEJMoa1901981. Epub 2019 May 10.

# Summary

## Potential FIC BTK inhibitor designed for BIC efficacy

- **Pioneering development** of breakthrough MoA with potential to rewrite SoC in RMS
- Aiming to **address chronic inflammation and progression between relapse** in addition to **reducing acute inflammation, delivering BIC ARR**
- **Confidence in BIC profile supported by compelling clinical data from our comprehensive PhII program**

- ✓ Best ARR was achieved at BTKO of 95%; ARR of 0.11 at 48 weeks is supportive of BIC efficacy
- ✓ Importantly: Achieving 95% BTKO requires BID dosing of a covalent BTK inhibitor with short half-life due to continuous turnover of BTK protein
- ✓ Evobrutinib concentrations achieved in CSF of RMS patients support an effect on microglia
- ✓ Dose dependant reduction of SEL, a biomarker for disease progression is first evidence of Evobrutinib effect on chronic inflammation and progression
- ✓ De-risked profile based on safety analysis in >1000 patients

- **PhIII studies** (Evolution MS 1&2) **ongoing** (Sept 2021), aiming for read out in Q4 2023

# Targeted inhibition of important lupus mediator aiming for improved efficacy with low infection risk

- **For lupus patients, precise intervention for improved efficacy at low infection risk remains an unmet need in lupus**
- Enpatoran is an oral small molecule inhibitor of TLR7/8
- There is **evolving genetic evidence for TLR7 as a critical driver of lupus pathologies**

**Inhibition of TLR7/8, a important lupus mediator** is expected to result in

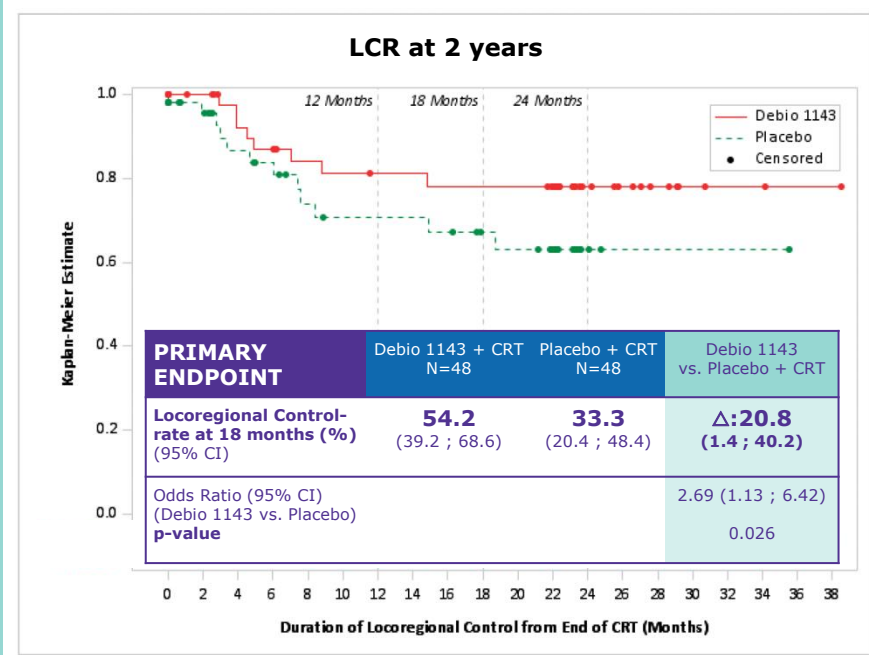
- broad inhibition of lupus-relevant effectors
  - with potential for improved efficacy compared to strategies targeting single effectors (pDC, IFN, B-cells)
  - at low risk of infection
- 
- **Compelling MoA, functional and safety data from PhI HV and COVID PhII study**
  - **Innovative PhII in CLE and SLE initiated in H1 2022, aiming for first analysis results by H1 2023**

# Maximizing chances for cure in LA SCCHN

## PhII: Consistent benefit across primary & secondary endpoints

### PRIMARY ENDPOINT LCR

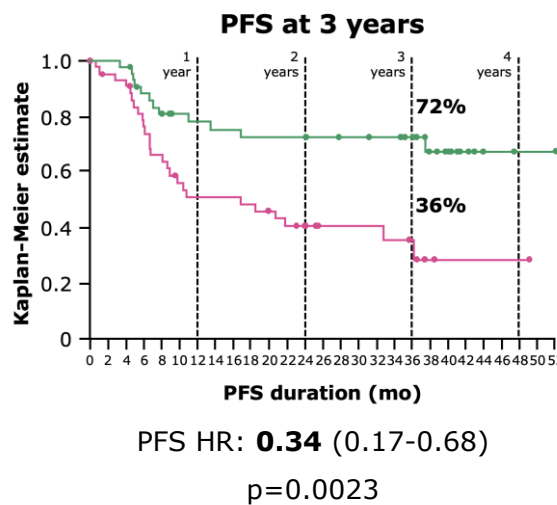
first presented at ESMO 2019



Lancet Oncology, August 2020, doi:10.1016/S1470-2045(20)30327-2

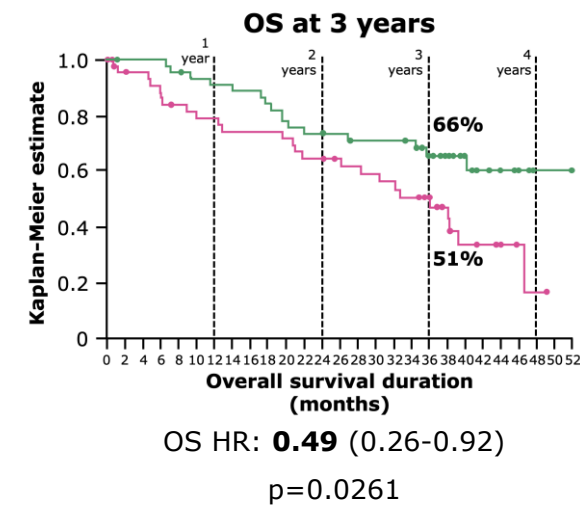
### SUBSTANTIAL IMPROVEMENT OF PFS AND OS

3-year update, presented at ESMO 2020



CR at 6 months (post CRT completion)  
52% vs 38% for placebo

ESMO 2020; Bourhis J, et al. Abstract No. LBA39



Xevinapant  
Placebo

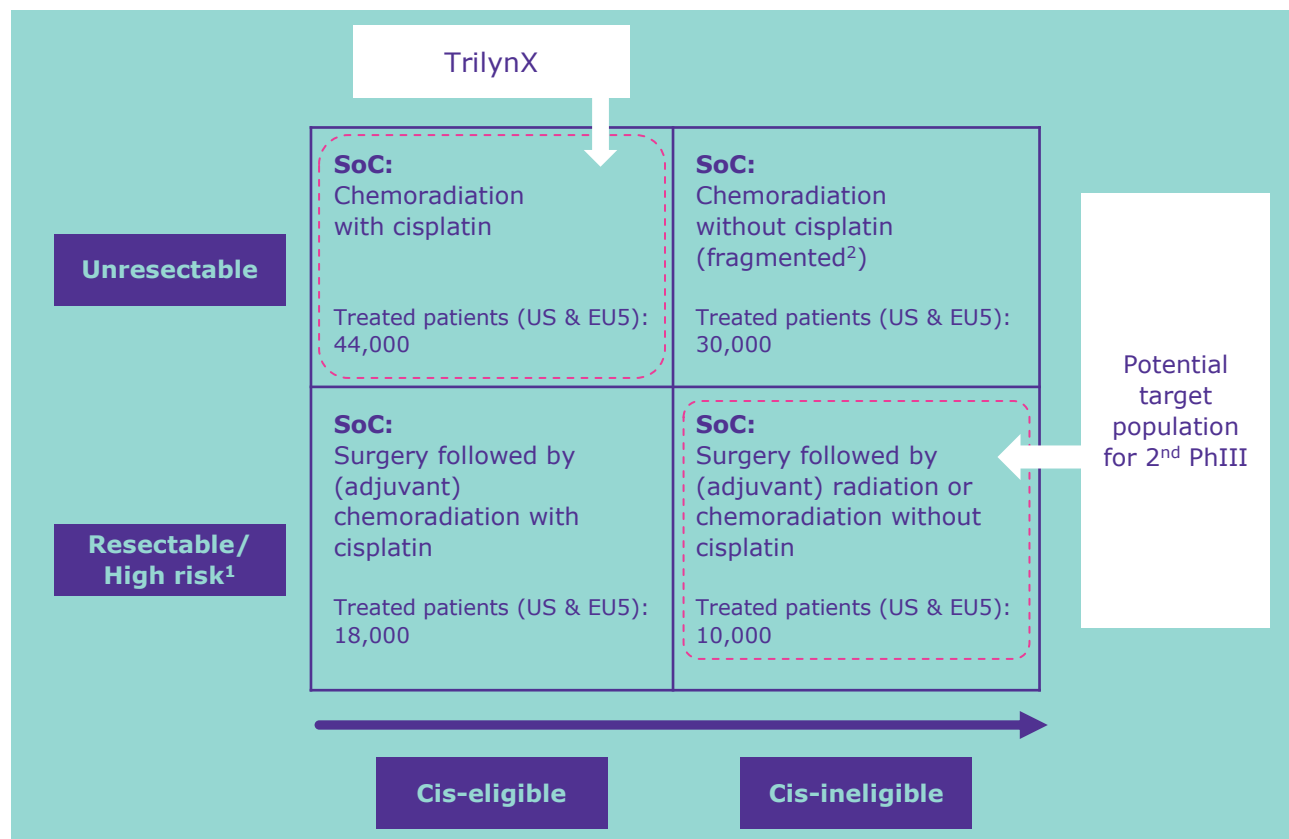
Up Next: 5-year Update of OS at ESMO 2022

LA SCCHN = Locally advanced squamous cell carcinoma of the head and neck



# Leveraging market-leading expertise in SCCHN

## LA SCCHN SIMPLIFIED TREATMENT PARADIGM AND EPIDEMIOLOGY



### Leveraging our Erbitux heritage

- LA SCCHN is a **curative setting** that requires a multi-disciplinary approach
- Surgery and/or (chemo-)radiation therapy is the standard of care, though almost 50% of patients progress
- **Limited progress in ~20 years**
  - IO has not been successful due to challenges of concurrent radiation
- **Building focused leadership in LA SCCHN**
  - Our goal is to transform LA SCCHN in combination with (C)RT with a focused PhIII program

### Xevinapant – Maximizing chances for cure

<sup>1</sup> Low/ intermediate risk patients: SOC is Surgery followed by (adjuvant) radiation, Incidence (US + EU5): 41,000; <sup>2</sup> The combination of cetuximab/RT is the only approved regimen for patients ineligible to receive high-dose cisplatin. Multiple non-approved regimens are used in practice, however, with differences across geographies and depending on patient status and physician preference.

# Tepotinib (MET kinase inhibitor)

## First-in-class launch in MET Exon14 sets foundation for EGFRm/METamp opportunity



### Lay the foundation in NSCLC – MET Exon14

(VISION study, NCT02864992  
3-5% of total NSCLC population)



### Tap into a growing opportunity in NSCLC – EGFRmut/ METamp

(INSIGHT 2 study, NCT03940703  
2-5% of total NSCLC population)

- **Strong and long-lasting efficacy results** presented at WCLC 2021 (in both first line and later lines; total of 275 patients), additionally, at ASCO 2021, Tepmetko has shown efficacy in patients with brain metastases
- **First-in-class launch<sup>1</sup>** in Japan<sup>2</sup> in March 2020, Sakigake designation<sup>3</sup> granted in 2018
- **Approval by US FDA<sup>1</sup>** received on February 3, 2021 and by the European Commission on February 18, 2022
- **15 worldwide approvals** granted so far

- **Increased EGFRm detection** with testing and treatment moving into earlier lines of therapy (ADAURA trial demonstrates a 79% reduction in the risk of death with Osimertinib in the adjuvant setting (ASCO 2020), suggesting an even greater uptake of Osimertinib)
- **METamp as the main mechanism of acquired resistance** – publications suggest prevalence of METamp post-Osimertinib in tissue at levels between 30-66%<sup>4</sup>, with possible underestimation of gene amplification in plasma.

1: approved for both treatment naïve and previously treated METex14 positive NSCLC patients; 2: second largest Oncology market globally; 3: SAKIGAKE designation promotes research and development in Japan, aiming at early practical application for innovative pharmaceutical products; 4: Roper et al., "Clonal Evolution and Heterogeneity of Osimertinib Acquired Resistance Mechanisms in EGFR Mutant Lung Cancer", Cell Rep Med, 2020; Acronyms: EGFR = Epidermal Growth Factor Receptor; NSCLC = Non-small cell lung cancer



# Tepotinib (MET kinase inhibitor)

## Tapping into the rapidly evolving EGFRm/METamp market – Encouraging INSIGHT 1 data



### INSIGHT 2 – Tepotinib + Osimertinib in Osimertinib Relapsed METamp NSCLC

Recruiting

- **Study design recently amended to reflect evolved and future standard of care:**
  - **Target population** – Inclusion criteria adjusted to focus solely on 1L Osimertinib failures
  - **Testing** - Streamline patient enrollment based on current gold standard method (TBx FISH)
  - **METamp as the main mechanism of acquired resistance** – publications suggest prevalence of METamp post-Osimertinib in tissue at levels between 30-66%, with possible underestimation of gene amplification in plasma.
- Estimated primary completion date: **November 2022**

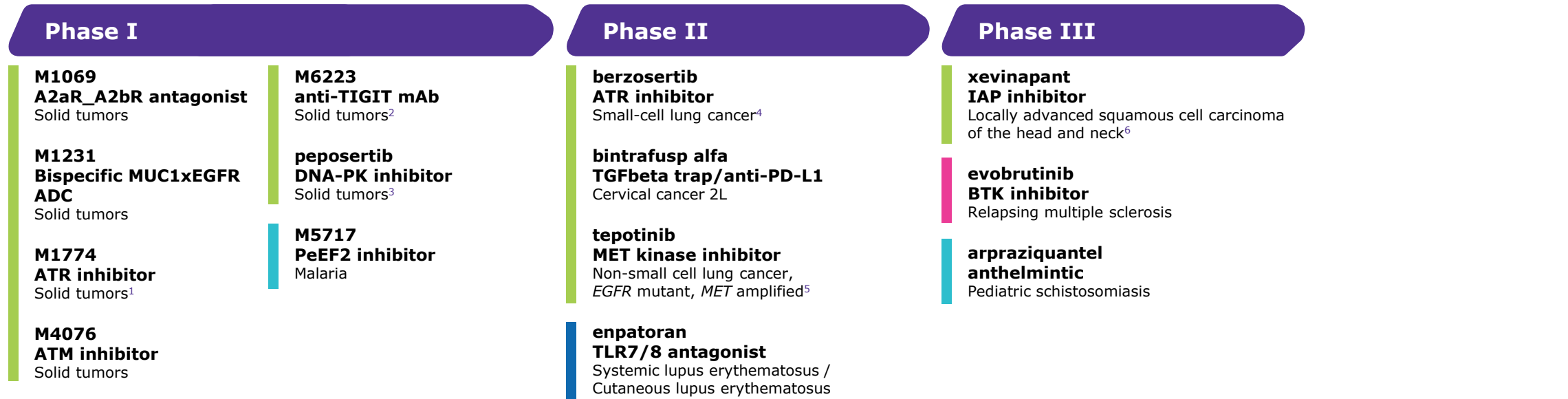
### A solid foundation - Encouraging INSIGHT 1 data (18-months follow-up presented at WCLC 2019)<sup>2</sup>

Endpoint	Tepotinib + gefitinib	Chemotherapy
Primary - PFS (HR 0.13 [90% CI 0.04, 0.43])	16.6 m	4.2 m
Secondary - ORR (OR 2.67 [90% CI 0.37, 19.56])	66.7%	42.9%
Secondary - OS (HR 0.09 [CI 0.01, 0.54])	37.3 m	13.1 m

- ✓ **Proof of Concept: MET amplification can be considered a suitable biomarker** for treatment with Tepotinib
- ✓ **Safety:** generally **well-tolerated**, most adverse events mild to moderate

1: Piotrowska et al., "Landscape of Acquired Resistance to Osimertinib in EGFR -Mutant NSCLC and Clinical Validation of Combined EGFR and RET Inhibition with Osimertinib and BLU-667 for Acquired RET Fusion", AACR Cancer Discovery 2018; 2: Wu et al., "Long term outcomes to tepotinib plus gefitinib in patients with EGFR mutant NSCLC and MET dysregulation: 18 month follow up", presented at WCLC 2019; Acronyms: FISH = Fluorescence in situ hybridization; TBx = Tissue Biopsy





- Oncology
- Immunology
- Neurology
- Global Health

Additional information:

As announced on December 20, 2021, Company is expanding its Neuroinflammatory Pipeline with acquisition of Chord Therapeutics. The acquisition provides the opportunity to develop cladribine in generalized myasthenia gravis (gMG) and neuromyelitis optica spectrum disorder (NMOSD).

ADC: Antibody drug conjugate; 2L: second-line treatment

<sup>1</sup> Study as monotherapy and in combination with niraparib. <sup>2</sup> Includes study in combination with bintrafusp alfa. <sup>3</sup> Study in combination with avelumab. <sup>4</sup> Includes studies (phase I/II) in collaboration with/ sponsored by external partners, e.g., US National Cancer Institute (NCI). <sup>5</sup> In combination with osimertinib. <sup>6</sup> In combination with cisplatin and radiotherapy in unresected LA SCCHN patients eligible for cisplatin.

Unless noted otherwise, clinical programs conducted in collaboration with external partners are not shown unless Company has co-ownership of data. In such cases the indication is shown in italics.

Pipeline products are under clinical investigation and have not been proven to be safe and effective. There is no guarantee any product will be approved in the sought-after indication.



# Healthcare Q1: Doubling Bavencio<sup>®</sup> sales and continued Mavenclad<sup>®</sup> growth drive +6.5% organic growth in the sector

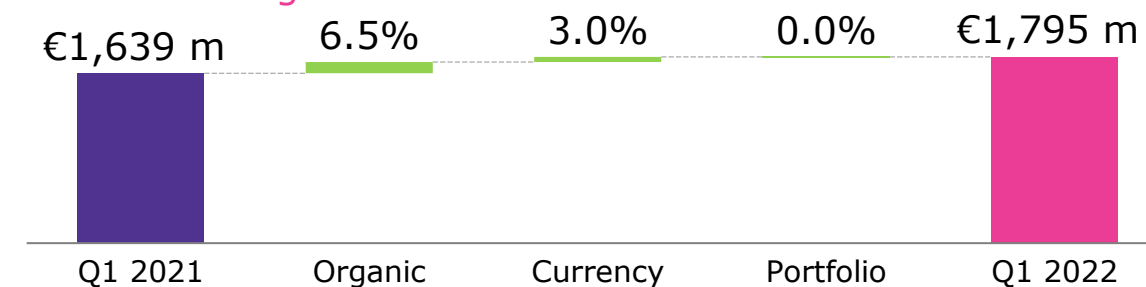
## Healthcare P&L

[€m]	IFRS		Pre	
	Q1 2021	Q1 2022	Q1 2021	Q1 2022
Net sales	1,639	1,795	1,639	<b>1,795</b>
M&S*	-370	-376	-365	<b>-375</b>
Admin	-73	-71	-69	<b>-69</b>
R&D	-416	-397	-415	<b>-397</b>
EBIT	445	454	455	<b>458</b>
EBITDA	523	526	-	<b>-</b>
EBITDA pre	533	529	533	<b>529</b>
(in % of net sales)	32.5%	29.5%	32.5%	<b>29.5%</b>

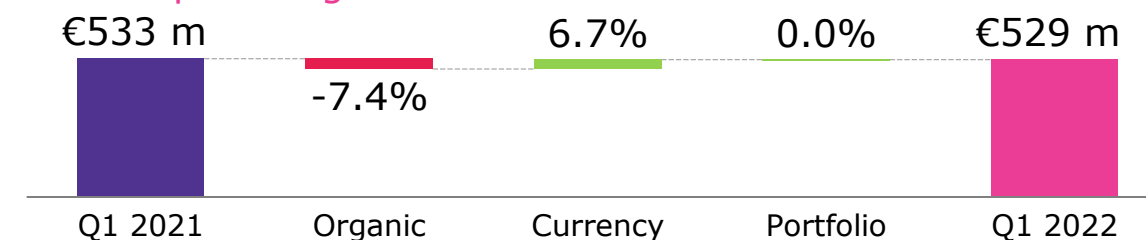
## Comments

- Oncology up +27% org., primarily driven by continuous strong uptake of Bavencio<sup>®</sup> (+102% org.) particularly in the EU and Japan; Erbitux<sup>®</sup> growing across all regions (+10% org.)
- Mavenclad<sup>®</sup> ramp-up (+25% org.) amid still depressed U.S. dynamic market more than offsets ongoing Rebif<sup>®</sup> decline (-15% org.)
- Stable established portfolio, driven by solid performance in Fertility (+4.3% org.) and CM&E (+2.5% org.)

## Net sales bridge



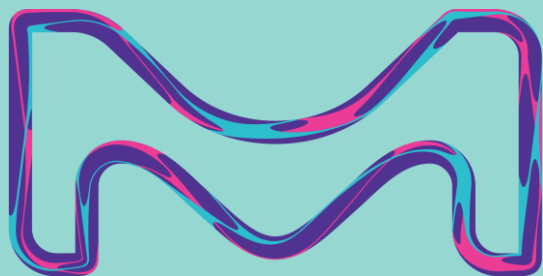
## EBITDA pre bridge



- M&S declining in % of sales; absolute increase mainly driven by increasing face-to-face activities, primarily in the U.S.
- Lower absolute R&D level mainly driven by termination of Bintrafusp study in Q3 2021
- EBITDA pre and margin decline driven by non-recurring income components of ~ €75 m in Q1 2021 (Bintrafusp deferred income & ~€50 m Bavencio<sup>®</sup> milestones)

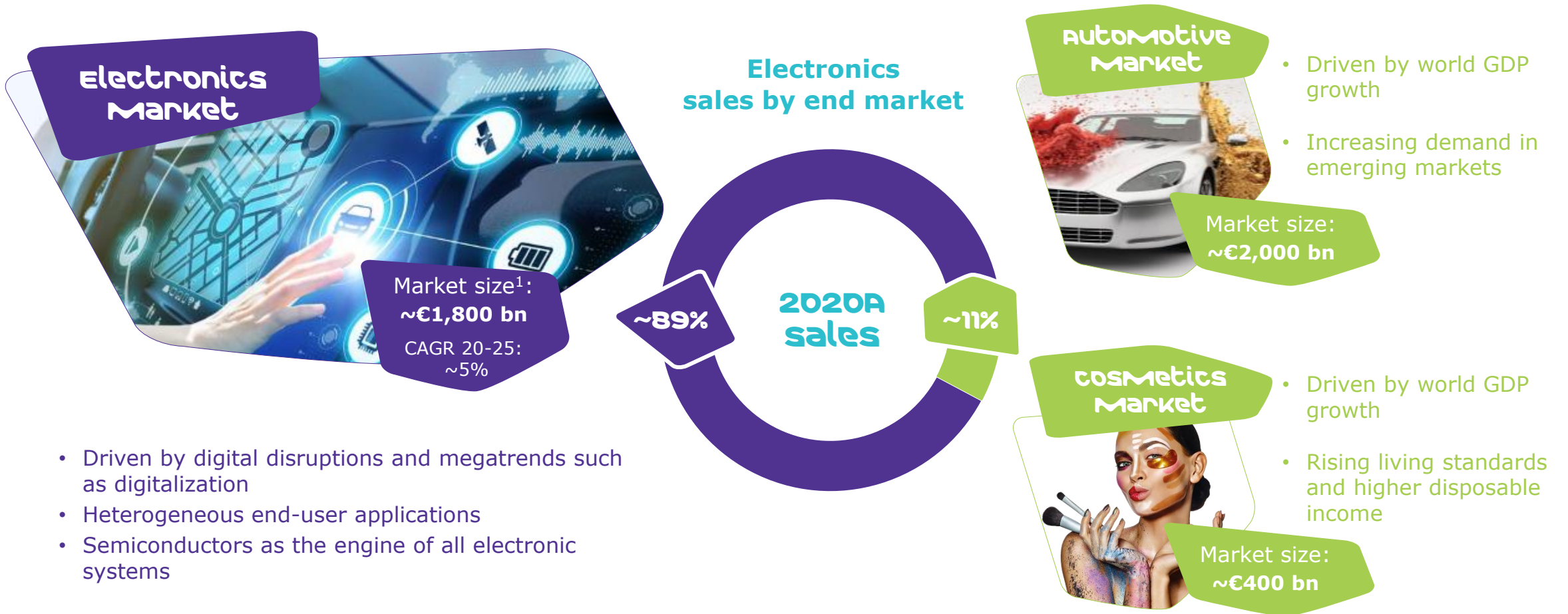


electronics



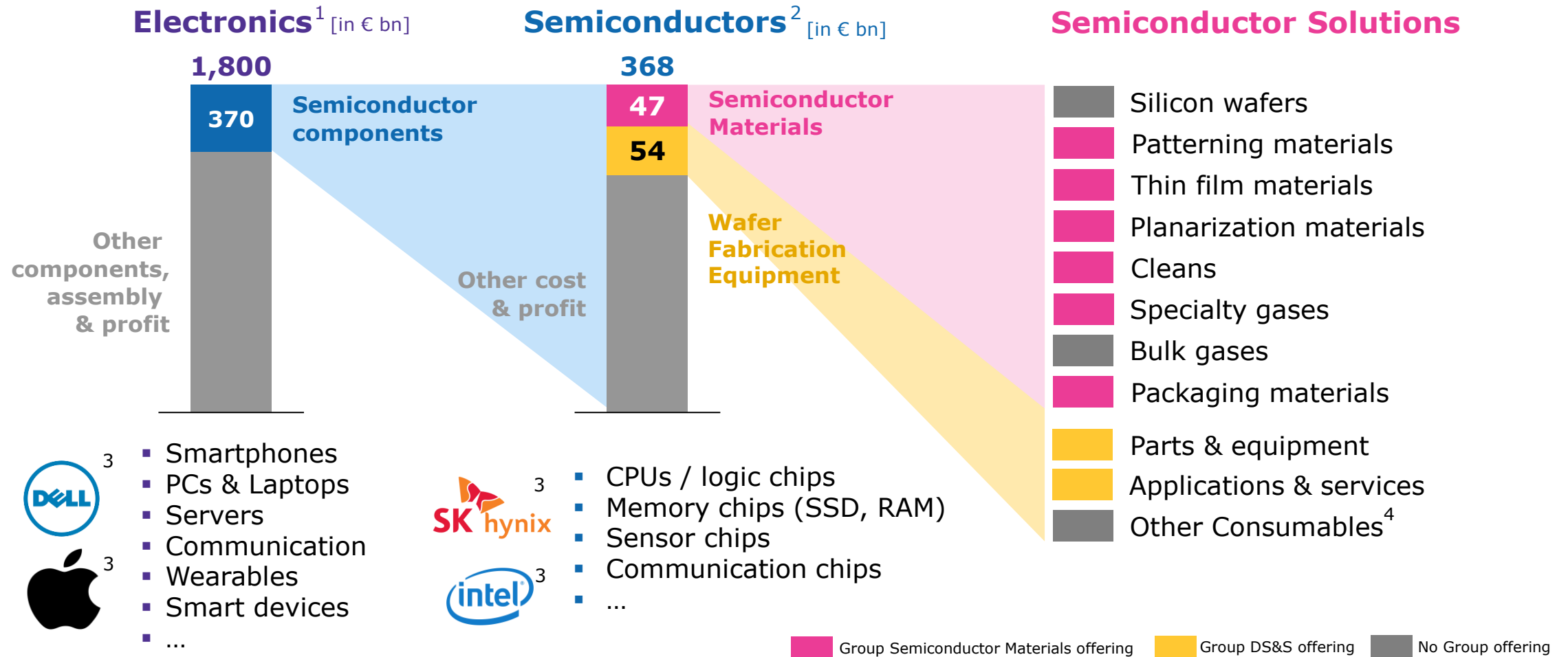
# Electronics

## Targets attractive markets – especially in the electronics space



<sup>1</sup>Prismark 2021

# Semiconductor Solutions – **integrated materials player, well positioned to serve the need of customers in semiconductor fabrication**



Illustrative Industry P&Ls based on Sources: <sup>1</sup>Prismark 2021, <sup>2</sup>Prismark 2021 & WSTS/SIA & SEMI Q1 2020; <sup>3</sup>Representative player in the industry, non-exclusive list, not based on any underlying criteria; <sup>4</sup>e.g. Filters, Pads, etc.; CPU = Central Processing Unit; RAM = Random Access Memory; SSD = Solid State Disk; CMOS = Complementary metal-oxide semiconductor



# Unique comprehensive products and services portfolio offers end-to-end solutions, well-placed in high growth segments



Steps of Company customers in manufacturing integrated circuits



Steps in Company's Delivery Systems & Services business

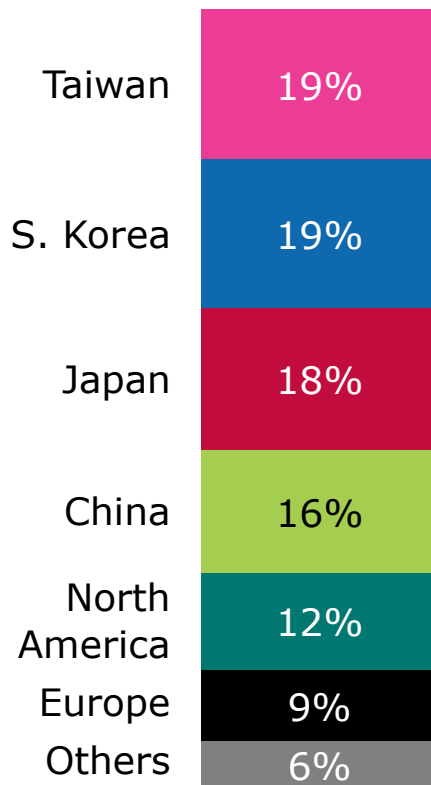


- Group Semiconductor Materials offering
- Group Delivery Systems & Services offering
- Group Intermolecular products & services



# Beyond a comprehensive portfolio Semiconductor Solutions also has an industry spanning customer base, supplying various end markets

2019 wafer capacity by region<sup>1</sup>



Selected customers per region<sup>2</sup>



Semiconductor Solutions has **OVER 100 CUSTOMERS**

supplying all top 10 chip makers and virtually all of the top 100<sup>3</sup>

- Focus on logic chips
- Focus on memory chips
- Focus on other chips

<sup>1</sup>SEMI World Fab Forecast Q3 2020 - Dec 2019 capacity,

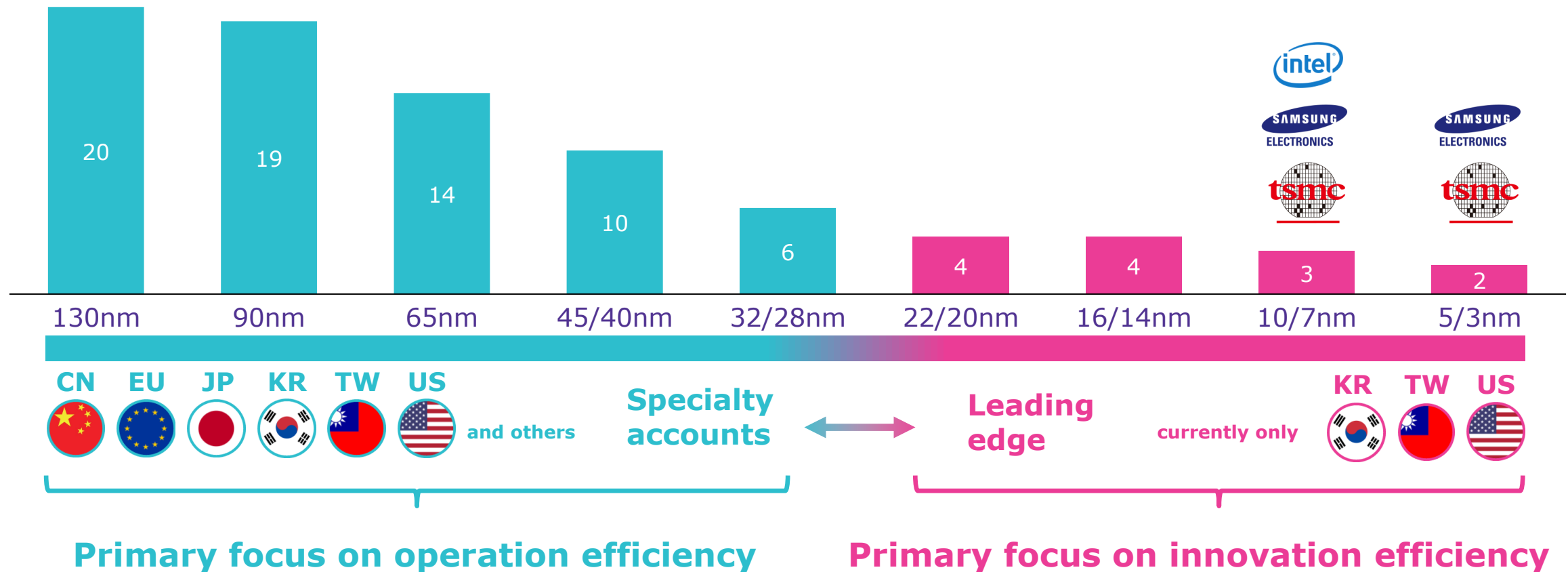
<sup>2</sup>Representative, non-exclusive list, not based on any underlying criteria

<sup>3</sup>Based on H1 2020 Sales



# Only 3 companies are currently running volume production $\leq 10\text{nm}$ These companies have the largest market shares across all nodes

Number of companies currently running volume production per logic chip node<sup>1</sup>



<sup>1</sup>Source: Wikichip.org and own data; volume production as of Sep 2020; countries are listed in alphabetical order



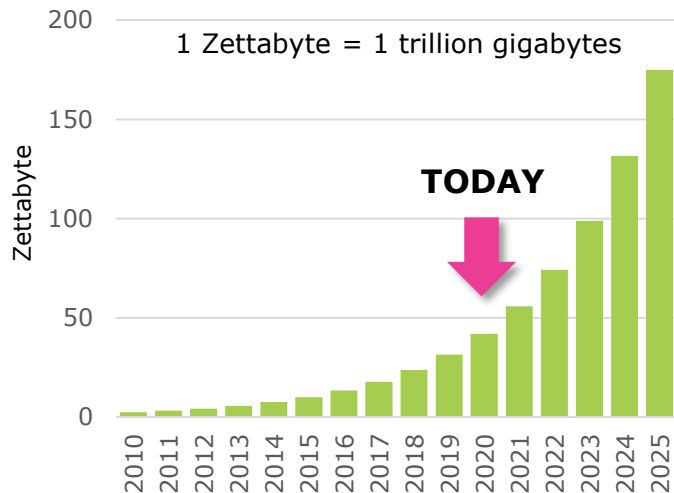
# Technology trends inevitably drive exponential data growth... ...more chips needed to generate, transfer, process & store data

**Data created worldwide**  
is growing +30% annually

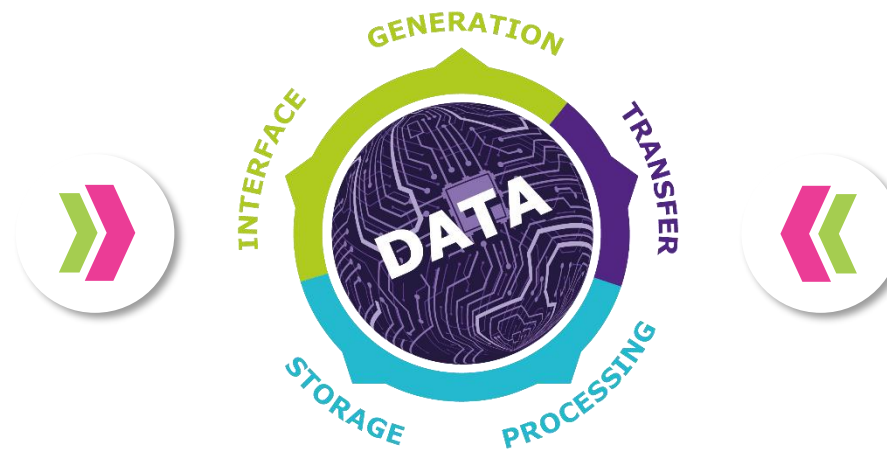
**All segments of data application**  
are affected by global data growth

**Technology trends** strongly impact  
relevance of data application segments

Size of global data sphere



Source: IDC DataAge 2025 Whitepaper



Technology market growth - examples

**5G Technology<sup>1</sup>**  
>122% CAGR

**Artificial Intelligence<sup>2</sup>**  
>33% CAGR

**IoT Sensors<sup>3</sup>**  
>24% CAGR

**Data Center Services<sup>4</sup>**  
>13% CAGR

**Autonomous Driving<sup>5</sup>**  
>18% CAGR

Semiconductor Solutions supports growth trend as part of “**the company behind the companies, advancing digital living**”

1) [alliedmarketresearch.com](http://alliedmarketresearch.com), Prismark 2020, CAGR 2021-2026; 2) [fortunebusinessinsights.com](http://fortunebusinessinsights.com), [post-gazette.com](http://post-gazette.com), CAGR 2018-2026; 3) [mordorintelligence.com](http://mordorintelligence.com), [computerweekly.com](http://computerweekly.com), CAGR 2020-2025; 4) [mordorintelligence.com](http://mordorintelligence.com), Prismark 2020; CAGR 2020-2025; 5G = 5<sup>th</sup>-generation cellular wireless; IoT = Internet of Things 5) [mordorintelligence.com](http://mordorintelligence.com), autonomous car market value CAGR 2020-2025

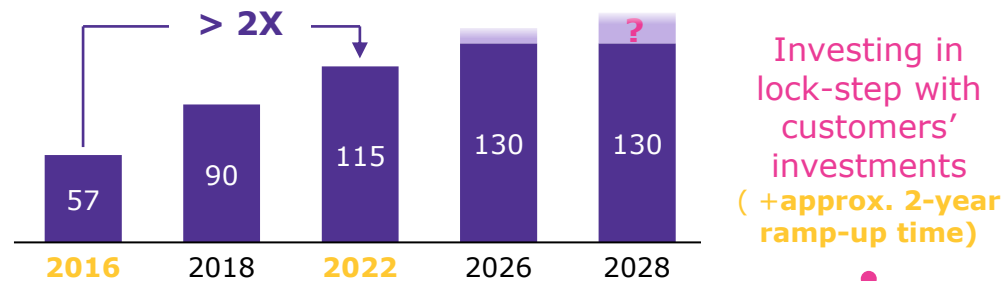


# “Level Up” Scale - Expanding in synch with customer demand

A partner of choice, in step for higher demand

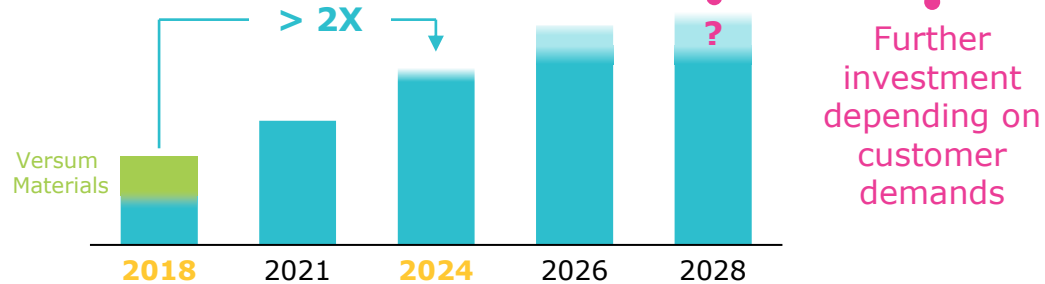
## Semiconductor industry

CAPEX p.a.<sup>1</sup> [€bn]







## Electronics

CAPEX illustrative [majority in Semi]



1) McClean March 2021, Company announcements; FX rate: 1.18 \$/€; 2) incl. IT

Smart localization, investing close to customers

Share of semi material market <sup>1</sup>	Key investments
<b>Taiwan</b>  ~25%	<ul style="list-style-type: none"> <li>Additional large site ensuring supply for key customers</li> <li>Further expand R&amp;D footprint</li> </ul>
<b>Korea</b>  ~25%	<ul style="list-style-type: none"> <li>Expand strong footprint, even higher customer proximity</li> </ul>
<b>China</b>  ~15%	<ul style="list-style-type: none"> <li>Become most localized multinational ready for growth</li> <li>Expand production and R&amp;D</li> </ul>
<b>USA</b>  ~10%	<ul style="list-style-type: none"> <li>Expand capacity for global &amp; local supply</li> <li>Enable new sites of key customers</li> </ul>

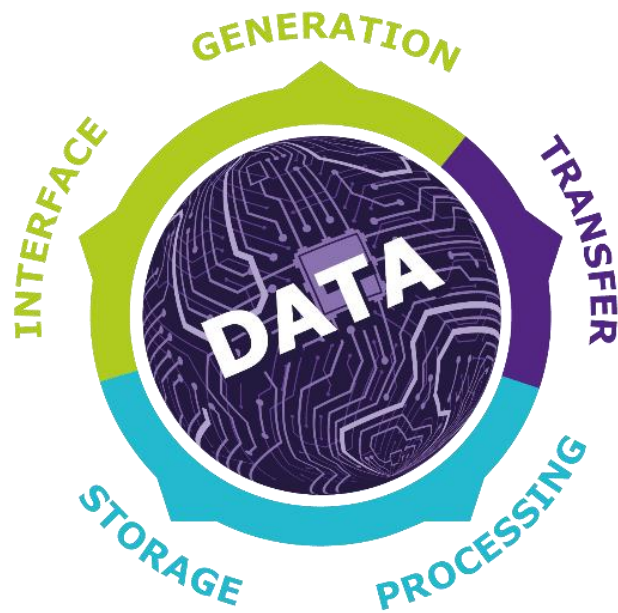
1) Source: Linx Consulting – only relevant segments, 2020; 2) Aggregated spend 2021-25, total spend: ~€2.1 bn, thereof ~11% (~€250 m) in Germany, also to fund global programs



# "Level Up" Tech – delivering today and enabling tomorrow

## Strong portfolio of silicon & optical technologies empowering today's applications

Solutions empowering customers to make **smaller, faster, more energy efficient** & **more sustainable** devices in various applications across the entire **data sphere**



- Data Generation**  
Sensors, MEMs
- Data Transfer**  
Network chips, interconnects, antenna
- Data Processing**  
Logic chips: CPUs, GPUs
- Data Storage**  
Memory Chip: DRAM, 3D NAND
- Data Interface**  
Displays: TV and mobile (LC, OLED)

## And enabling tomorrow's leading-edge technologies

### Selected future applications

#### Next-Gen image sensors

Leverage semiconductor & display knowledge for new & optimized sensors

#### Smart Antennas

New LC, enabling beam forming, replacing bulky mechanical antennas

#### Transition to nanosheets

Novel etchants & dopants allowing higher scaling & lower power consumption

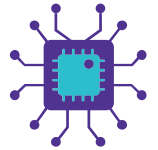
#### 3D NAND with >300 layers

ALD<sup>1</sup> materials that help minimize cross talk between memory cells

#### Foldable displays

Broad set of materials from encapsulation to the OLED stack

1) Atomic Layer Deposition



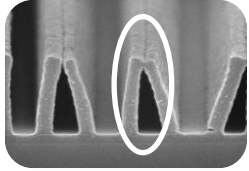
### Our contribution



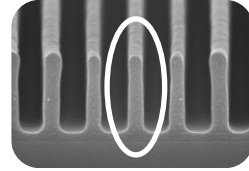
# Electronics

## Expanding the limits of how small you can go

### Pattern collapse

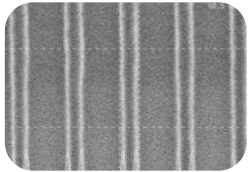


### AZ<sup>®</sup> rinse materials



As lines get narrower and closer together in advanced chip generation, lines tend to “stick” due to surface tension.

### Lithography limitation

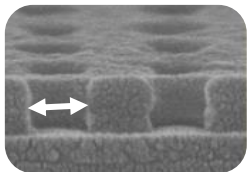


### Directed self-assembly (DSA)

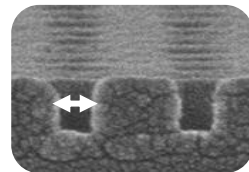


Block copolymer can generate small lines or contact holes by self-assembly. This allows miniaturization without expensive new equipment.

### Wide features



### AZ<sup>®</sup> shrink materials



Shrink materials “shrink” the gap between lines and, hence, allow the manufacture of narrower features otherwise not possible.



**Company delivers highly innovative solutions for complex customer problems**



# Semiconductor Solutions

## Partner of choice for semiconductor manufacturers globally



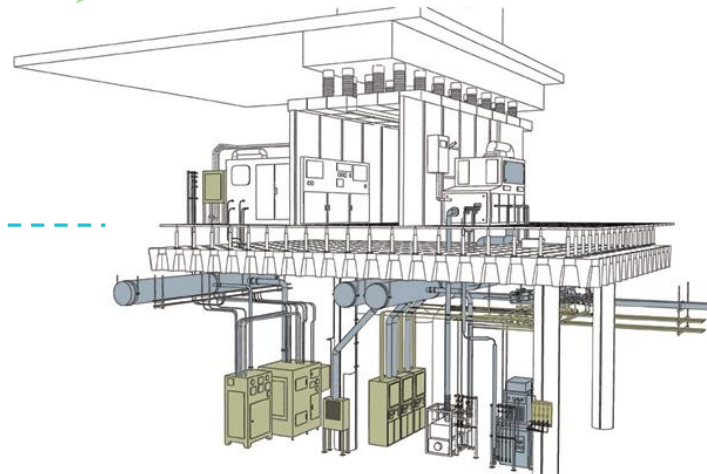
### semiconductor materials

Winning in the fab with process owners

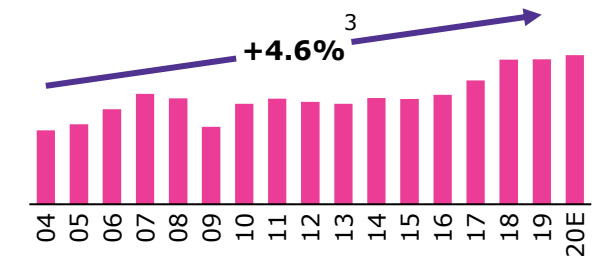


### delivery systems & services

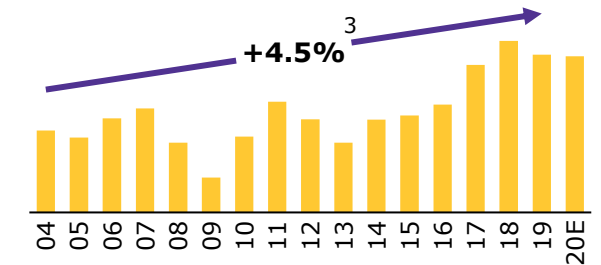
Winning in the sub-fab with facility engineers



### Fab material market <sup>1</sup>



### Fab equipment market <sup>2</sup>



**One fab address = two customers:** buying cycles, interfaces & nature of business fundamentally different, but ... **combined, highly synergistic**

Fab = Semiconductor fabrication plant

<sup>1</sup>Source LINX-Consulting, wafer processing materials - excludes silicon wafers and packaging materials;  
<sup>2</sup>Source: Gartner; <sup>3</sup>2004-2019 15-year CAGR



# DS&S - Delivery Systems & Services: a trusted global player in **safe and reliable delivery of hazardous materials** to semiconductor industry



## Fab projects



- Designing bulk spec **gas delivery systems**
- Managing **construction and installation**
- High-volume customers who store large specialty gas **ISO containers outside fab**



## Gas & chemical delivery



- Design and manufacture delivery systems for: specialty gases, CVD/ALD deposition materials, CMP slurries & cleans
- Systems **store gas/chemical containers** while in-use and **control material delivery parameters** to fab processes
- **Interface with customer's fab** process control and monitoring systems.



## MEGASYS & in-fab service

- Provide **delivery systems maintenance, materials inventory management**, quality assurance, & new equipment installations
- Contracts with **18 customers' fabs**
- >500 global employees + **~100 field service technicians**

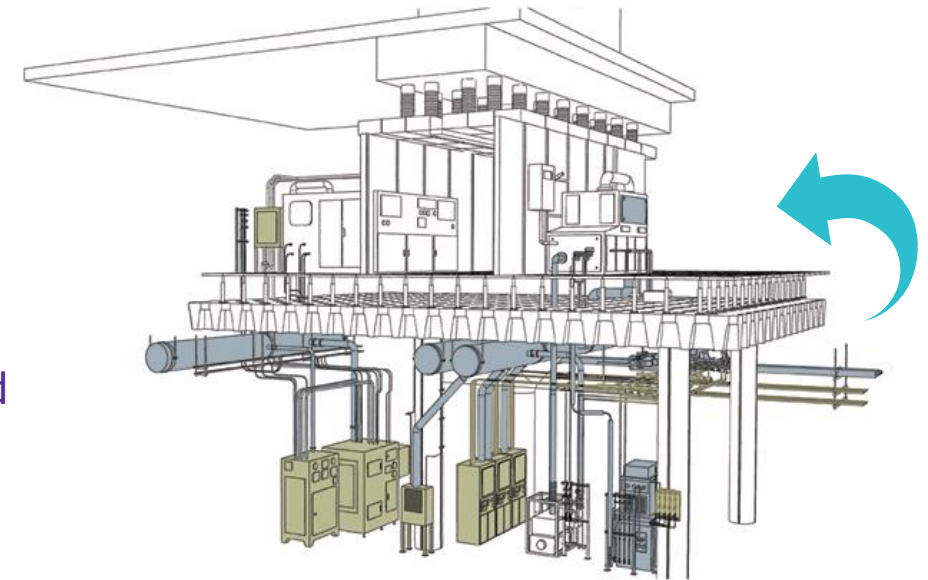


# DS&S - Delivery Systems & Services

## Winning in the fab equipment market

### key strengths

- ✓ Operational and project execution excellence with **99.9997% uptime** of our equipment
- ✓ 30 years of experience with a **flawless safety record** and **full interoperability**
- ✓ **Global footprint** with flexible capacity **where the customer needs us**
- ✓ **Additional credibility** with materials consuming process owners from sub-fab engineers' experience



Ensure next-gen process requirements have **integrated materials + equipment solution**



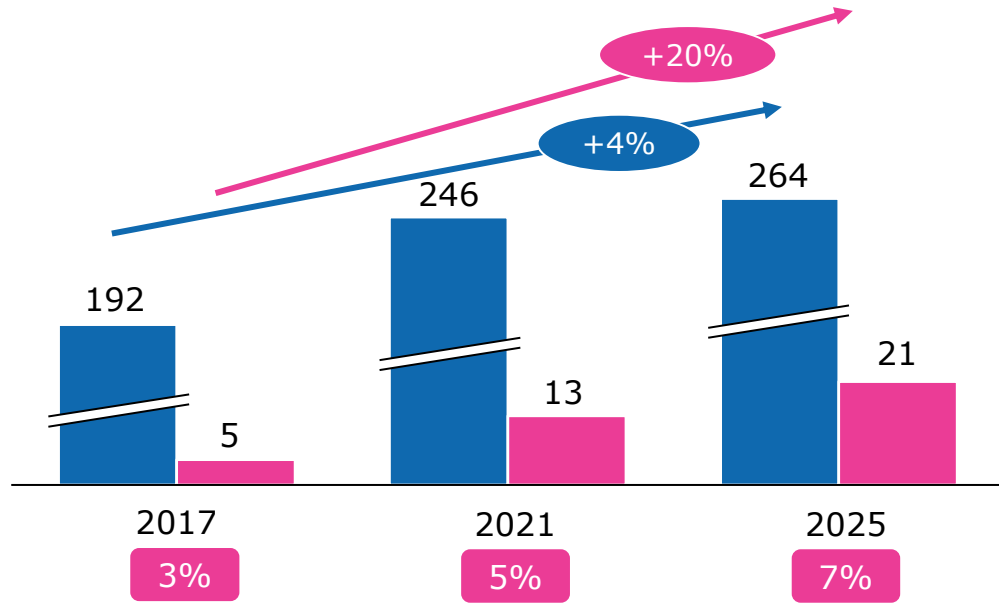
**Enabling our customers** in semiconductor fabrication **to run with operational excellence**

# Electronics

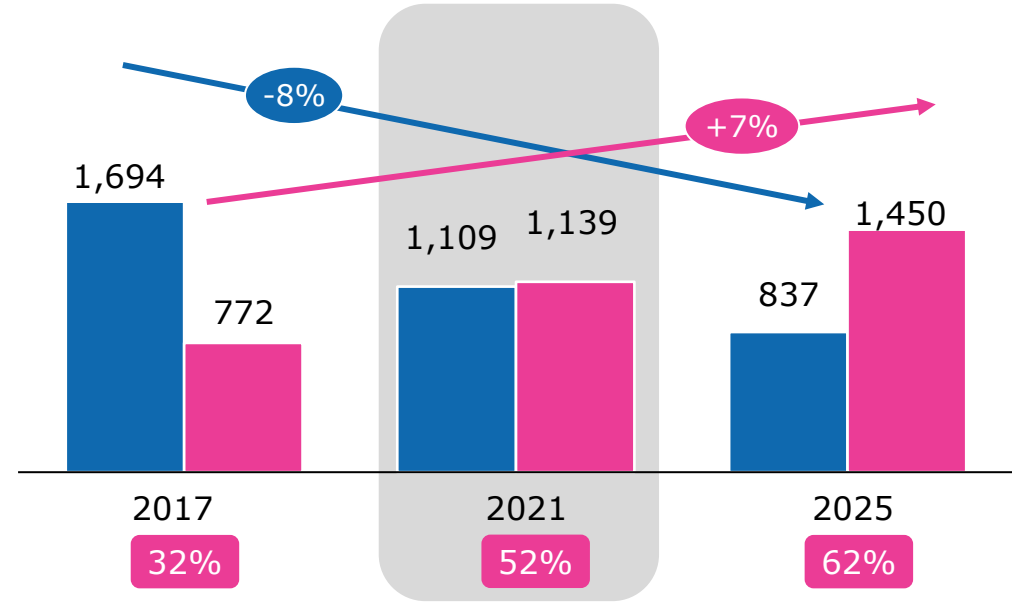
## Display Solutions - OLED material market to exceed LC material market **already in 2021**

x% OLED shipment area / addressable material market [in % of total]    ■ Liquid Crystals    ■ OLED

**Display shipment area<sup>1</sup>**  
[km<sup>2</sup>]



**Addressable material market<sup>2</sup>**  
[€m]



- **Continued growth** across all technologies
- **OLED growing faster than LCD**, but **LCD to command 90+% area share** for foreseeable future

- **Material value** per OLED display **higher** than in LCD
- **OLED material market to exceed LC material market by 2021**, but market split between **many more players**

<sup>1</sup>Omdia; <sup>2</sup>Internal Business Intelligence; Acronyms: LCD = Liquid-Crystal Display, OLED = Organic Light Emitting



# Electronics

## Strategic roadmap materializing

### Measures for a bright future



#### Darmstadt

- In Darmstadt focus on R&D and production
- Immediate bottom line contribution from 2019 onwards
- Reduce the number of FTEs by ~15% = ~400 FTEs



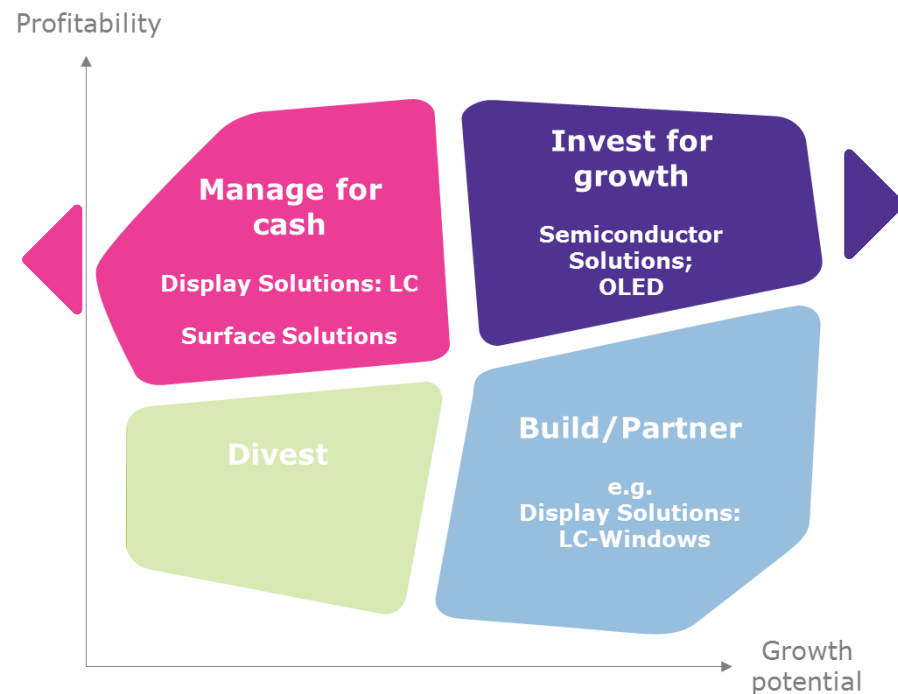
#### Chilworth

- Chilworth site during September 2019 successfully closed



#### Atsugi

- Shut down of Electronics activities at Atsugi site started (to be completed during 2021)
- R&D and production activities in Atsugi transferred and consolidated in other PM locations in Asia
- Consolidation of site structure in Japan



- Leading supplier of high-purity process chemicals, gases and equipment serving semiconductor manufacturers
- Track record of accelerated growth and industry leading profitability
- Creating a **leading electronic materials player** with **attractive long-term prospect**



- Leading in advanced materials innovation
- Acquisition to strengthen semiconductor technology offering
- Application specific **materials expertise** with that **perfectly complement** Group's business and technology portfolio



**Bottom-line management to support margin ambition of 30% in the long-term**



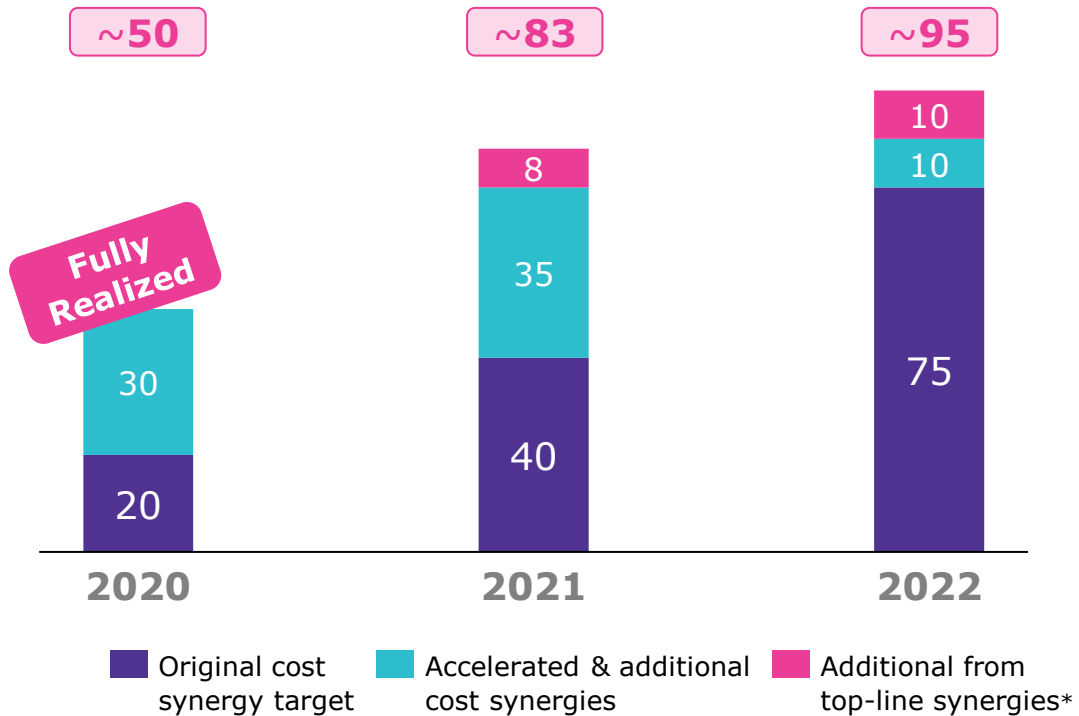
**Both transactions successfully closed**



# Electronics

## Successful integration drives substantial synergy upgrade and acceleration

EBITDA pre impact of synergy ramp-up [€m]



**Original target for 2022 is now being addressed for 2021**

\*Top-line synergies from cross-selling, new products introductions and overarching initiatives

### Sources of synergies

- business optimization**
  - Transform country setup
  - Streamline duplicate structures
- procurement and supply chain**
  - Optimize production and supply chain network
  - Achieve savings through joint procurement
- corporate and administrative functions**
  - Integrate corporate & administrative functions
  - Cost savings due to U.S. company delistings



# Electronics Q1: Strong Semi performance continues to drive sector growth

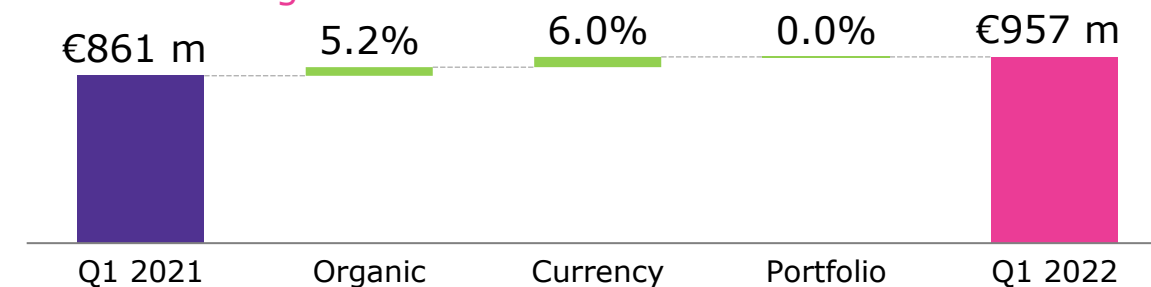
## Electronics P&L

[€m]	IFRS		Pre	
	Q1 2021	Q1 2022	Q1 2021	Q1 2022
Net sales	861	957	861	<b>957</b>
M&S*	-135	-156	-135	<b>-156</b>
Admin	-34	-28	-33	<b>-28</b>
R&D	-67	-75	-66	<b>-75</b>
EBIT	125	145	142	<b>156</b>
EBITDA	259	279	-	<b>-</b>
EBITDA pre	273	289	273	<b>289</b>
(in % of net sales)	31.8%	30.2%	31.8%	<b>30.2%</b>

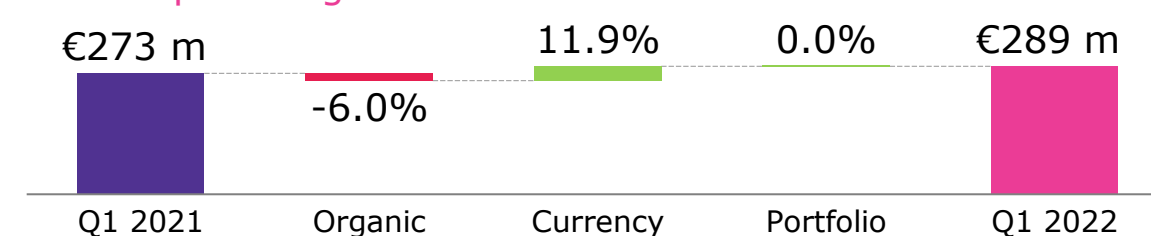
## Comments

- Semiconductor Solutions: +16% org. growth fueled by mid teens growth in Materials further supported by DS&S project business
- Display Solutions: down -12% organically, driven by continued decline in Liquid Crystals (accelerated by lower utilization at Chinese customers)
- Surface Solutions: +1% org. growth driven by strong cosmetics business, more than offsetting softer industrials and coatings (automotive shortages)
- M&S as a percentage of sales increasing by ~1pp driven entirely by higher logistics cost, while M&S w/o logistics is declining
- R&D increase in line with sales growth, fully driven by investments in Semiconductor Materials
- EBITDA pre margin remains at 30% amid inflationary developments (raw materials, energy & logistics); own pricing measures keep Semi margins intact

## Net sales bridge



## EBITDA pre bridge



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