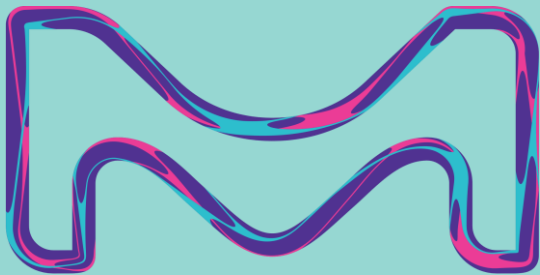


MERCK KGAA, Darmstadt, Germany - Morgan Stanley 19th Annual Global Healthcare Conference

Belén Garijo, CEO

September 13, 2021



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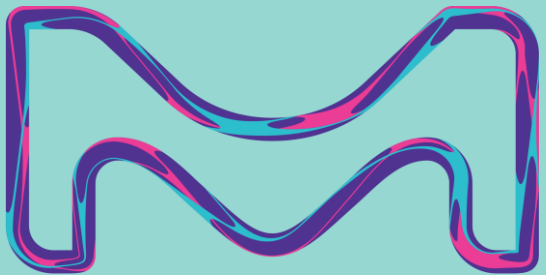


Agenda

- 01** Business overview
- 02** Transforming the company
- 03** Healthcare – Executing on the earnings phase
- 04** Life Science – Focusing on profitable 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			Core pillars
Direction	Mobilize for growth in the BIG3	Focus on profitable top line growth in BIG3	
Frame	Accelerating science & technology leadership	Innovation as key driver for sustainable growth	
Foundation	Focused & disciplined capital allocation	No "coffee for all" disciplined and focused investment in Enterprise Planning Units	
Values	Continued long-term orientation & sustainability	Continued long-term focus as part of the DNA further reinforced by significant sustainability effort	
Drivers	Agility, Diversity, Cost discipline	Strong, diverse, fast, agile & unbureaucratic; cost discipline in non-focus & support areas	Supporting pillars

company innovation center darmstadt

Group

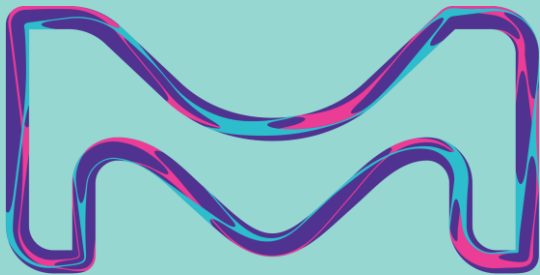
2021 and beyond – poised for growth in a challenging environment



Acronym: VBP = volume based procurement



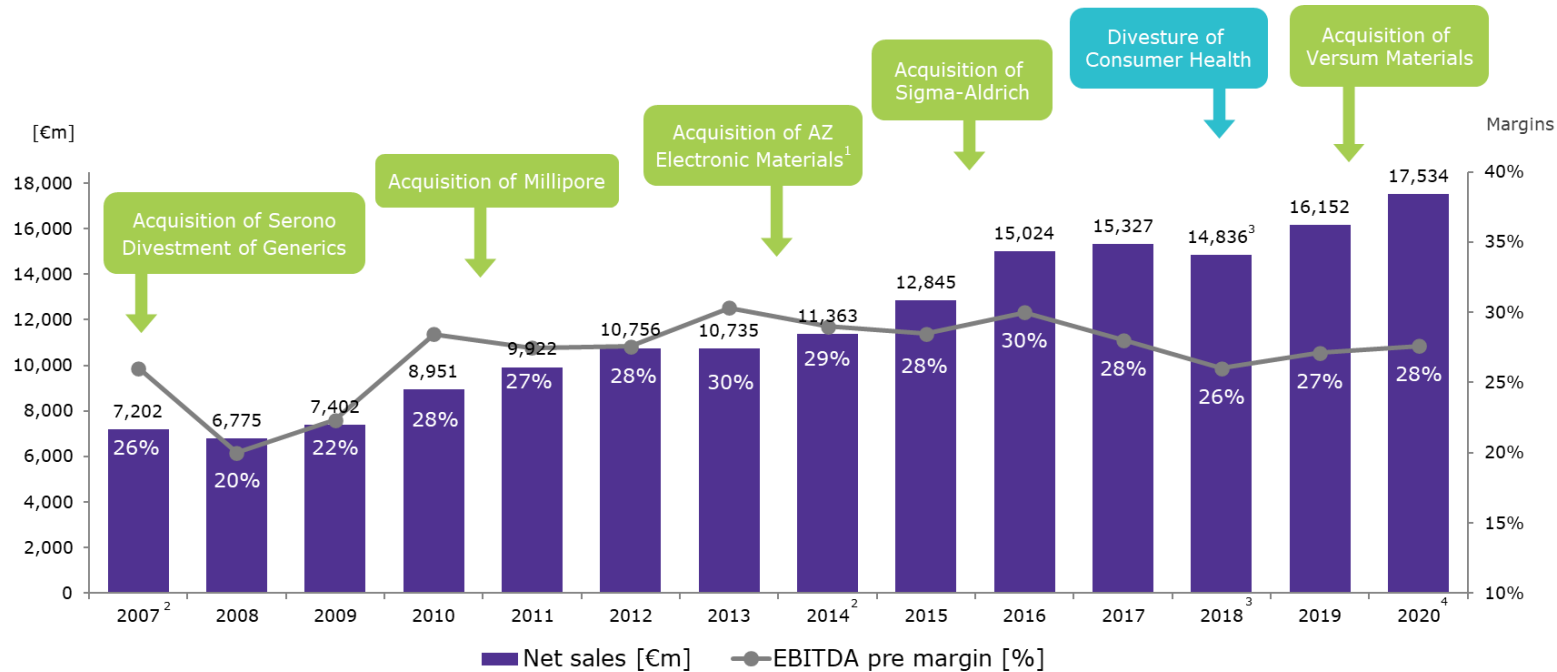
transforming the company



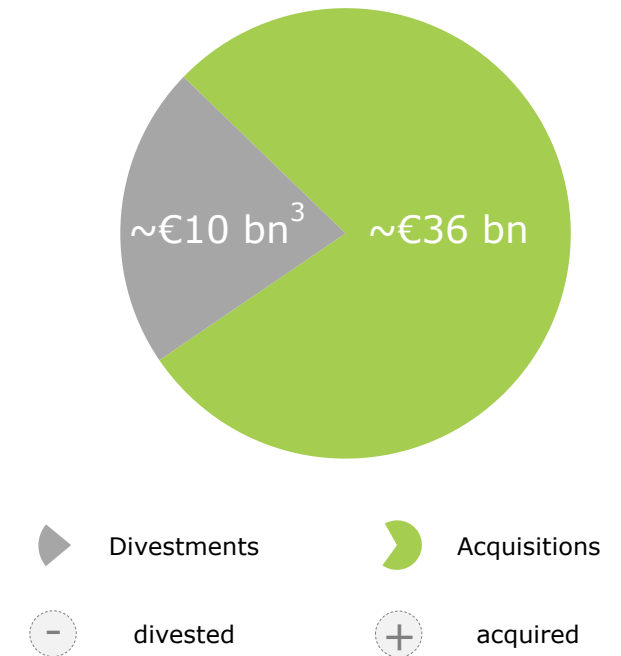
Group

Added scale and strengthened attractiveness of portfolio

Growth trajectory



Transformation volume



Group

Well positioned to win in high-growth focus areas

Global economy¹



Global GDP
~3% to 4%

End markets¹



Global pharma industry
~4% to 5%



Global life science industry
~5% to 7%



Global electronics industry
~4% to 5%

Focus market areas¹

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

Biologics >10%
Services >10%

Semi materials
~5% to 7%

BIG3



New HC
Products



Process
Solutions



Semi
Solutions

Σ ~4% to 6%

Σ 6% +

More details in
today's afternoon
Sector sessions

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

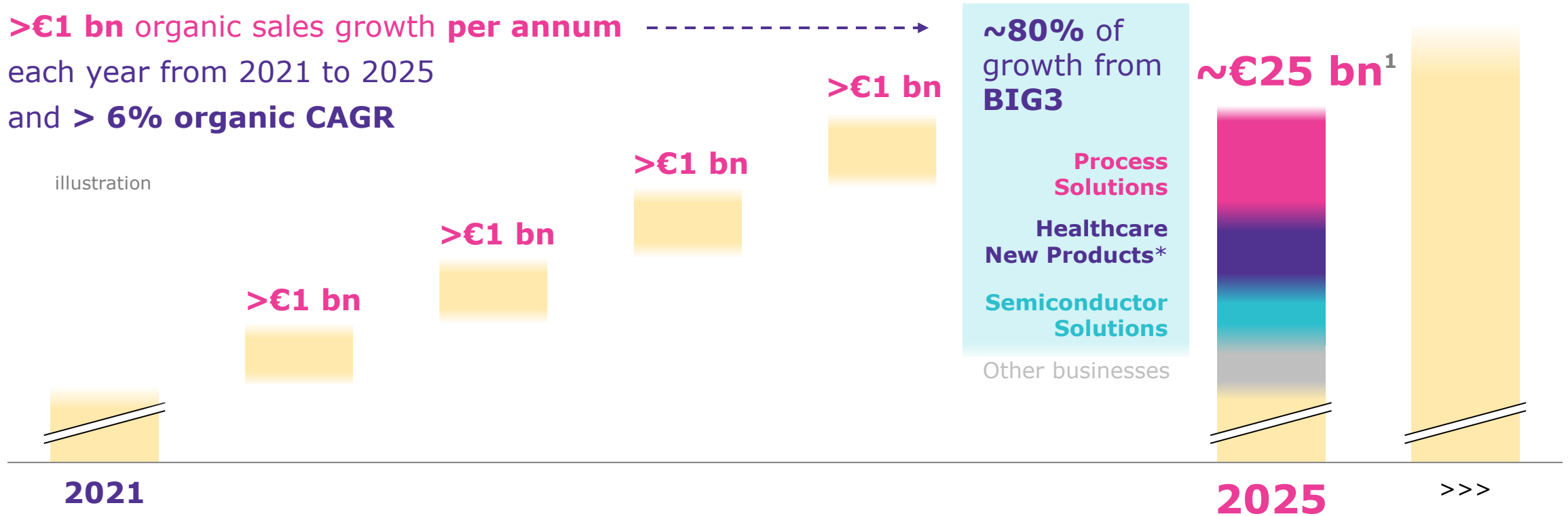
¹ Company estimates of mid-term growth outlook based on industry forecasts and reports from public research institutes (e.g. IMF, IQVIA, EvaluatePharma, Prismark, etc.)

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

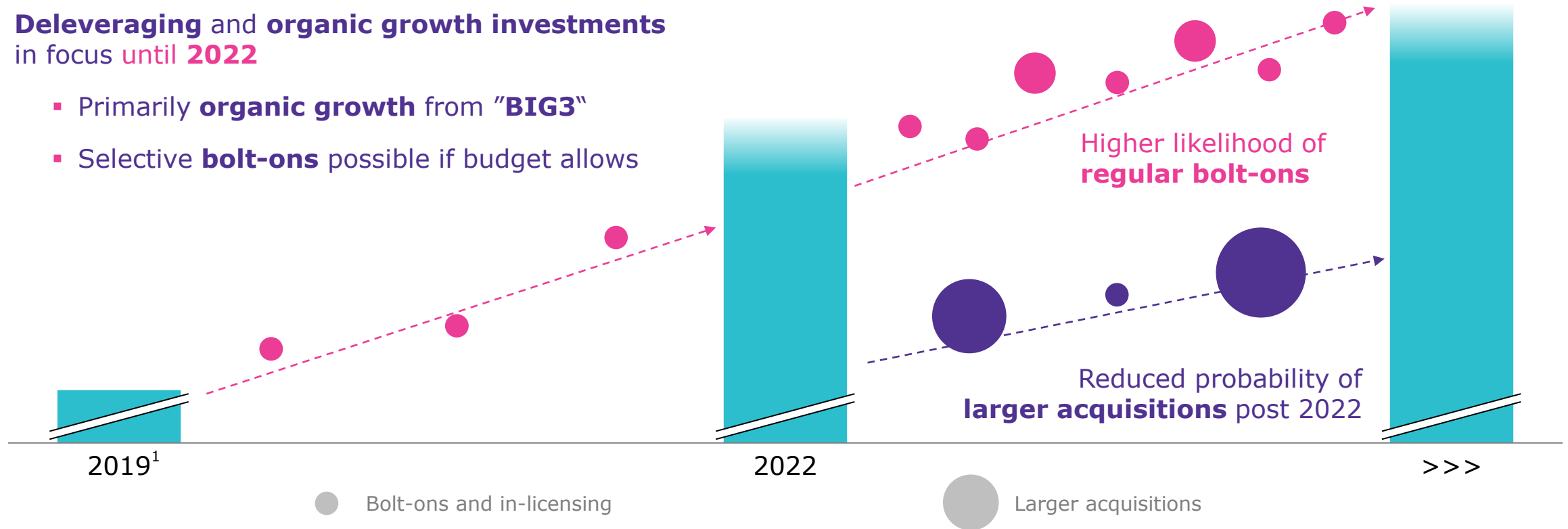
*) Updated scope: New Products consist of recent launches (Bavencio®, Mavenclad®, Tepmetko® MET-exon 14) and risk-adjusted launches to come until 2025

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



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

¹ 2019 Group sales of €16.2 bn

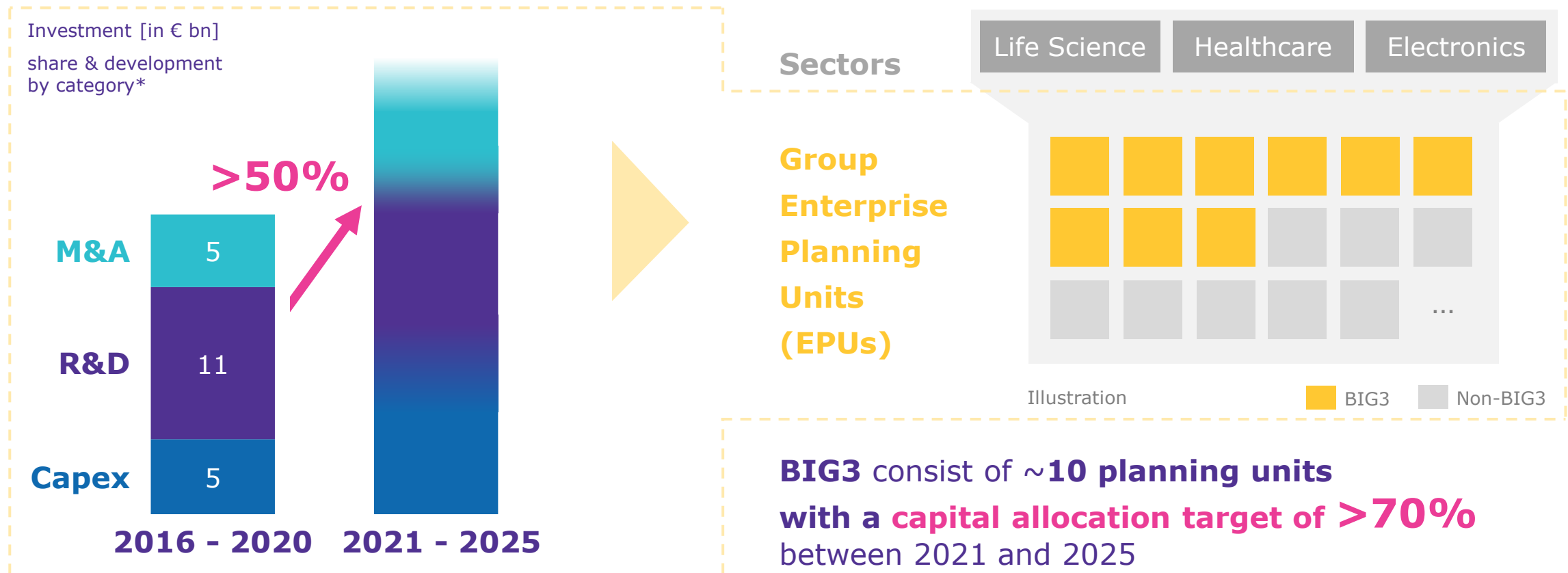


Group

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**



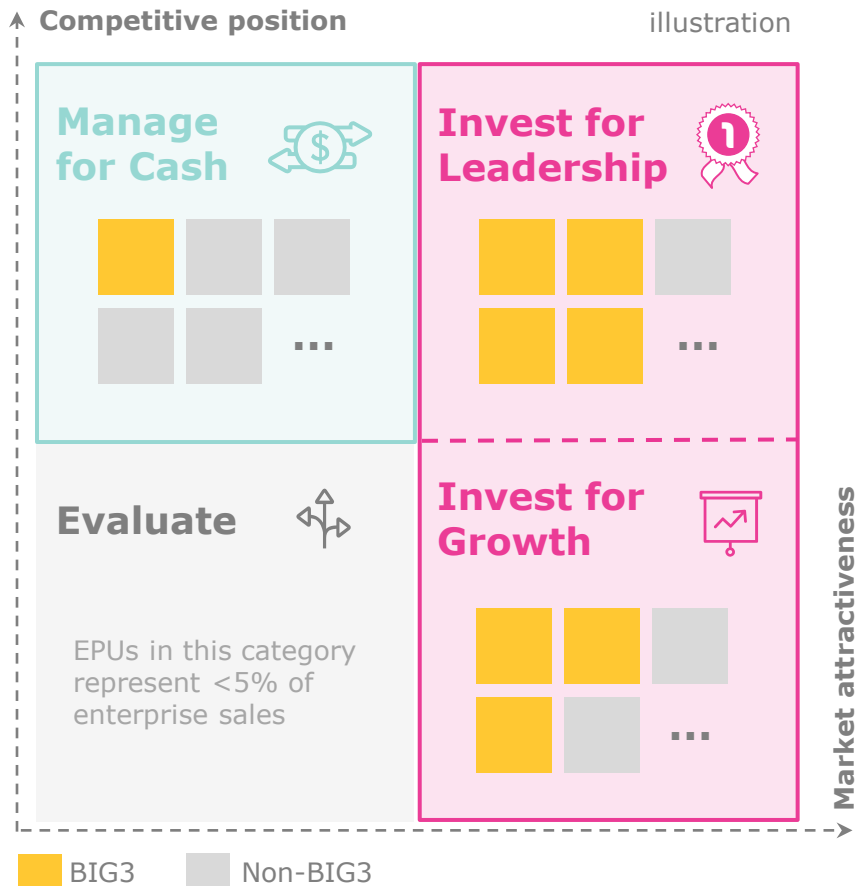
* >50% statement primarily valid for R&D and CAPEX plan, future M&A purely illustrative as it is deal-dependent

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**

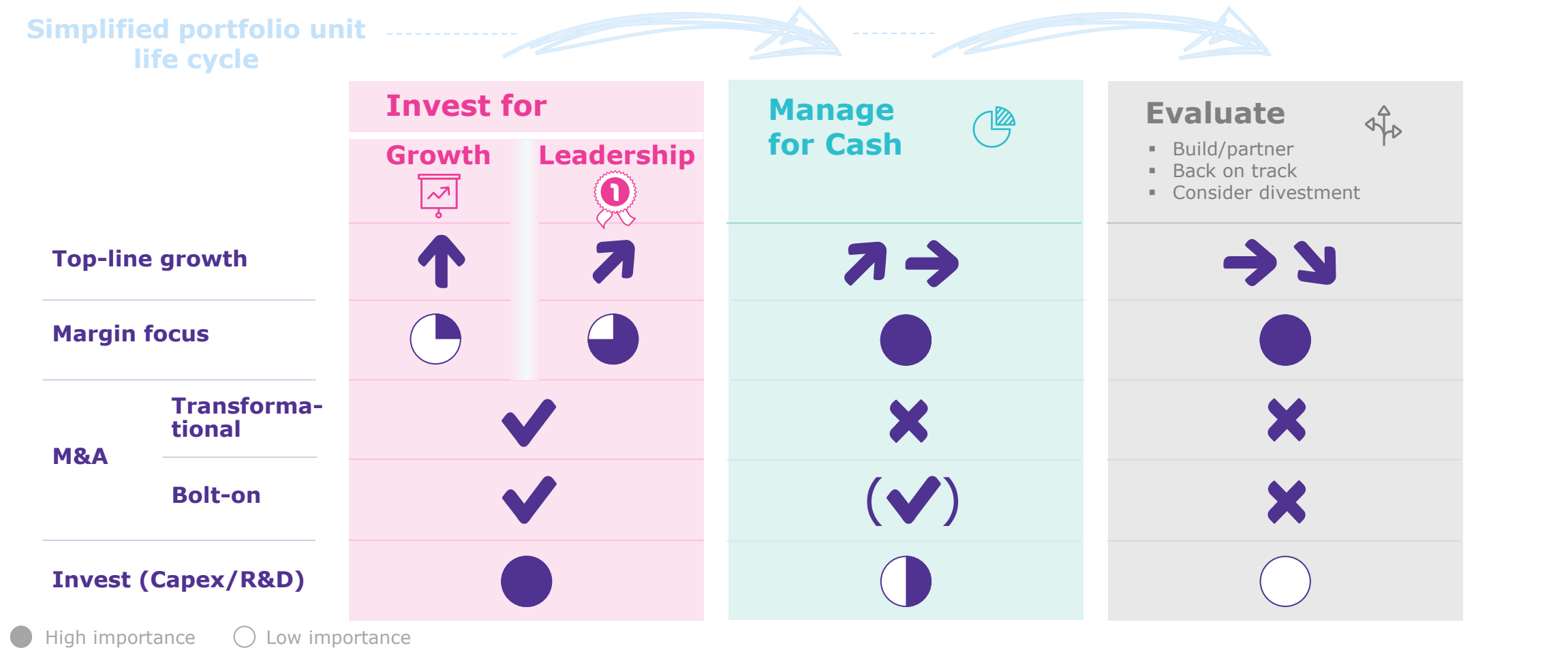


- Segmentation in planning units allows **right level of granularity** in market & competitive analysis (vs. sector level or product level)
- **Enterprise Portfolio Units (EPUs) with different roles** drive balance between **strong cash generation** & **targeted capital allocation**

- ✓ **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



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

M&A¹

R&D

Capex

2021-2025

M&A

R&D

CAPEX

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

- **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

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

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

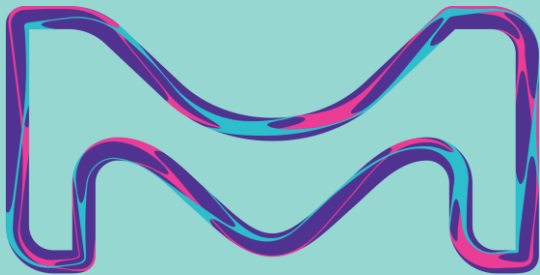
▶ **Annual capex guidance: from ~€1.5 bn in 2021 to ~€2 bn by 2023**

* >50% statement primarily valid for R&D and CAPEX plan, future M&A purely illustrative as it is deal-dependent

¹ M&A: Mergers and Acquisitions

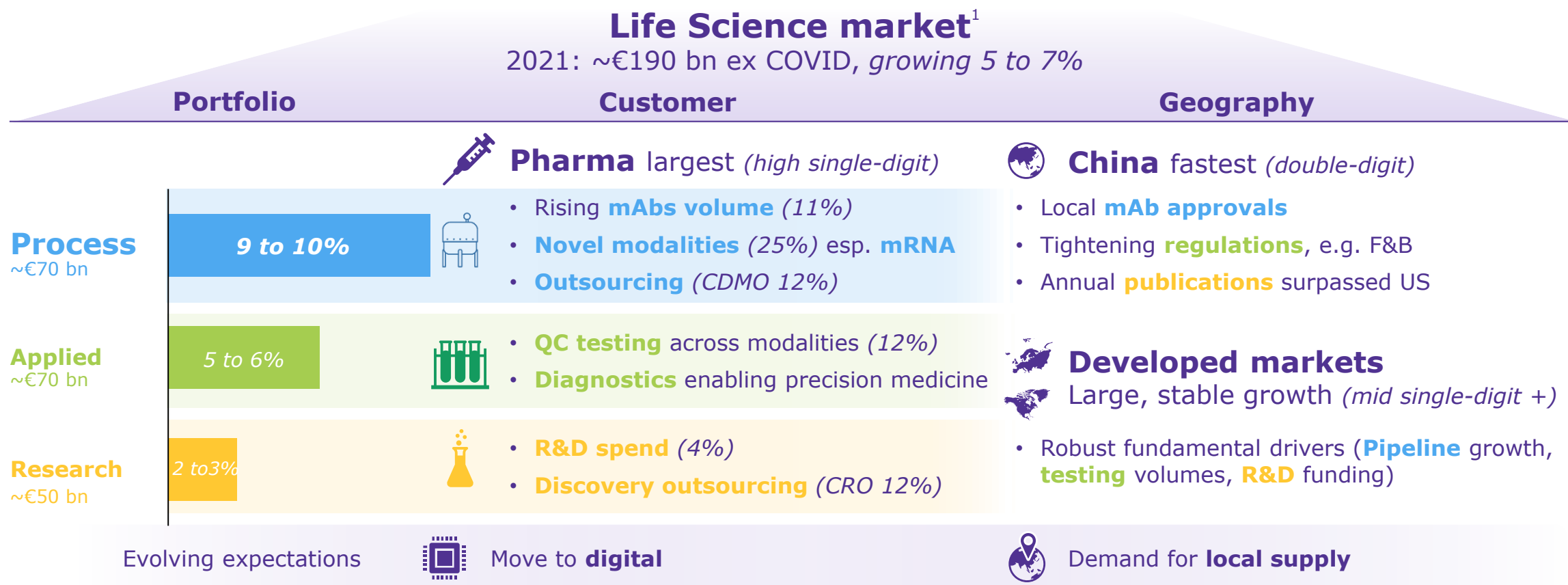
Life science

Focusing on profitable growth



Life Science Market

Attractive secular drivers across segments create opportunities



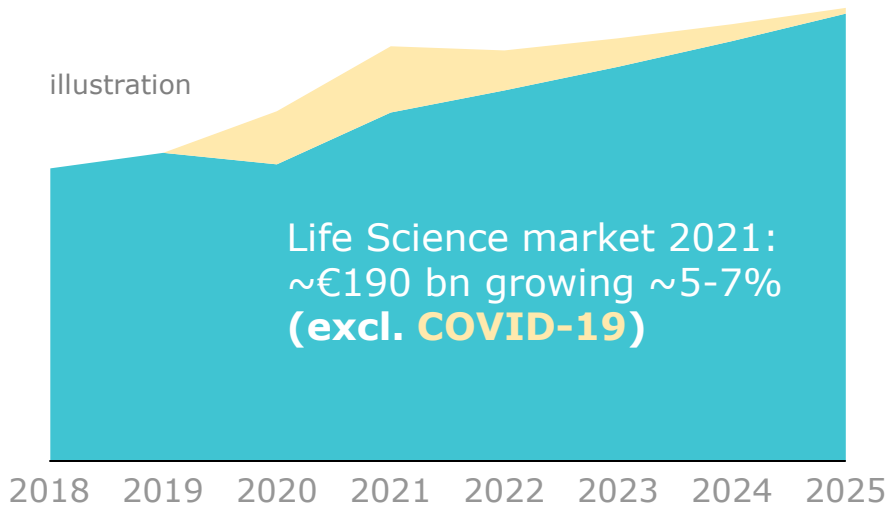
We continuously pursue key growth trends as a leading diversified life science player

¹ 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**

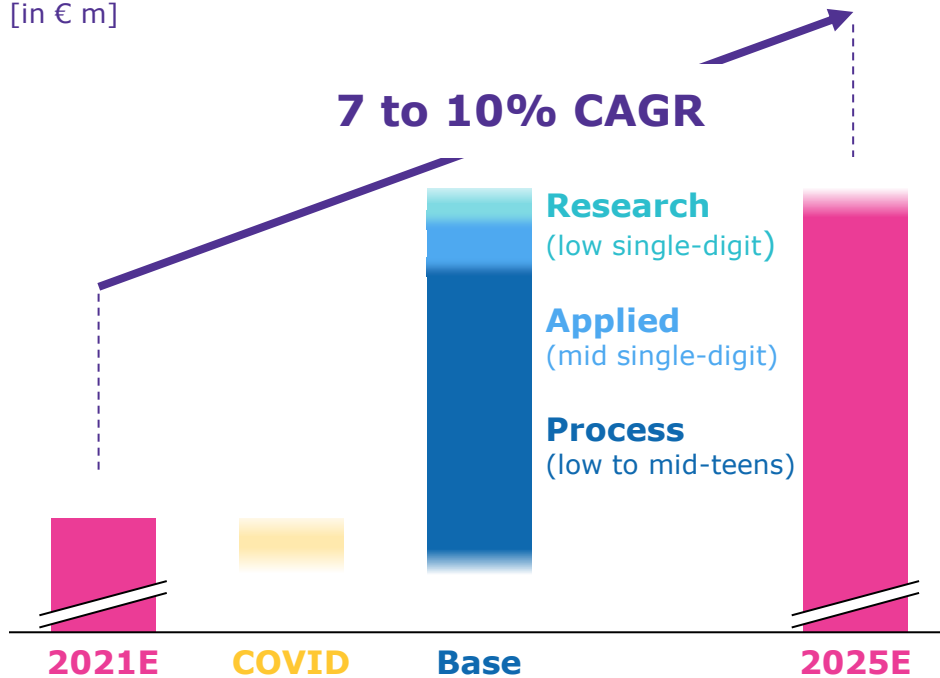
➤ **Upgrading** mid-term financial ambition to **7-10% org. sales CAGR** (incl. fading COVID business)

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**¹
- **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



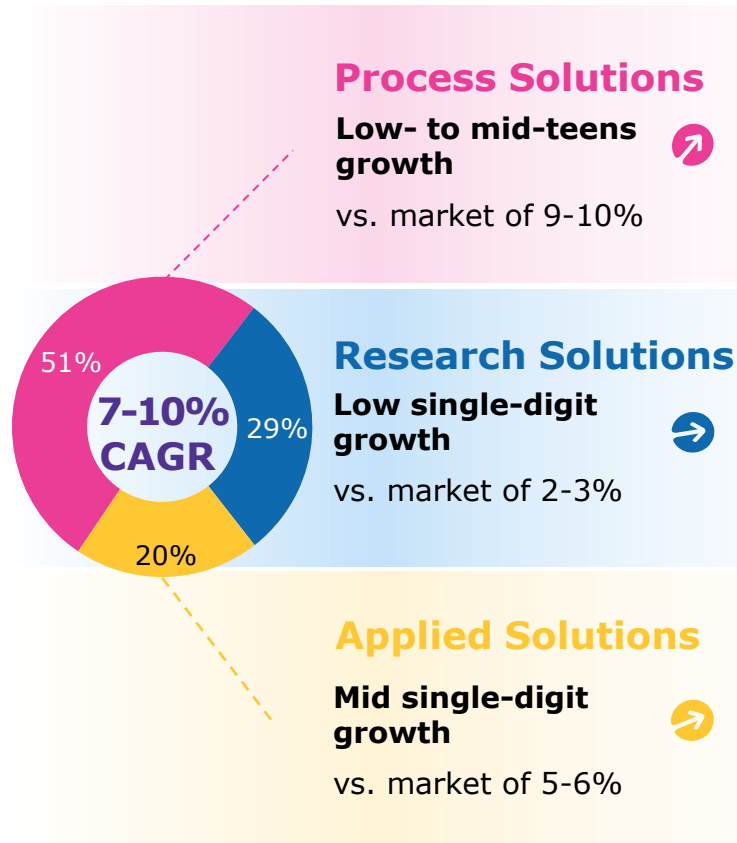
Confident to deliver above-market growth despite expected fading COVID-19 business

¹Mid-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

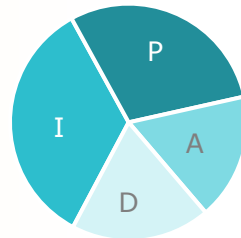
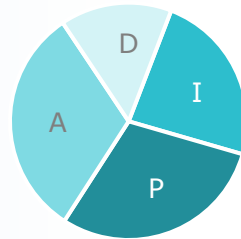
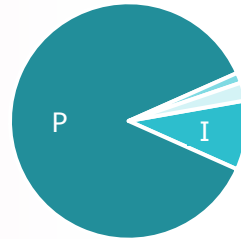
All business units contributing to strong mid-term outlook

Sales split¹



Mid-term outlook²

Customer Split³



Fundamental growth drivers

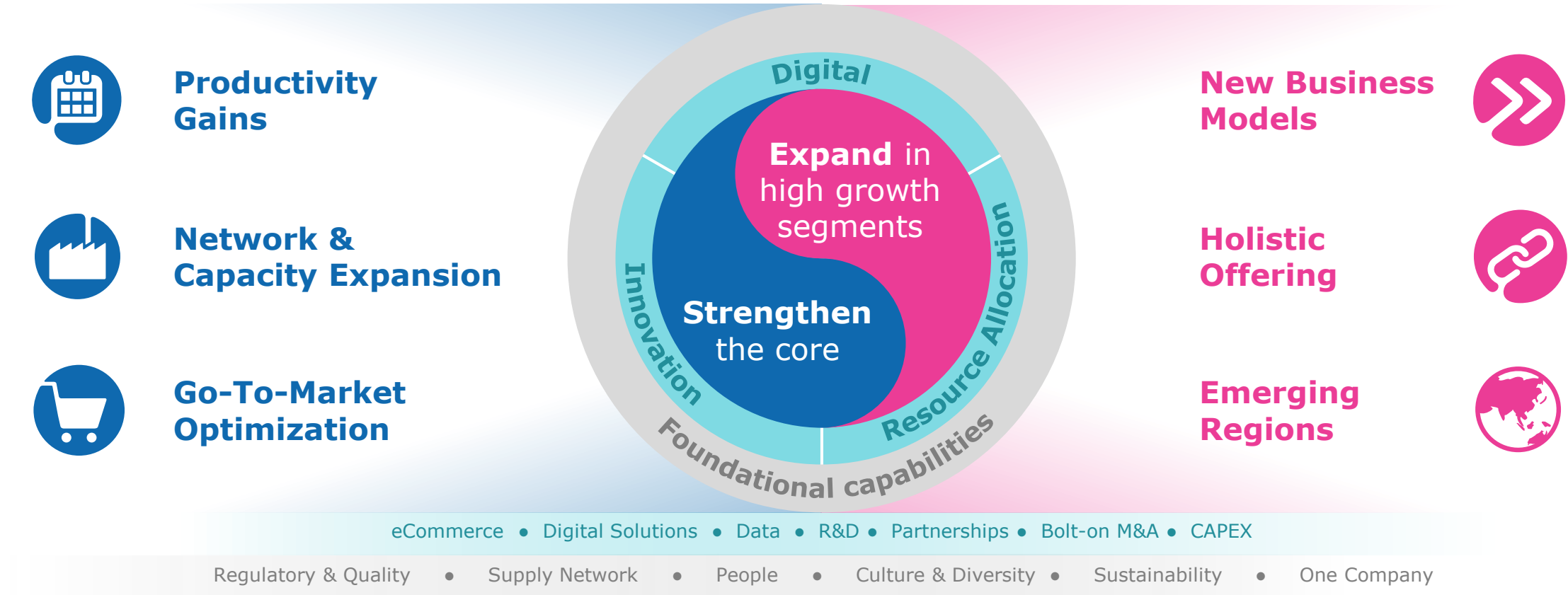
- **Biologics:** rising mAbs volume (11% CAGR⁴), growing adoption of single use, and shift to next-gen bioprocessing (intensified, digitized)
- **Novel modalities:** cell & gene therapies, ADCs, and mRNA inflection driving strong growth (25% CAGR⁴) and need for templated processes
- **Outsourcing:** increased role of emerging biotechs contributing to outsourcing in development & manufacturing (CDMO with 12% CAGR⁴)
- **Research activity:** >9,000 pre-clinical projects in research pipelines⁵; 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

¹ Based on H1 2021, CAGR is organic mid-term ambition including anticipated fading of COVID contribution; ² market growth rates are excluding COVID effects; ³ indicative only; ⁴ Source: company estimate of market growth based on industry forecast over 5-year horizon; ⁵ 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

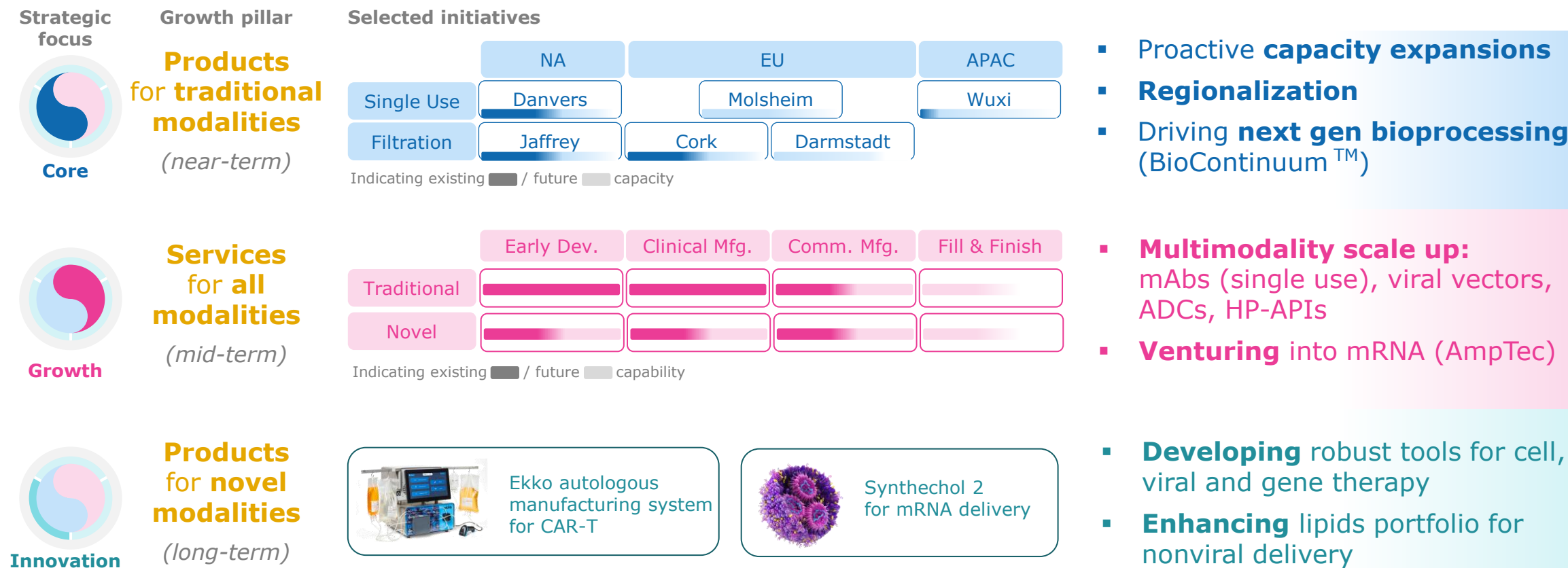


Stringent execution of strategic priorities driving sustained profitable growth; upgrading mid-term outlook to 7 to 10% org. sales CAGR (incl. fading COVID business¹)

¹Mid-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)
- 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**

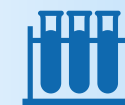
Strategic focus



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

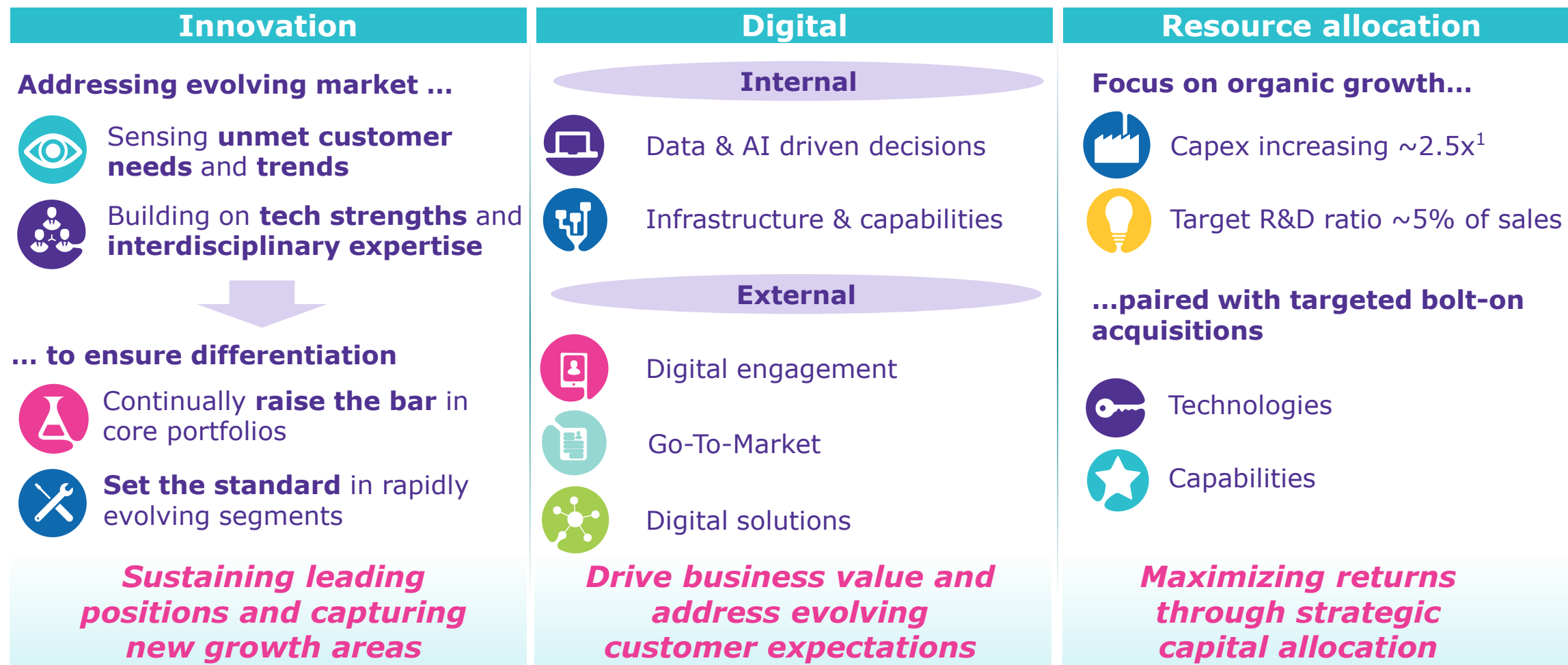
- ✓ Driving **digital solutions**



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

Innovation, digital and portfolio

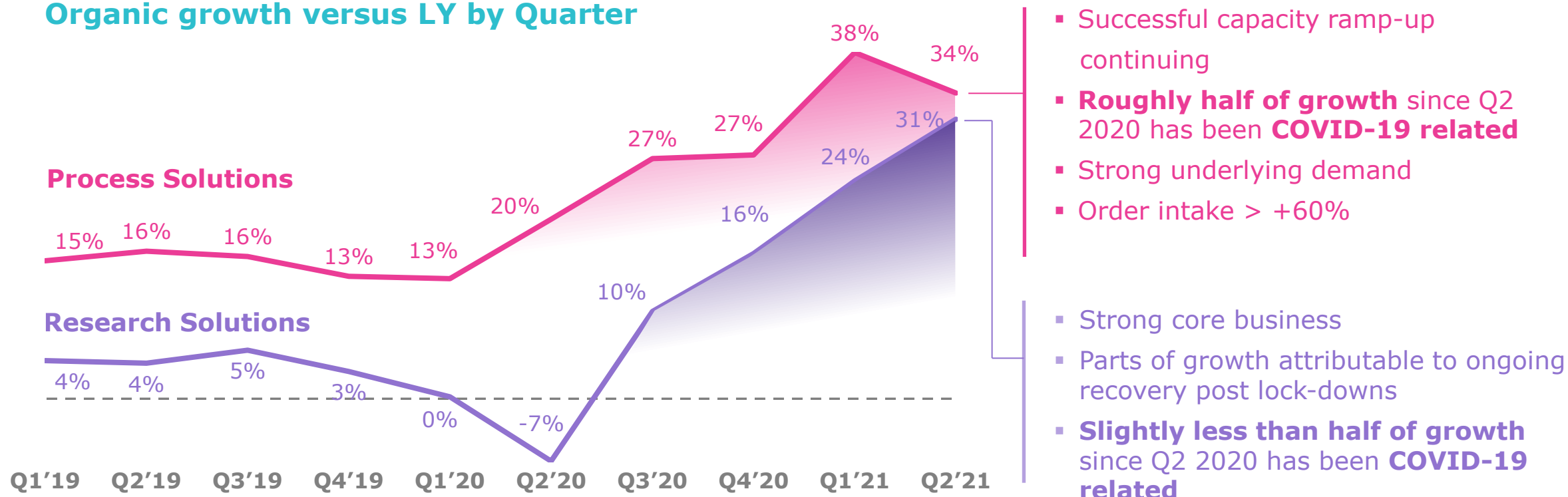
Key supporting pillars of strategy for value creation



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

Life Science: Upside potential for Process Solutions materializing amid increasing capacity; Research Solutions gaining momentum as well

Organic growth versus LY by Quarter



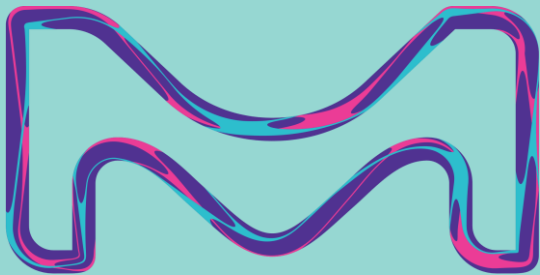
Key factors for 2021 guidance remain:

- Further progress of capacity expansions & optimizations
- Sustainable demand growth; both Covid-19 and underlying



Healthcare

Executing on the earnings phase








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

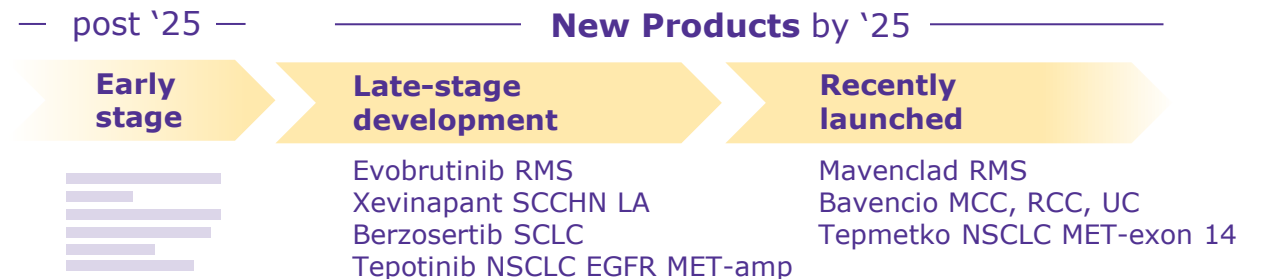
-  **Long-term Oncology strategy** with diversified clinical portfolio
-  **Innovative models** of treatment personalization, e.g. in Fertility
-  **Diversified geographical sales footprint**, lower exposure to potential U.S. pricing reforms
-  **Global while local** - 18 manufacturing sites and 4 R&D 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



✓ From correlated to distinct uncorrelated risks

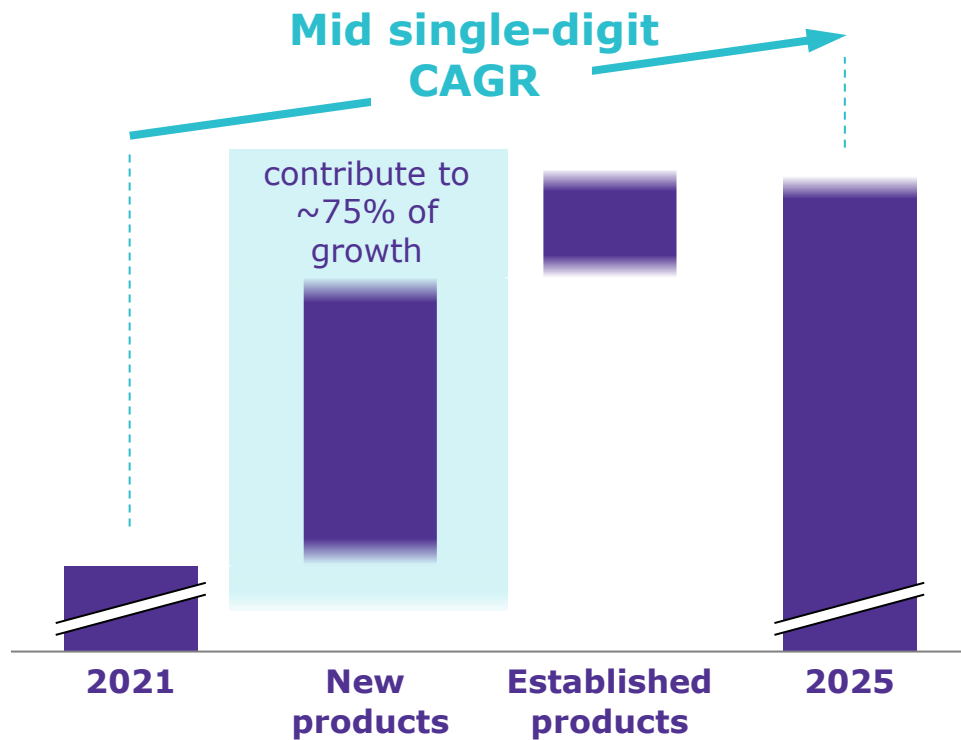
✓ Variety of pathways supported by **new modalities**
e.g. ADCs, Oral ATRi, TIGIT...



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

Healthcare

Growth driven primarily by innovation, augmenting a solid established products foundation



Risk-adjusted illustration

Positioned to accelerate science & technology leadership



Profitable sales growth above global pharmaceutical market (4.6% across TAs until 2025)¹



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[®] and Tepmetko[®]



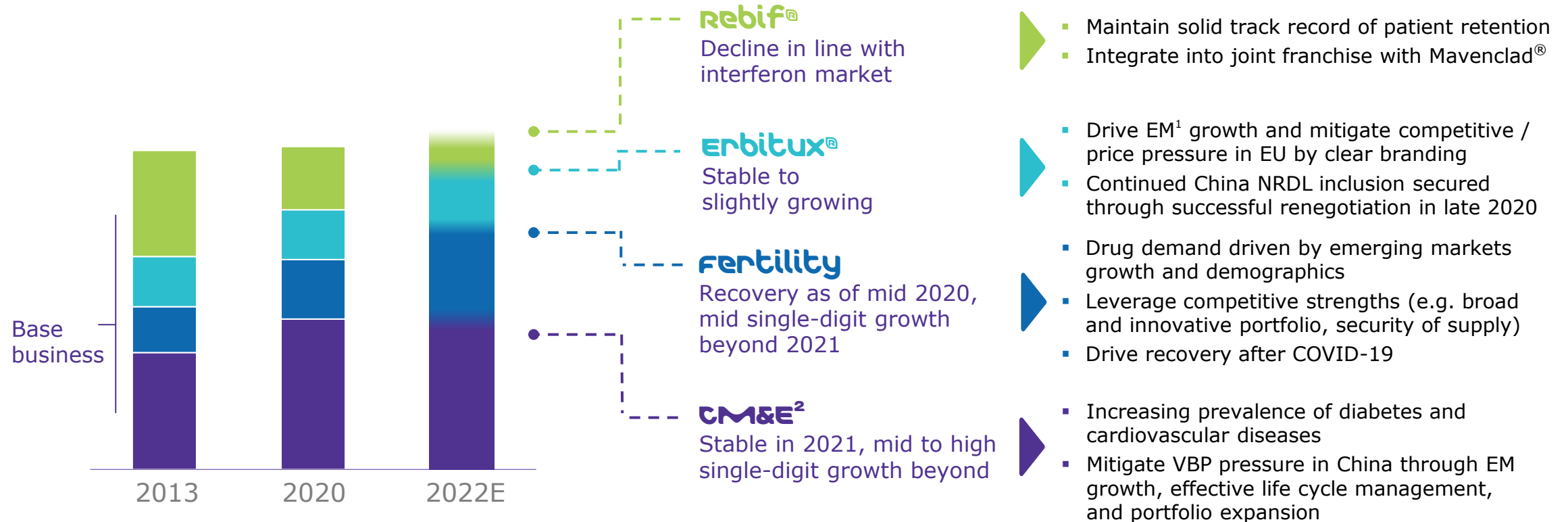
Sustainable long-term growth for Healthcare beyond 2025

¹ 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)

Healthcare: Base Business

Ambition to keep base business ~stable throughout 2021 and 2022

Healthcare base business net sales until 2022



¹ EM: emerging markets; ² Cardiovascular, Metabolism and Endocrinology (new Franchise name as of Q1 2021)



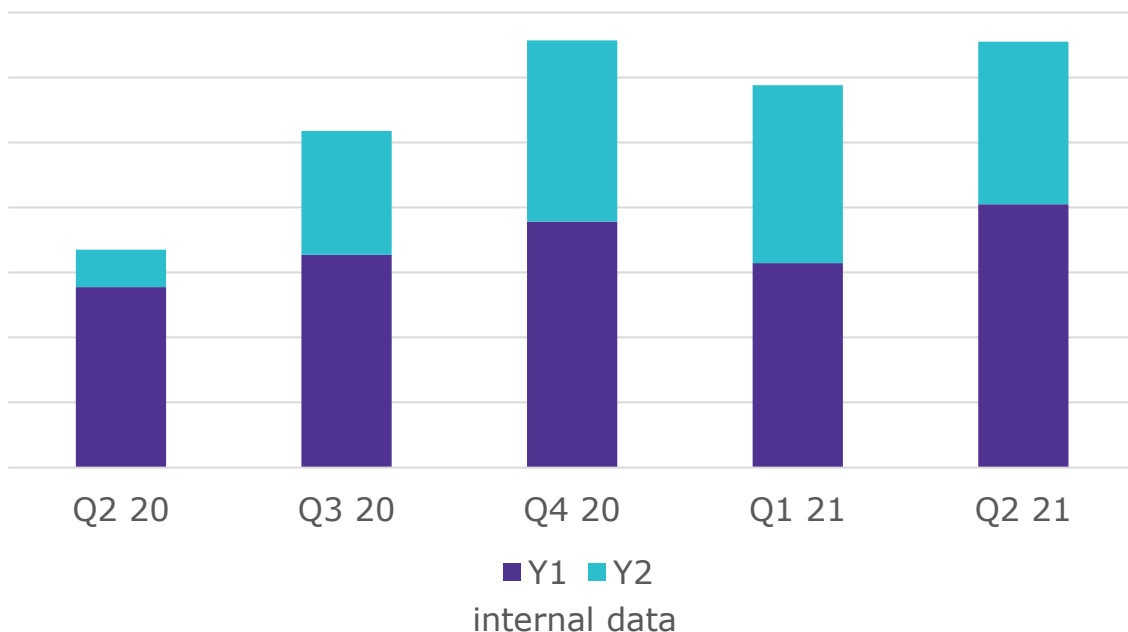
Healthcare: Mavenclad® US

Q2 Y1 patients growing QoQ with expanded prescriber base



**New patient volume growing 23% QoQ,
now comprising over 60% of total
patient volume**

Mavenclad® US Y1/Y2 patients

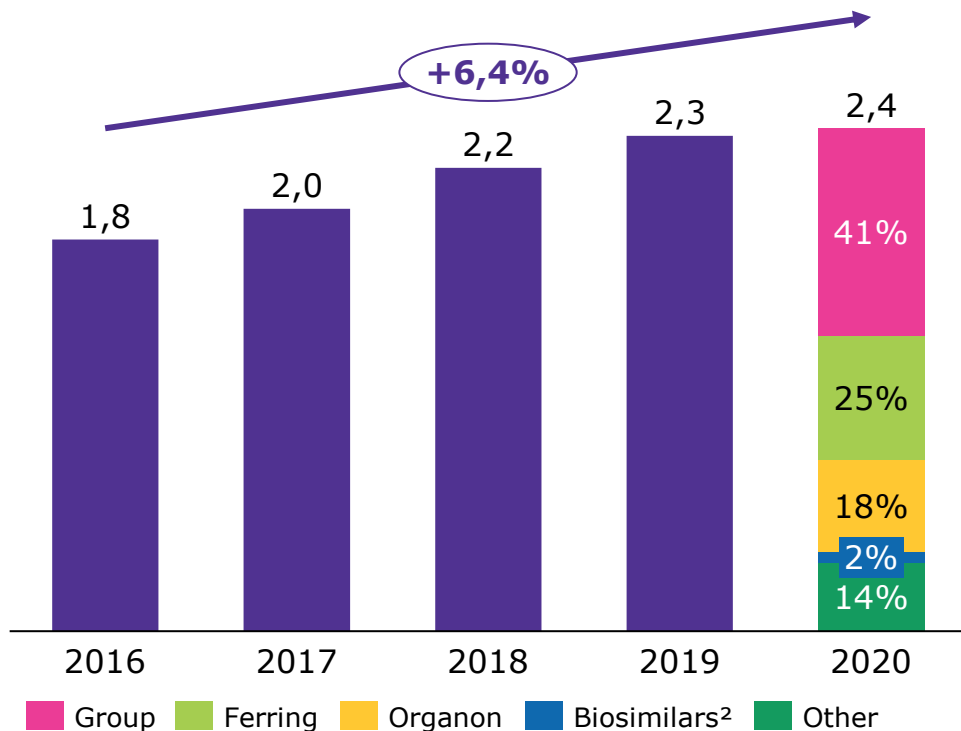


- ➔ **New patients growing** QoQ both in terms of volume and % of total patients
- ➔ **New prescribers growing** QoQ by 23%
- ➔ **Total patient growth in H2 2021** to be driven by:
 - Higher volume of H2 2020 return patients
 - Continued new patient growth

Healthcare

Strengthening our leadership in Fertility

Global Gonadotropin market in € bn¹



Strategies to expand our leadership position

GONAL-f The world's most prescribed r-hFSH treatment³

- 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

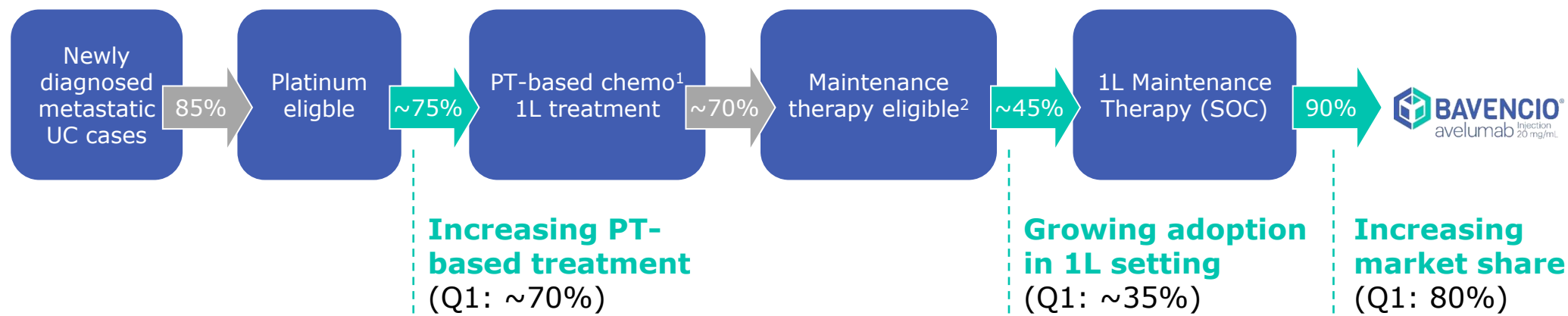
Innovations & digital solutions (e.g. Philips partnership)

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

Bavencio® UC 1L launch: Increasing the adoption of 1L maintenance therapy in both U.S. and ex-U.S.



U.S. – 1 year into launch, continued progress across the entire treatment flow:



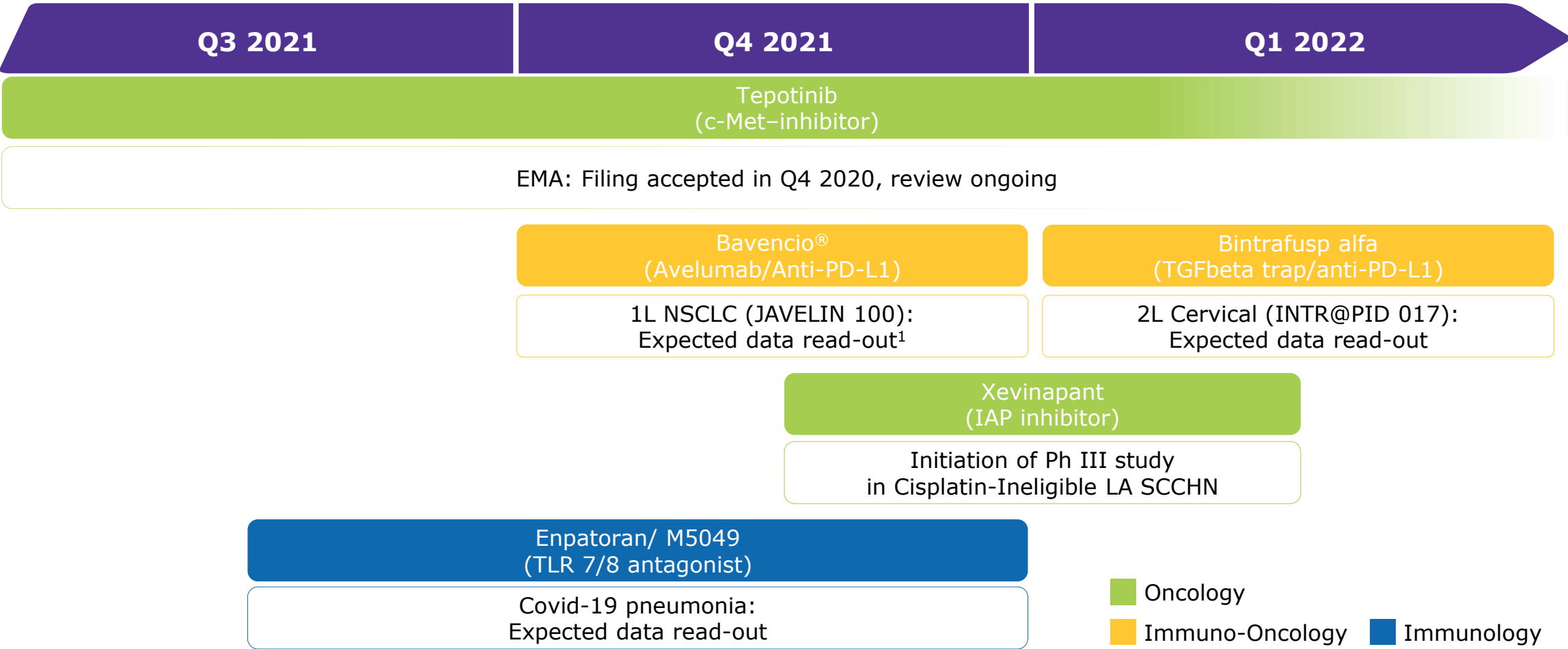
Europe & Japan – Recently approved, encouraging uptake:

- Now approved in **45 markets** and **reimbursed in ~1/3**
- Strong **initial uptake in key launch markets** (e.g. Japan, France, Germany) with guideline recommendations and KOL support, on track to become SOC

1: Carboplatin or Cisplatin, 2: Complete / partial response or stable disease based on clinical trial data; Acronyms: PT = Platinum, SOC = Standard of care



Healthcare catalysts

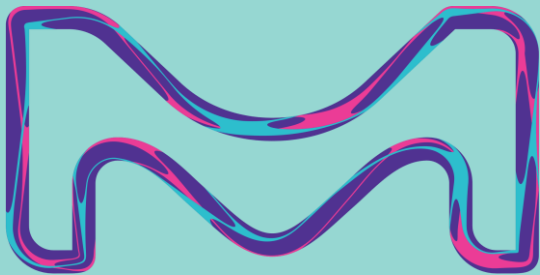


Acronyms: EMA = European Medicines Agency, LA = locally advanced, SCCHN = Squamous cell carcinoma of the head and neck, NSCLC = Non-small cell lung cancer, TLR = Toll-like receptor,
¹Clinical timelines are event-driven and may be subject to change



electronics

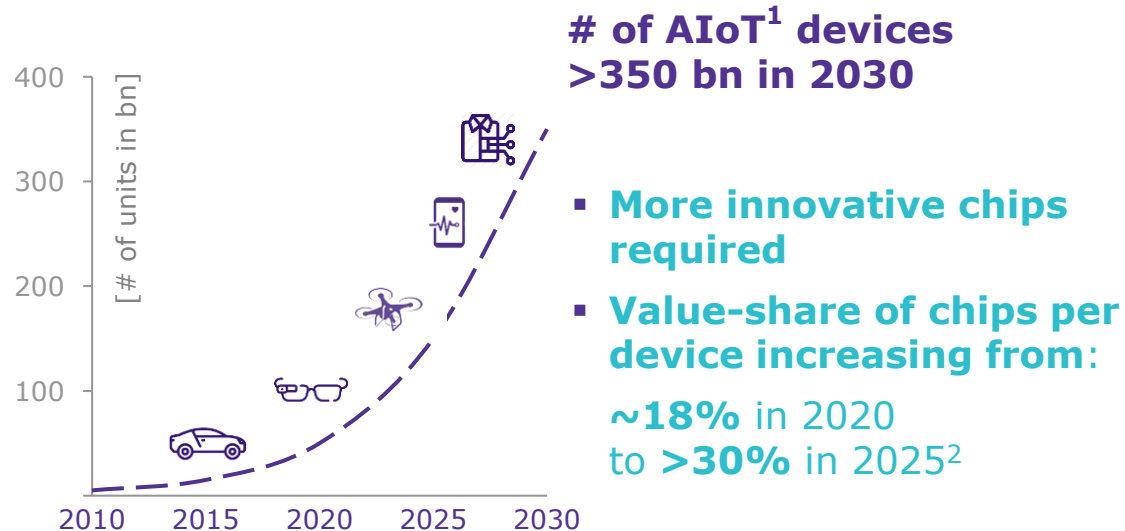
Shifting gears to growth execution



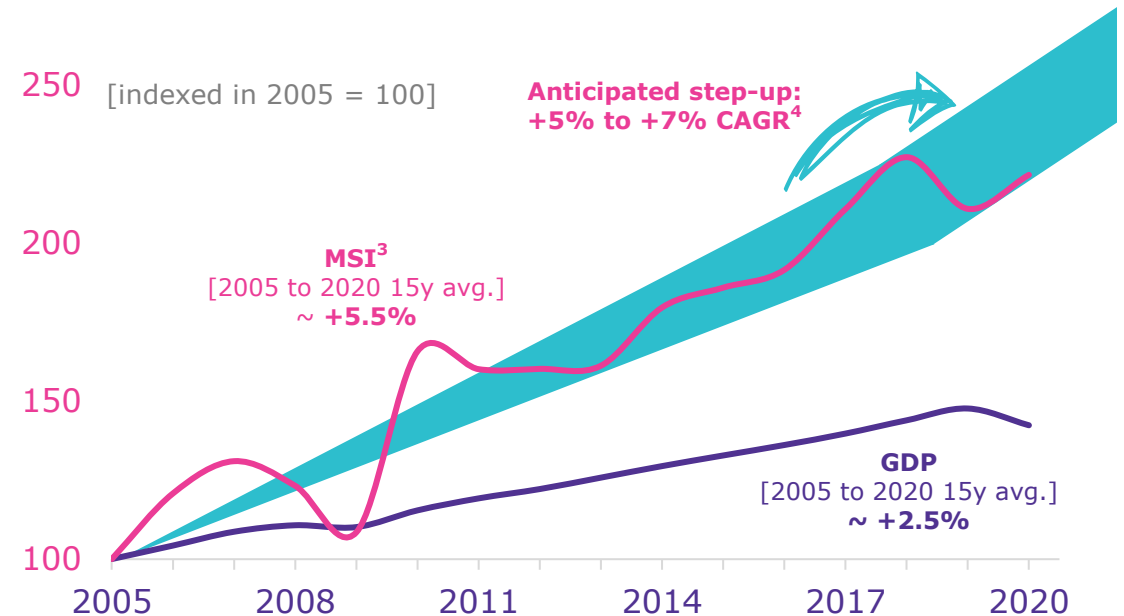
Electronics industry has clear roadmaps with vast market potential and substantial need for materials innovation

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



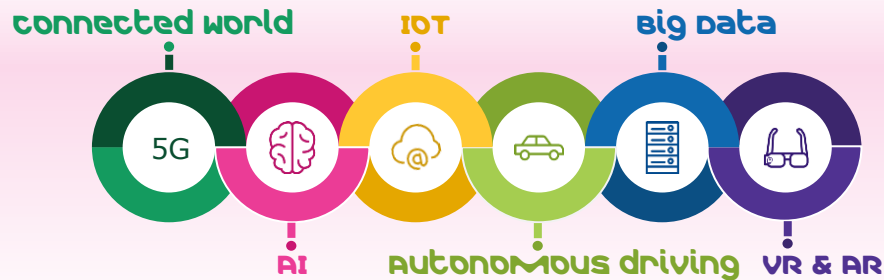
- Diverse end applications & higher capital discipline expected to reduce future cyclicality
- Semiconductor **Materials** show **lower cyclicality than Semiconductor market**

1) AIoT = Artificial Intelligence + Internet of Things; 2) McClean, Prismark Semiconductor and packaging report Q4 2020; 3) Million Square Inch of silicon wafers; 4) Group 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...

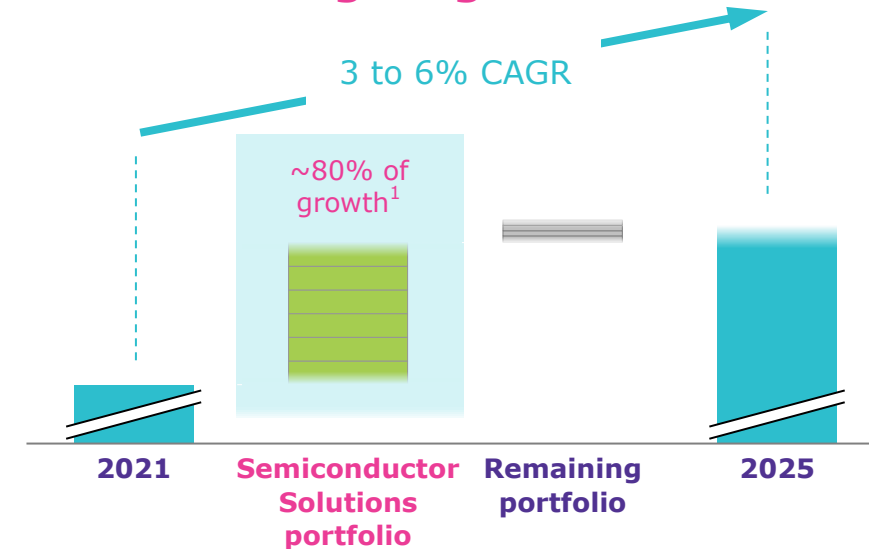
Successful “Bright Future” transformation

- **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 300bps²** 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

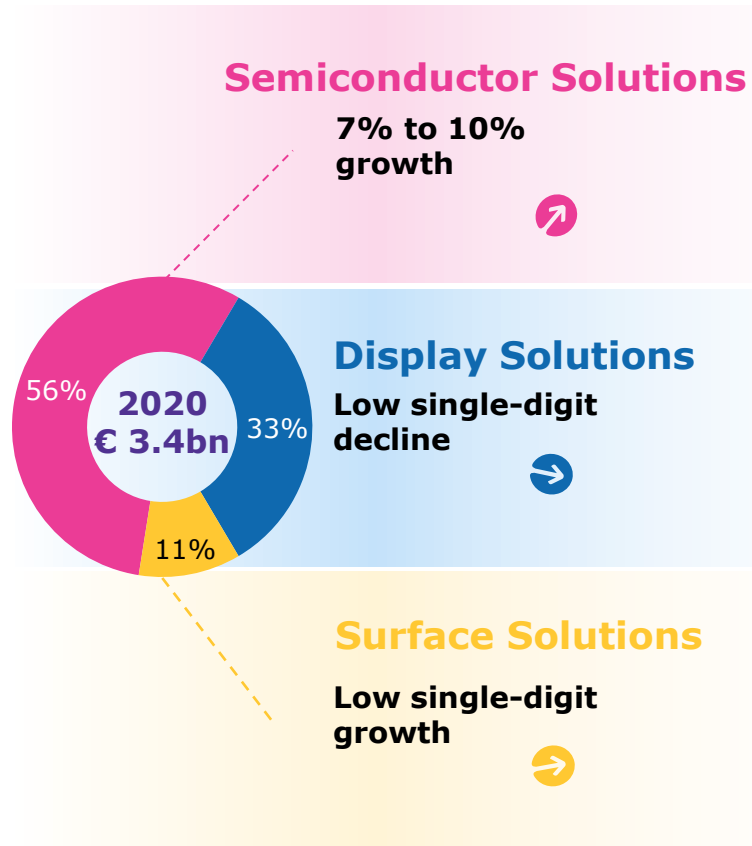
2) „Basis points”



Electronics

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

Sales split¹



Mid-term outlook²

Semiconductor Solutions

7% to 10% growth



Display Solutions

Low single-digit decline

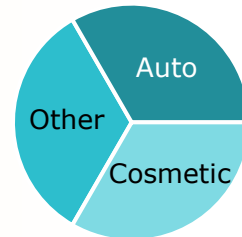
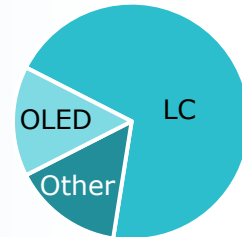
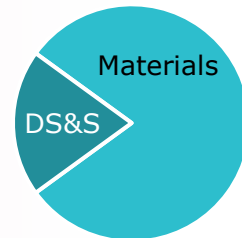


Surface Solutions

Low single-digit growth



Business Split³



Fundamental growth drivers

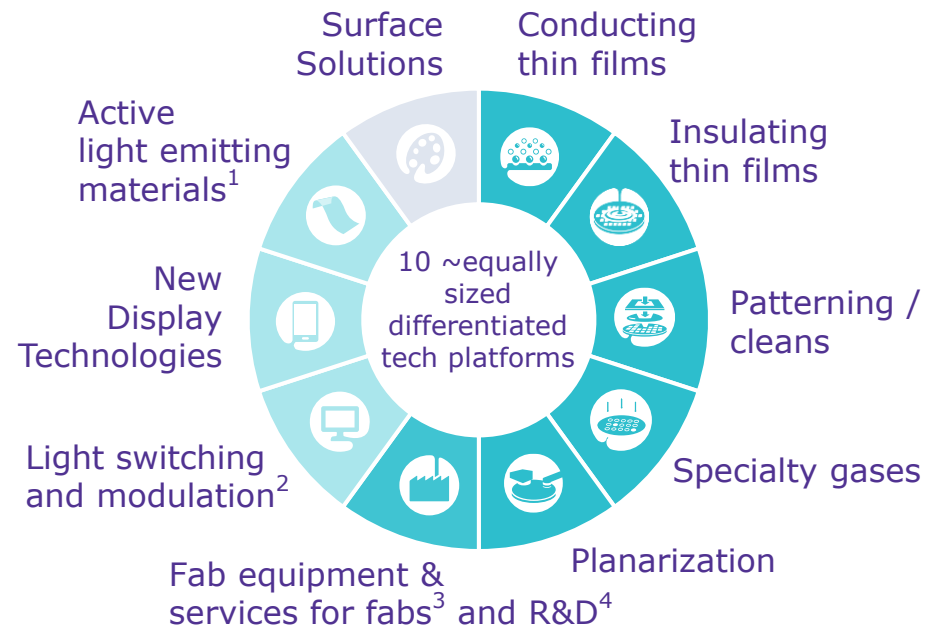
- Continued market growth due to technological advances (Artificial intelligence, 5G, Big Data and cloud, Internet of Things) serving customers in **Logic, Memory, Packaging and others**
- 5 to 7% market growth⁴
- 200 to 300bps above-market growth from share gains & better portfolio (incl. 100 to 150bps 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 m² area⁵, while price pressure continues
- 18 to 22% growth of total OLED m² area⁵ with slight to moderate market share gains
- OLED material market to exceed LC material market by 2021⁶
- 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 beyond⁷

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

⁴ Source: Group estimate based on industry forecasts; ⁵ Source: Omdia Display Market Outlook, Q1 2020; ⁶ Internal Business Intelligence; ⁷ 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

40

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 the Company



“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**

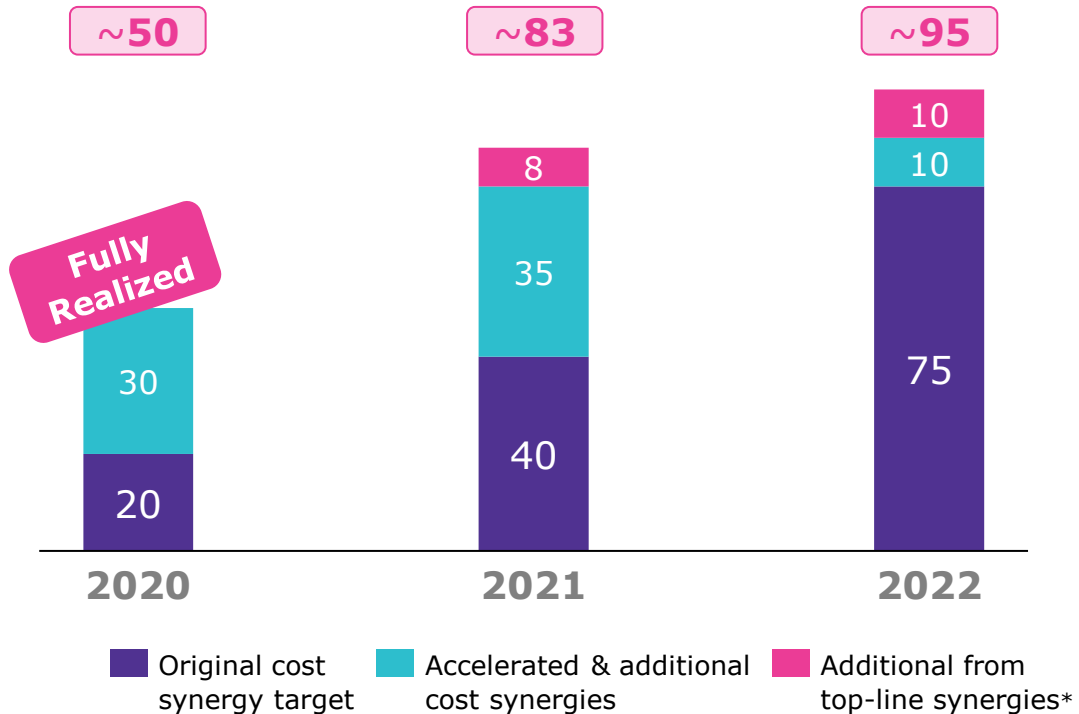
Level up **people & capabilities**

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

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

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

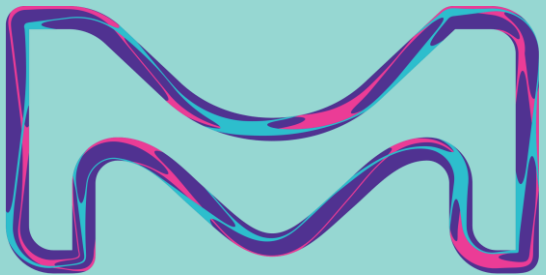


corporate and administrative functions

- Integrate corporate & administrative functions
- Cost savings due to U.S. company delistings

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

sustainability



Accelerating positive impact on environment and society

Positive impact through our products

- Provide access to medicine
- Enable cutting-edge technologies
- Support greener production

Stabilize production and minimize risks

- Actively manage ESG risks
- Training on policies & standards
- Manage and secure supply chain

Minimize negative impact through our operations

- Achieve climate neutrality
- Manage water efficiency
- Reduce waste

Our sustainability goals

1 Dedicated to human progress



*In 2030, we will advance human progress for
>1 billion people through sustainable science & technology*

- Sustainable innovations and technology for our customers
- Impact of our technologies and products on health and well-being

2 Creating sustainable value chains



*By 2030, we will integrate sustainability into
all our value chains*

- Sustainability culture & values
- Sustainable and transparent supply chain
- Securing our social license to operate in all regions

3 Reducing our ecological footprint



*By 2040, we will achieve **climate neutrality**
and **reduce our resource consumption***

- Climate change & emissions
- Water & resource intensity

Reduce our environmental footprint:

Environmental targets 2020 have been achieved, new targets set

Achievements 2020

Reduce scope 1+2 emissions



Emissions target 2020 achieved!

- ✓ 25% overall reduction for Scope 1 and 2 emissions in 2020 relative to 2006 (planned: 20%)

Reduce water in stressed areas



Water target 2020 achieved!

- ✓ Water use in stressed areas reduced by 27% in 2020 vs. 2014 (planned: 10%)
- ✓ By 2020, all production sites⁴ successfully implemented sustainable water management system

Reduce Group Waste Score



Waste target ongoing & on track!

- ✓ Based on Group Waste Score, reduced environmental impact by 4.6% vs. 2016 (planned: 5% by 2025)



¹versus 2006 baseline, excluding Versum Materials

²versus 2014 baseline

³versus 2016 baseline

⁴Sites > 70.000 m³/a

New targets from 2021

- Aiming for **climate neutrality** (scope 1 to 3 emissions) **by 2040** 
- **Lower scope 1 and 2 GHG⁵ emissions by 50%** and to source 80% of purchased electricity from renewable sources until 2030 vs. 2020 baseline
- **Absolute reduction of 1,500 kt⁶ scope 3 CO₂ equivalents by 2030**
- Enhancing water efficiency and **improve the new Group water intensity score by 10% by 2025** vs. 2019 baseline 
- Minimize negative environmental impacts, **harmful emission residues should be lowered** below a scientifically defined threshold by 2030

⁵GHG = Greenhouse Gas

⁶corresponds to ~30% of 2019 scope 3 emissions (current estimation incl. Versum Materials)

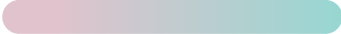






Group

Clear set of tasks to enable our 2030 ESG goals

Tasks

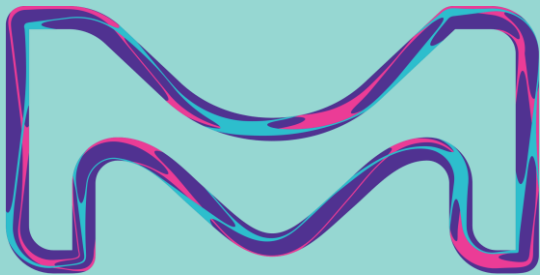
Development In place

Results and next steps

Analysis of requirements: Strategy, business, regulation, stakeholders		Ongoing due to developing field of ESG stakeholder expectations and regulation
Build effective data platform for internal steering		Feed in internal data, external data, industry benchmarks and modelling projects in 2021
Develop ESG KPIs for reporting		Developing & evaluating ESG KPIs for steering, milestones, decide on reporting in 2021
Develop SBV tool ¹ to measure product sustainability value		SBV tool developed and tested in up to 10 cases by 2021
Link ESG ² to board compensation with 20% sustainability factor from 2022		Approved by AGM, qualitatively included, quantitative factor to be developed in 2021
Further incorporate ESG ² in R&D, Controlling, M&A and Supply Chain		ESG-Framework M&A/Capex in 2021 , progress in supply chain, controlling, R&D
Decide on dedicated investments and initiatives to achieve targets		Business strategies and priorities under development, budgeting & decisions in 2021

¹Sustainable Business Value: Dive in deeper and read the research article on the [SBV method](#); ²ESG: Environmental, Social, Governance

Guidance and Executive Summary



Full-year 2021 guidance

Net sales:

Organic: +12% to +14% YoY

FX: -2% to -4% YoY

~€18.8 – 19.7 bn

EBITDA pre:

Organic: +21% to +25% YoY (*excl. Biogen¹*)

FX: -2% to -4% YoY

~€5.6 – 6.0 bn

EPS pre:

~ €7.80 – 8.50

¹ Q3 20 reversal of the provisions for the patent litigation proceedings for Rebif in the amount of ~€365 m; Guidance including Biogen – organic EBITDA pre: +12% to +17%



Executive SUMMARY

**4 key priorities to deliver on
our science & tech ambitions**



**Mobilizing for
Efficient growth**



**Leveraging
Innovation
in the BIG3**



**Driving
Culture & Leadership**



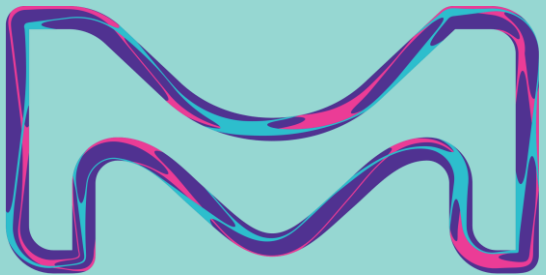
**Focusing on
Sustainability**



Appendix



Group



2021 business sector guidance¹

Healthcare



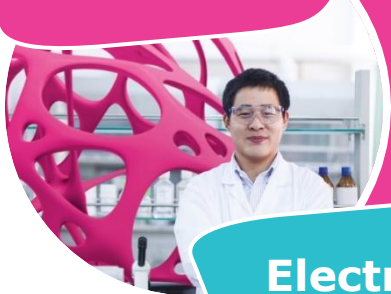
Net sales

- Organic: +7% to +10%
- Mainly driven by Mavenclad[®], Bavencio[®] and recovery of Fertility
- Base business organically around stable

EBITDA pre

- Organic: +15% to +18% YoY (excl Biogen²)
- FX: -5% to -7% YoY
- ~€2,050 – 2,150 m

Life Science



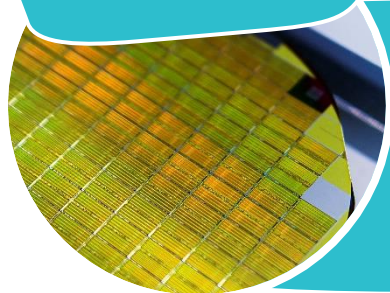
Net sales

- Organic: +18% to +21%
- Process Solutions as main growth driver

EBITDA pre

- Organic: +30% to +34% YoY
- FX: -1% to -3% YoY
- ~€3,050 – 3,200 m

Electronics



Net sales

- Organic: +6% to +8%
- Strong Semiconductor Solutions contribution
- OLED with high growth

EBITDA pre

- Organic: +9% to +12% YoY
- FX: -2% to -4% YoY
- ~€1,070 – 1,130 m

Additional financial guidance 2021

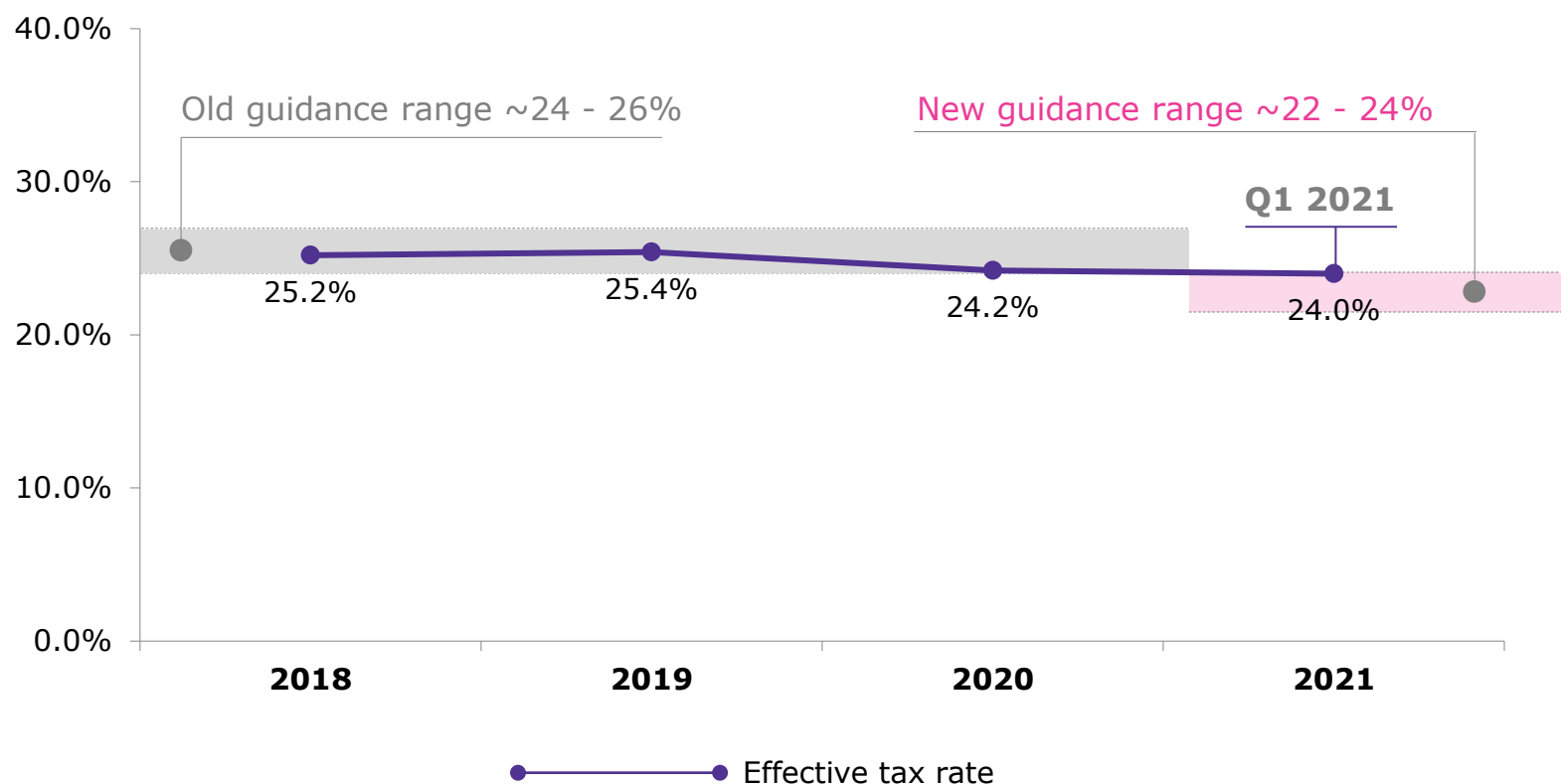
Further financial details

Corporate & Other EBITDA pre	~ €-450 to -500 m
Interest result	~ €-220 to -245 m
Effective tax rate	~22% to 24%
Capex on PPE	~€1.4 to 1.5 bn
Hedging/USD assumption	FY 2021 hedge ratio ~70% at EUR/USD ~1.17
2021 Ø EUR/USD assumption	~1.19 to 1.23



Effective tax rate guidance lowered to new range of 22% to 24%

Tax rate development 2018-2020 and from 2021 onwards



Rationale for update

Strong profit growth in Life Science results in different profit contributions worldwide, leading to a lower overall tax rate

New **resulting underlying tax** rate used for EPS pre calculation is now 23%

Group

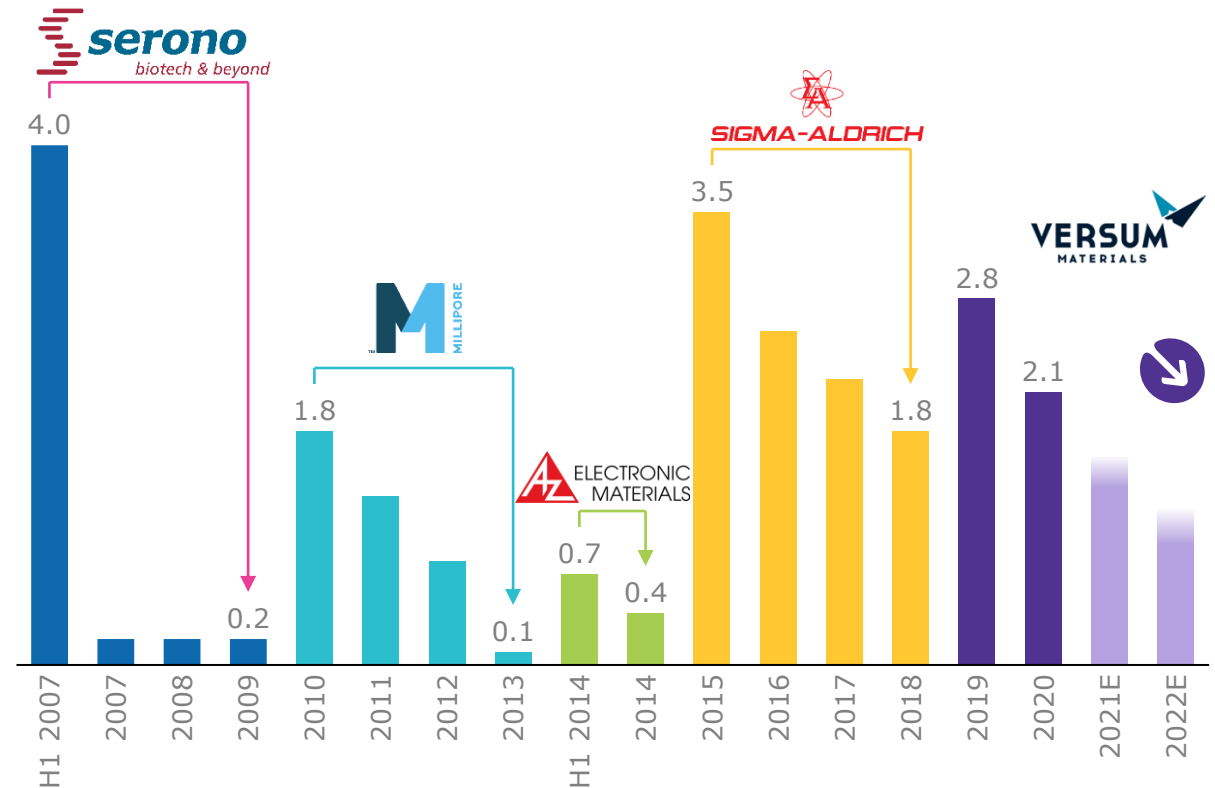
Focus on organic growth and further deleveraging

Proven swift deleveraging after major acquisitions

UPDATE

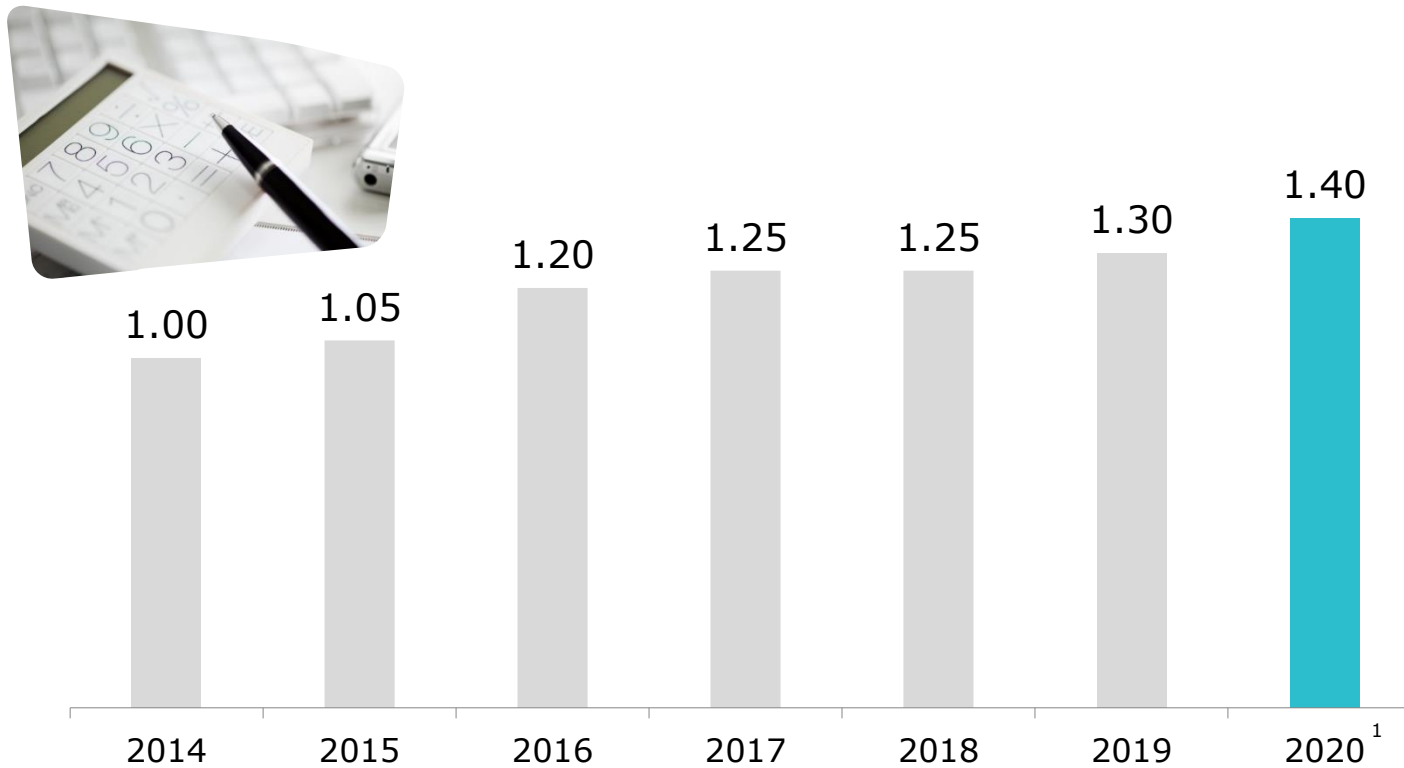
- **Deleveraged to ~2x** net debt/EBITDA pre already in 2020
- **M&A on hold until 2022**; only smaller deals to be realized if budget available
- Annual capex guidance: from ~€1.5 bn in 2021 to ~€2 bn by 2023 and **increased focus on organic investment**
- Dividend policy mirrors **sustainable earnings trend**

Net debt / EBITDA pre track record & outlook



Sustainable dividend growth

Dividend development 2014 - 2020



2020 dividend

- Dividend of €1.40 (+8% YoY) per share approved¹ by Annual General Meeting
- Payout ratio of 23.1% of EPS pre² in 2020; aiming for 20-25% of EPS pre
- Dividend yield³ of 1.0%

¹April 28, 2021: Pay Date

²Excluding Biogen provision release, including the provision release the ratio is 20.9%

³Calculated with 2020 year-end share price of € 140.35 per share.

Governance

Group's ownership structure

Shareholders of Merck KGaA, Darmstadt, Germany

- Shareholders hold ~30% of Company's total capital
- Share capital is divided into 129,242,252 bearer shares and one name share without nominal value
- Listed at German Stock Exchange's Prime Standard, member of the DAX 30
- Only bearer shares entitled to vote at Group's Annual General Meeting: **one share, one vote**

Supervisory Board

Its Chairman leads AGM, representing interests of Company's shareholders:

- Approving financial statements of the Group
- Working together with Executive Board, receiving reporting on progress regarding business and financial development at the Company, Containing 16 members: **8 employee representatives, 8 independent representatives** (2 family representatives and 6 elected shareholder representatives)
- 2 committees: **Nomination and Audit Committee**

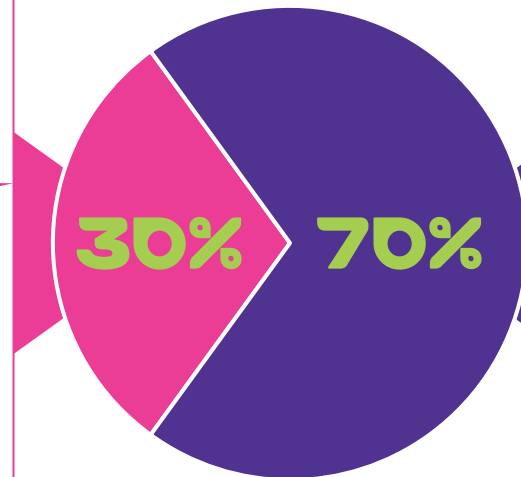
Nomination Committee
Defines criteria and makes proposals for new candidates

Audit Committee
Control systems, external auditing, financial statements

Finance Committee
financial statements, external auditing

Personnel Committee
Executive board members, contracts, compensation

R&D Committee
research activities of all sectors: HC, LS, EL



E. Merck KG, Darmstadt, Germany: Partners' Meeting & Family Board

- E. Merck KG, Darmstadt, Germany (99.9% The Family) holds ~70% of Group's total capital
- These 70% of the total capital are **not entitled to vote** at Group's AGM
- A Family Board represents the entrepreneurial interests of the Family (elected by partners' meeting)

Board of Partners

Elected by Family Board, and takes over some duties of a usual Supervisory Board:

- Appointment, dismissal and supervision of Executive Board members of Merck KGaA, Darmstadt, Germany
- Approves extraordinary business transactions and annual financial statements of E. Merck KG, Darmstadt, Germany
- Contains **5 members of the Family Board and 4 external members** of the business community
- 3 committees: **Finance, Personnel and R&D Committee**

Executive board compensation

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

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

External stakeholders assess our engagement



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

*Environment, Social, Governance



2021, we received an **ESG Risk Rating** of 19.5 and **Sustainalytics: low risk** of experiencing material financial impacts from ESG factors.



Since 2008, we are part of **FTSE4Good Index**, measuring the performance of companies with strong ESG practices (top 15).



In 2020, we have once more achieved **prime status** by **ISS Oekom.**



In 2019, our share was again **included in STOXX Global ESG Leaders Index**, a sustainability index based on key environmental, social and governance criteria.



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



We for the second time received platinum status in 2021, among the **top 1% of companies.** **EcoVadis** annually examines ~75,000 suppliers from 160 countries.



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



CDP Climate: In 2020, we scored **"B"** (2019: C). **CDP Water:** In 2020, we received a **"B"** (2019: B).





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Group

Expanding KPIs to monitor and steer sustainability comprehensively

Target Exemplary KPIs to be implemented in 2021

 1 Human Progress	# of people positively impacted by our technologies/products
	% of new patent families with positive sustainability impact
 2 Sustainable Value Chain	Environment, health and safety: Incident rate
	% of employees trained on sustainability
 3 Ecological Footprint	% of relevant suppliers that are covered by a sustainability assessment/audit
	Greenhouse gas emissions scope 1+2
	Greenhouse gas emissions scope 3
 3 Ecological Footprint	Waste score & water intensity score

- KPI set will evolve over time
- External reporting requirements: **140+** ESG indicators

Our sustainability ambition is integrated in the **Executive Board compensation system**

From 2021 onwards
Explicit reflection of the new targets on **qualitative level (profit sharing modifier)**

In addition, from 2022 onwards
Quantitative sustainability factor in the **long-term incentive plan** for the Executive Board

Set of sustainability KPIs will build the underlying basis for the development of the sustainability factor

Group

Regular portfolio review remains key to success

strong track record

- Acquisitions and divestments are part of Company'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



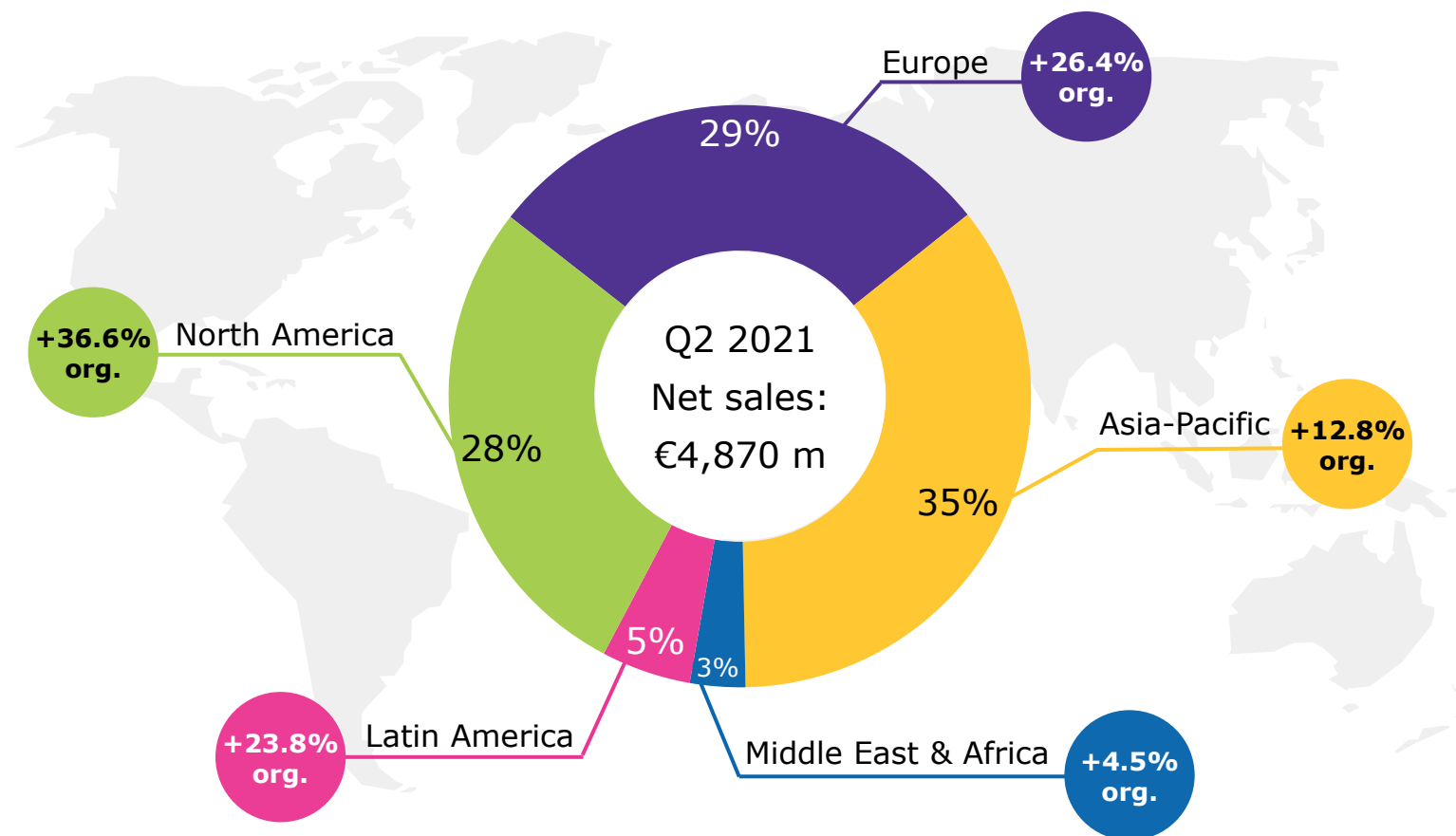
 **Current set-up is strong and organic investment opportunities are attractive**

 **Expect to regain financial flexibility by 2022 to pursue external growth opportunities**

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

Life Science demand and Healthcare recovery drive particularly strong growth in North America and Europe

Regional breakdown of net sales [€m]



Regional organic development

- APAC: Strong growth across all sectors particularly in Process Solutions, Fertility and Semiconductor Solutions
- Europe: Strong demand in Process Solutions and strong recovery in Fertility against heavily impacted Q2 2020 drive 26% growth
- North America: Growth across all sectors, particularly strong Life Science, Fertility & Oncology (supported by Eli Lilly supply agreement)
- LATAM growth driven foremost by Fertility and CM&E
- Fertility drives growth in ME&A

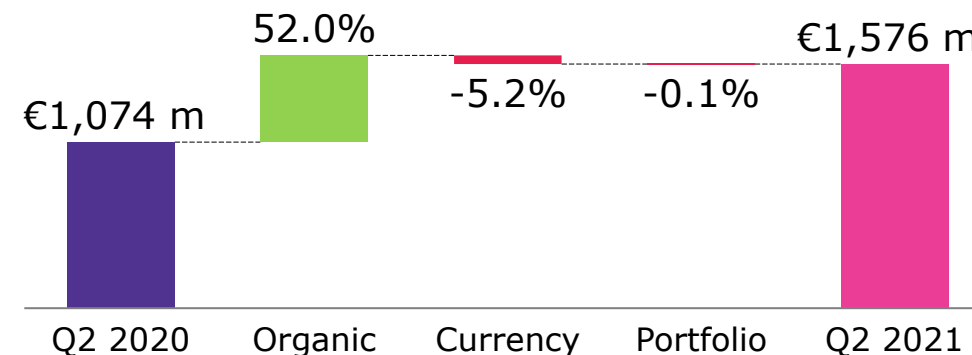
Strong Life Science demand and robust Healthcare recovery drive 23% sales and 52% EBITDA pre organic growth

Q2 YoY Net Sales

	Organic	Currency	Portfolio	Total
Healthcare	23.6%	-4.3%	0.0%	19.2%
Life Science	28.2%	-5.0%	0.0%	23.2%
Electronics	10.3%	-5.0%	0.0%	5.4%
Group	23.0%	-4.8%	0.0%	18.2%

- Strong recovery in Fertility well above pre COVID-19 levels, organic Mavenclad[®] growth of 102% and Oncology organic growth of +49% drive +24% growth in Healthcare overall
- Record 28% organic growth in Life Science; driven by all businesses with Process Solutions up +34%; Research Solutions +31% and Applied Solutions +13% against soft comps from lockdown
- Electronics growing 10% organically, driven by strong performance in Semiconductor Solutions (+12% org.) and strong recovery of Surface Solutions while Display Solutions declines slightly

Q2 YoY EBITDA pre



- Organic EBITDA pre increases by more than 50% and more than twice as fast as sales
- Strong uptake in Life Science and Healthcare gross profit paired with continued cost discipline in all sectors vs. soft Q2 2020
- FX burden of -5% across various currencies with largest negative impact from USD and JPY; partly mitigated by hedging



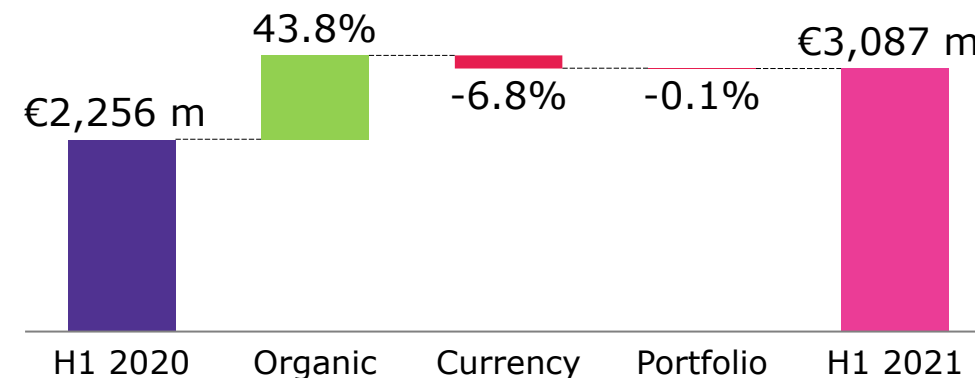
Strong performance across all sectors drives 17% organic net sales growth and 44% organic EBITDA pre growth against COVID-19-impacted H1 2020

H1 YoY Net Sales

	Organic	Currency	Portfolio	Total
Healthcare	12.9%	-5.2%	-0.6%	7.1%
Life Science	27.5%	-5.6%	0.0%	21.8%
Electronics	5.0%	-4.7%	0.0%	0.3%
Group	17.4%	-5.3%	-0.2%	11.9%

- Healthcare: +13% org. growth vs. COVID-19-impacted H1 2020, driven by strong recovery in Fertility, growth in Mavenclad® & Bavencio®; supported by Erbitux® Eli Lilly supply agreement
- Life Science: Up +28% as strong base business across all BUs is boosted by additional COVID-19 demand in Process and Research Solutions against lockdown-related soft comps
- Electronics: Grows +5% (above mid-term guidance) as strong performance in Semiconductor Solutions and recovery of Surface Solutions overcompensate stabilizing Display decline

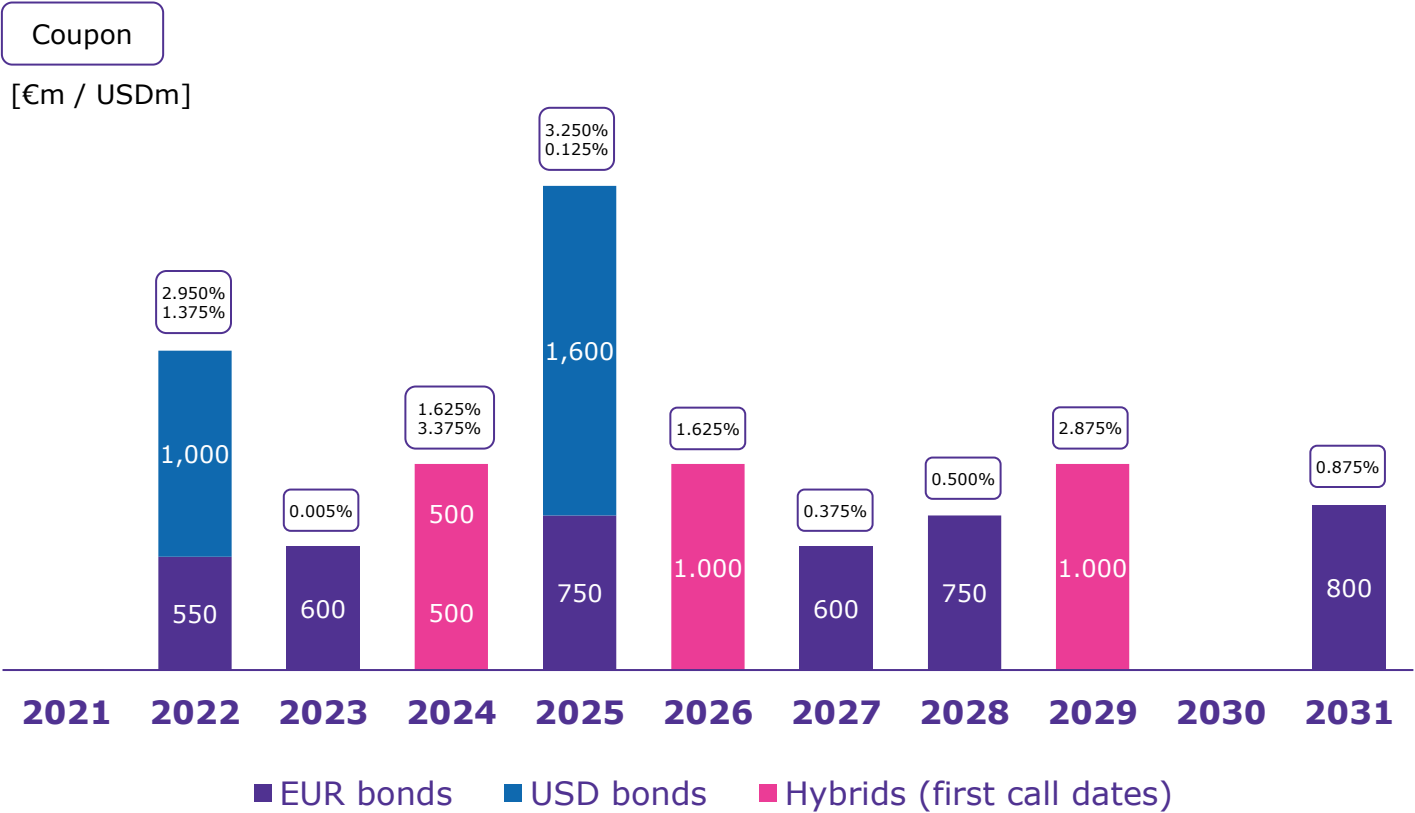
H1 YoY EBITDA pre



- EBITDA pre grows faster than sales organically, largely driven by strong operating leverage in Life Science and Healthcare vs. a weaker H1 2020
- FX headwinds primarily from USD, JPY & BRL amount to burden of -5% on net sales and -7% on EBITDA pre

Credit details

Maturity profile as of June 30, 2021



Credit rating information

	LT Rating	Since	Outlook	ST Rating
Moody's	Baa1	12.12.14	Stable	P-2
S&P Global	A	29.05.13	Stable	A-1
SCOPE	A-	19.10.16	Stable	S-1



Q2 2021: Overview

Key figures

[€m]	Q2 2020	Q2 2021	Δ
Net sales	4,119	4,870	18.2%
EBITDA pre	1,074	1,576	46.7%
Margin (in % of net sales)	26.1%	32.4%	6.3pp
EPS pre	1.30	2.24	72.3%
Operating cash flow	502	888	76.9%

[€m]	Dec. 31, 2020	June 30, 2021	Δ
Net financial debt	-10,758	-10,141	-5.7%
Working capital	3,938	4,222	7.2%
Employees	58,096	58,382	0.5%

Comments

- EBITDA pre & margin increase, driven by operating leverage in Life Science and Healthcare vs. LY COVID-19 burden
- EPS pre increase driven by EBIT pre, better financial result and lower tax rate vs. particularly soft Q2 2020
- Operating cash flow up 77% driven by higher profit after tax in all three sectors
- Ongoing reduction of net financial debt



H1 2021: Overview

Key figures

[€m]	H1 2020	H1 2021	Δ
Net sales	8,489	9,501	11.9%
EBITDA pre	2,256	3,087	36.9%
Margin (in % of net sales)	26.57%	32.49%	5.919%
EPS pre	2.80	4.42	57.9%
Operating cash flow	1,019	2,104	106.6%

[€m]	Dec. 31, 2020	June 30, 2021	Δ
Net financial debt	-10,758	-10,141	-5.7%
Working capital	3,938	4,222	7.2%
Employees	58,096	58,382	0.5%

Comments

- Strong performance across all sectors drives +12% growth despite -6% FX
- EBITDA pre & margin increase, driven by operating leverage in Life Science and Healthcare vs. pandemic-impacted LY; further supported by Erbitux® Eli Lilly supply agreement (+€49 m net sales)
- EPS pre above last year driven by strong operating performance, supported by better financial result & lower tax rate
- Operating cash flow more than doubles as strong EBITDA pre growth supported by favorable net working capital



Q2 2021: Reported figures

Reported results

[€m]	Q2 2020	Q2 2021	Δ
EBIT	491	1,049	113.6%
Financial result	-102	-95	-7.3%
Profit before tax	389	955	145.4%
Income tax	-100	-208	107.9%
<i>Effective tax rate</i>	25.7%	21.8%	-3.9pp
Net income	290	745	157.1%
EPS (€)	0.67	1.71	155.2%

Comments

- EBIT more than doubles, driven by strong performance across all sectors vs. Q2 2020 COVID-19 burden
- Improved financial result largely driven by lower interest expense from deleveraging
- Effective tax rate benefitting from boosted results in Life Science (better country mix)
- Strong EBIT growth, improved financial result and lower tax rate drive higher net income & EPS



H1 2021: Reported figures

Reported results

[€m]	H1 2020	H1 2021	Δ
EBIT	1,207	2,092	73.3%
Financial result	-201	-154	-23.3%
Profit before tax	1,006	1,939	92.6%
Income tax	-259	-444	71.2%
<i>Effective tax rate (%)</i>	25.8%	22.9%	-2.9pp
Net income	746	1,492	100.0%
EPS (€)	1.72	3.43	99.4%

Comments

- EBIT increase driven by strong growth and operating leverage in all business sectors, particularly Life Science
- Improved financial result largely driven by lower interest expenses in line with deleveraging
- Effective tax rate in the middle of updated guidance range
- Doubled net income and EPS reflect positive development of EBIT, financial result and tax rate



Cash flow statement

Q2 2021 – Cash flow statement

[€m]	Q2 2020	Q2 2021	Δ
Profit after tax	289	747	458
D&A	559	419	-140
Changes in provisions	-54	88	142
Changes in other assets/liabilities	-166	-217	-50
Other operating activities	-13	19	32
Changes in working capital	-112	-168	-56
Operating cash flow	502	888	386
Investing cash flow	-216	-241	-25
thereof Capex on PPE	-194	-256	-62
Financing cash flow	-302	-1,059	-757

Cash flow drivers

- Operating cash flow up €386 m driven primarily by higher profit after tax in all three sectors, particularly Life Science
- Delta in D&A driven by COVID-19 related impairments in Q2 2020
- Provisions up, driven by litigation accruals, pension fluctuations, and LTIP*
- Higher outflow from working capital but growing considerably slower than sales
- Higher investments, particularly CAPEX on PPE in line with ongoing capacity expansion
- Financing cash flow explained by net repayment of bonds, bank liabilities and commercial papers



Cash flow statement

H1 2021 – cash flow statement

[€m]	H1 2020	H1 2021	Δ
Profit after tax	747	1,495	748
D&A	991	843	-148
Changes in provisions	-38	55	93
Changes in other assets/liabilities	-189	-56	133
Other operating activities	-24	25	48
Changes in working capital	-468	-256	212
Operating cash flow	1,019	2,104	1,086
Investing cash flow	-504	-587	-83
thereof Capex on PPE	-532	-564	-33
Financing cash flow	239	-1,054	-1,293

Cash flow drivers

- Operating cashflow more than doubles as strong profit after tax is further boosted by favorable working capital
- Lower depreciation & amortization vs. H1 2020 which was elevated by COVID-19-related impairments in EL
- Changes in provisions elevated by mid double-digit €m litigation accrual
- Changes in other assets and liabilities largely explained by Q1 tax positions
- Favorable lower increase in working capital driven by higher inventories in 2020 to secure supply amid COVID-19
- Financing cash flow explained by net repayment of bonds, bank liabilities and commercial papers



Adjustments in Q2 2021

Adjustments in EBIT

[€m]	Q2 2020		Q2 2021	
	Adjustments	thereof D&A	Adjustments	thereof D&A
Healthcare	15	0	11	3
Life Science	-15	0	-6	0
Electronics	131	112	10	5
Corporate & Other	8	0	97	0
Total	138	112	112	8

Adjustments in H1 2021

Adjustments in EBIT

[€m]	H1 2020		H1 2021	
	Adjustments	thereof D&A	Adjustments	thereof D&A
Healthcare	-12	2	21	3
Life Science	-4	0	8	0
Electronics	165	112	27	7
Corporate & Other	25	0	103	1
Total	174	114	159	11

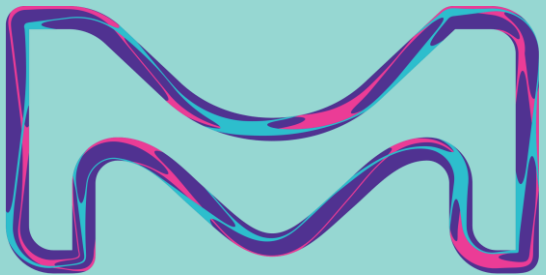


Financial Calendar

Date	Event
August 5, 2021	Q2 2021 Earnings release
September 9, 2021	Virtual Capital Markets Day
November 11, 2021	Q3 2021 Earnings release
April 22, 2022	<i>Annual General Meeting</i>
August 4, 2022	Q2 2022 Earnings release

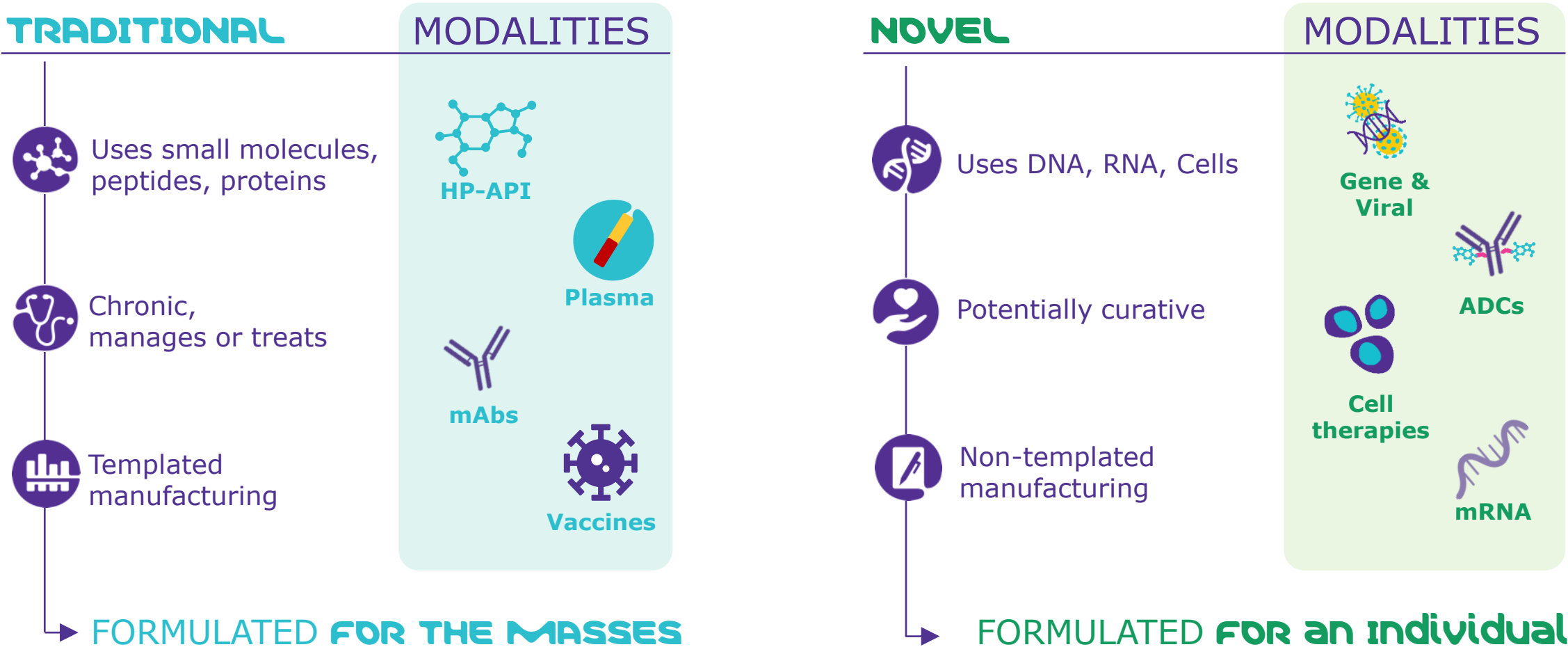


Life science







Process Solutions: Therapies are evolving from treatments to cures

Advancing traditional is critical as novel modalities develop



Process Solutions


Moving from today's technology to BioPharma 4.0

unit operations				
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

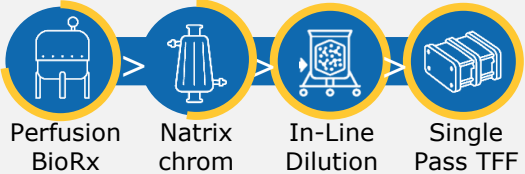


mAbs templated 30 years ago

Next generation bioprocessing

Intensified Processing

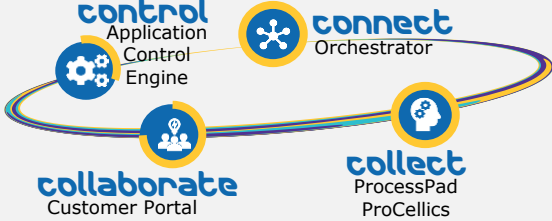
Value for customers



Perfusion BioRx Matrix 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






Core technologies

Microbial cont./Bioburden Biosafety CQA In-process


Process Solutions

COVID demands align with existing strengths


COVID-19 Outlook	
Type & Global Doses	Implications
 Nucleic Acid Vaccines 4.8 Billion Gov. contracted 4.3 Billion 2021 manuf.	<ul style="list-style-type: none"> Leveraging human factory Emerging manuf. process Lipids are critical
 Viral & Protein Vaccines 6.8 Billion Gov. contracted 8.7 Billion 2021 manuf.	<ul style="list-style-type: none"> Protective immune response Multiple templates Leveraging Single Use
 mAb Therapeutics 2.5 Million Gov. contracted 13.5 Million 2021 manuf.	<ul style="list-style-type: none"> Bind & block virus entry Universal templates Leading position for 8/9 unit ops

Product offering


Capabilities in all unit operations




CCM & BPM¹




Plasmid linearization²




Chrom




IVT & capping




Filtration




Encapsulation & Formulation²




Fill & Finish




SU Cons¹




CCM & BPM¹




Cell expansion




Chrom




Filtration¹




Fill & Finish




SU Cons¹




CCM & BPM¹




Cell expansion



Chrom



Filtration¹



Fill & Finish



SU Cons¹

1) Used across manufacturing unit operations; 2) Lacking GMP enzymes and nucleotides products; Source: press releases, company reports, internal assessments; Acronyms: CCM = cell culture medium, BPM = biopharma materials, IVT = in vitro transcription, SU Cons = single use consumables

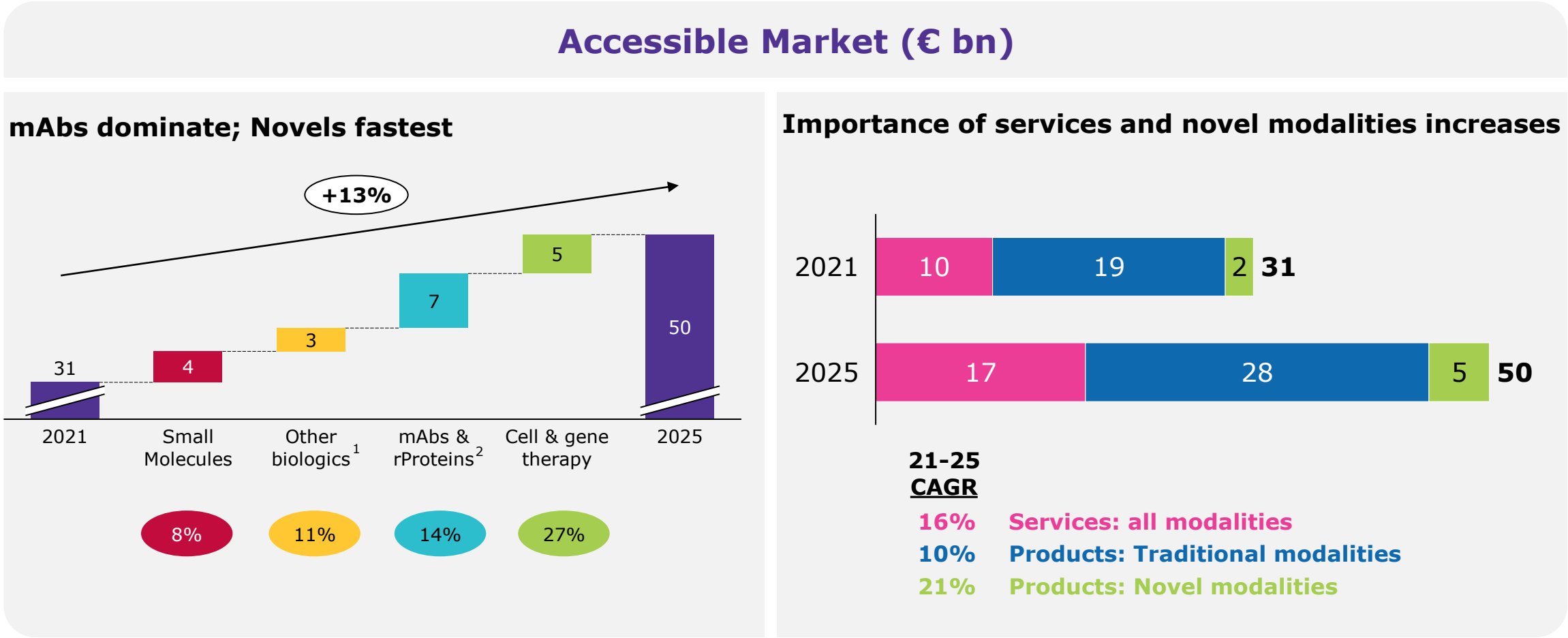
Process Solutions: Strategic direction

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



Process Solutions

Opportunities in services to accelerate double-digit growth



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

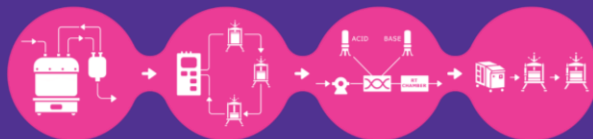
Process Solutions

Next-generation bioprocessing on the cards

Today's
process & portfolio



MAb process intensification 2017 - 2020+



continuous processing >2025



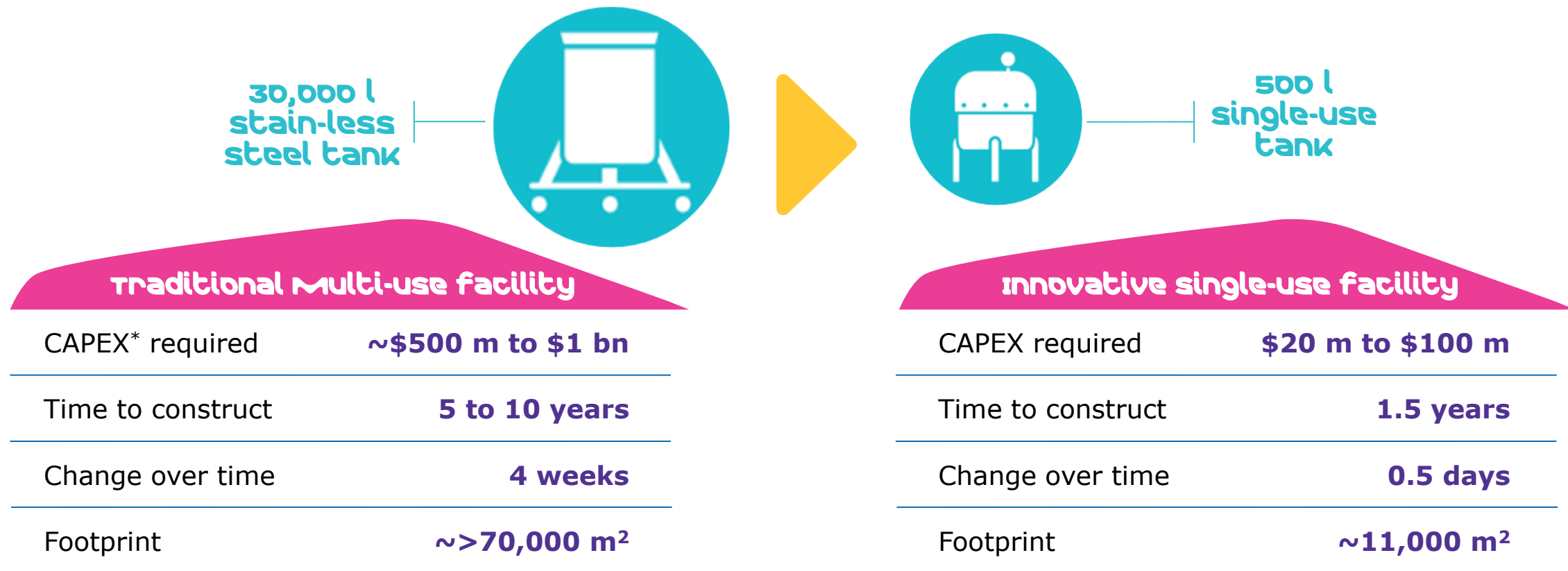
Continuous bioprocessing will ...

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

Tomorrow's
process

Process Solutions

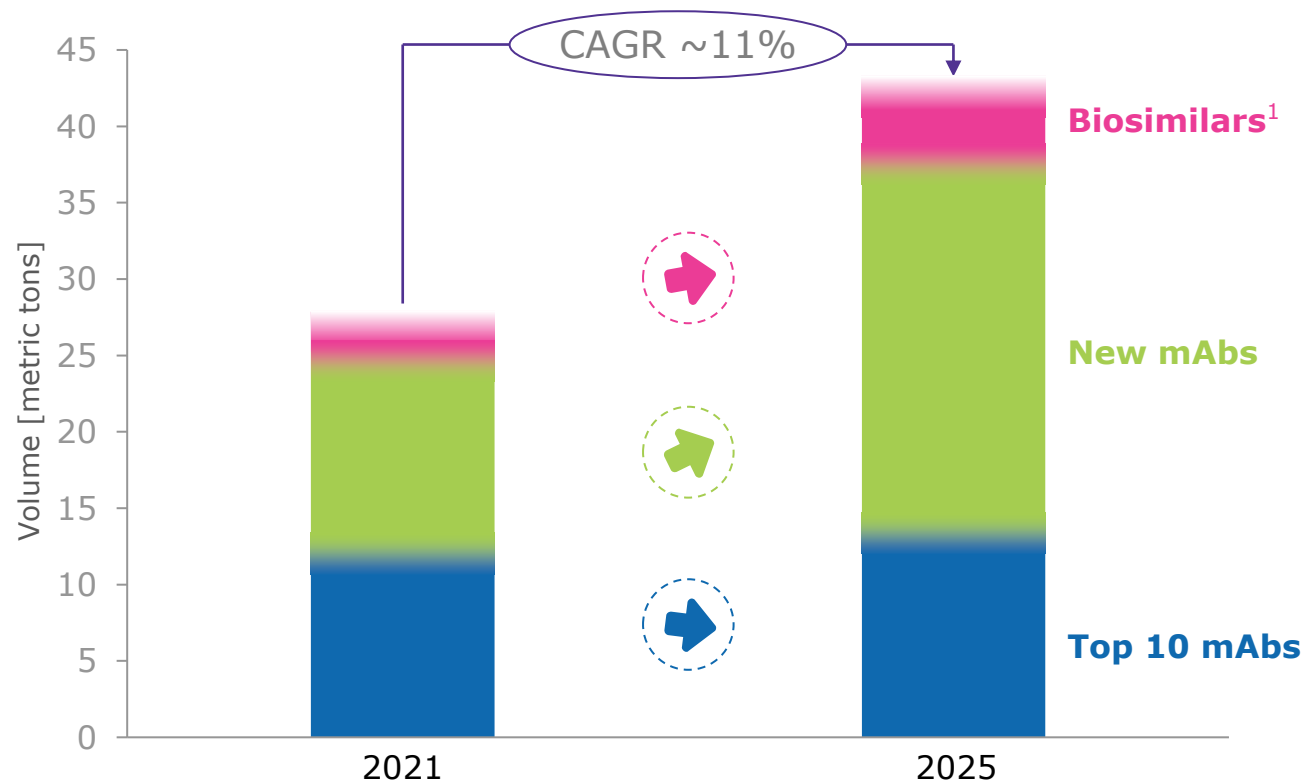
Our single-use technologies drive flexibility in modern bioprocessing



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



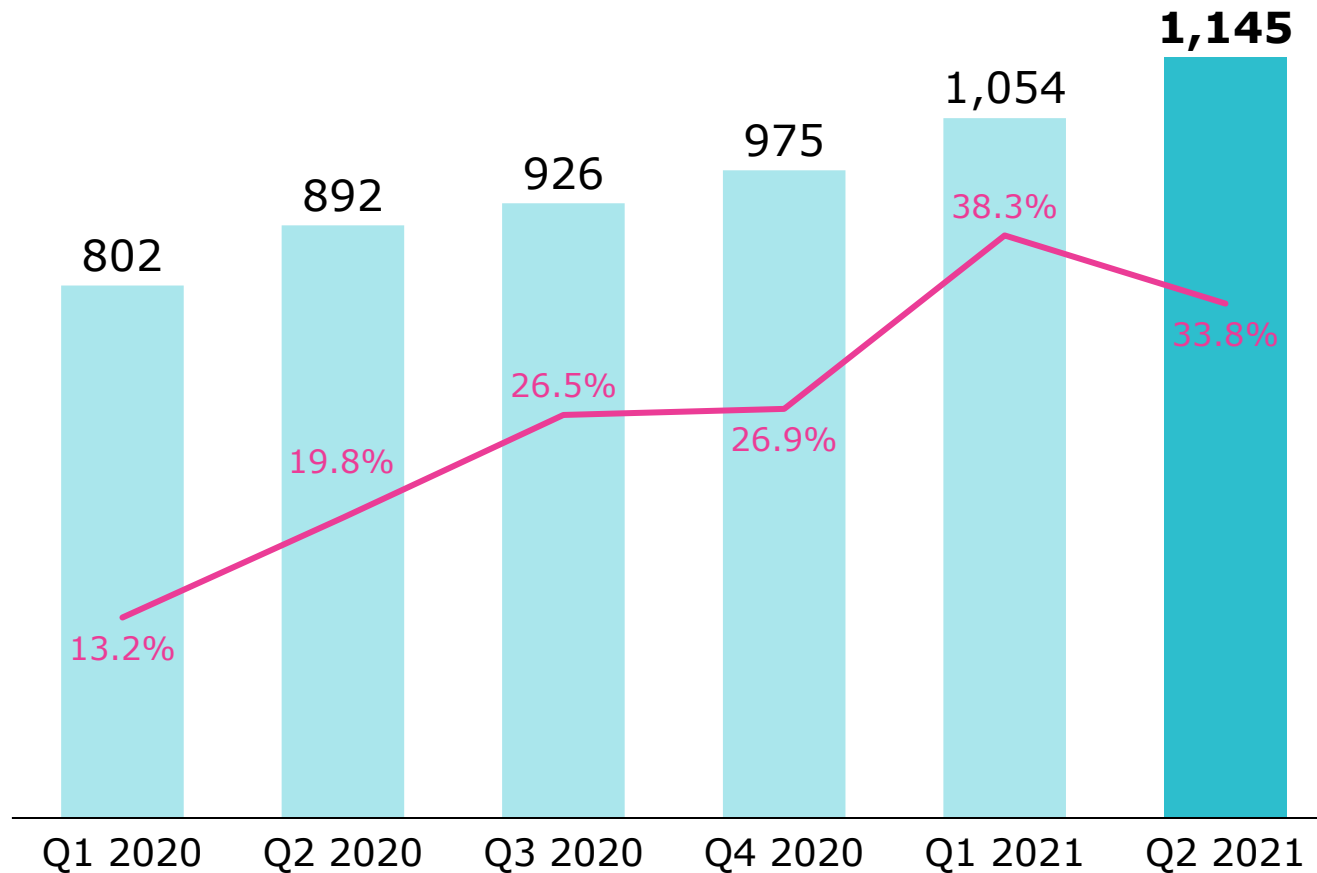
Market development

- 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

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

BIG 3 - Process Solutions: Continued strong double-digit growth, moderating as expected against rising comps

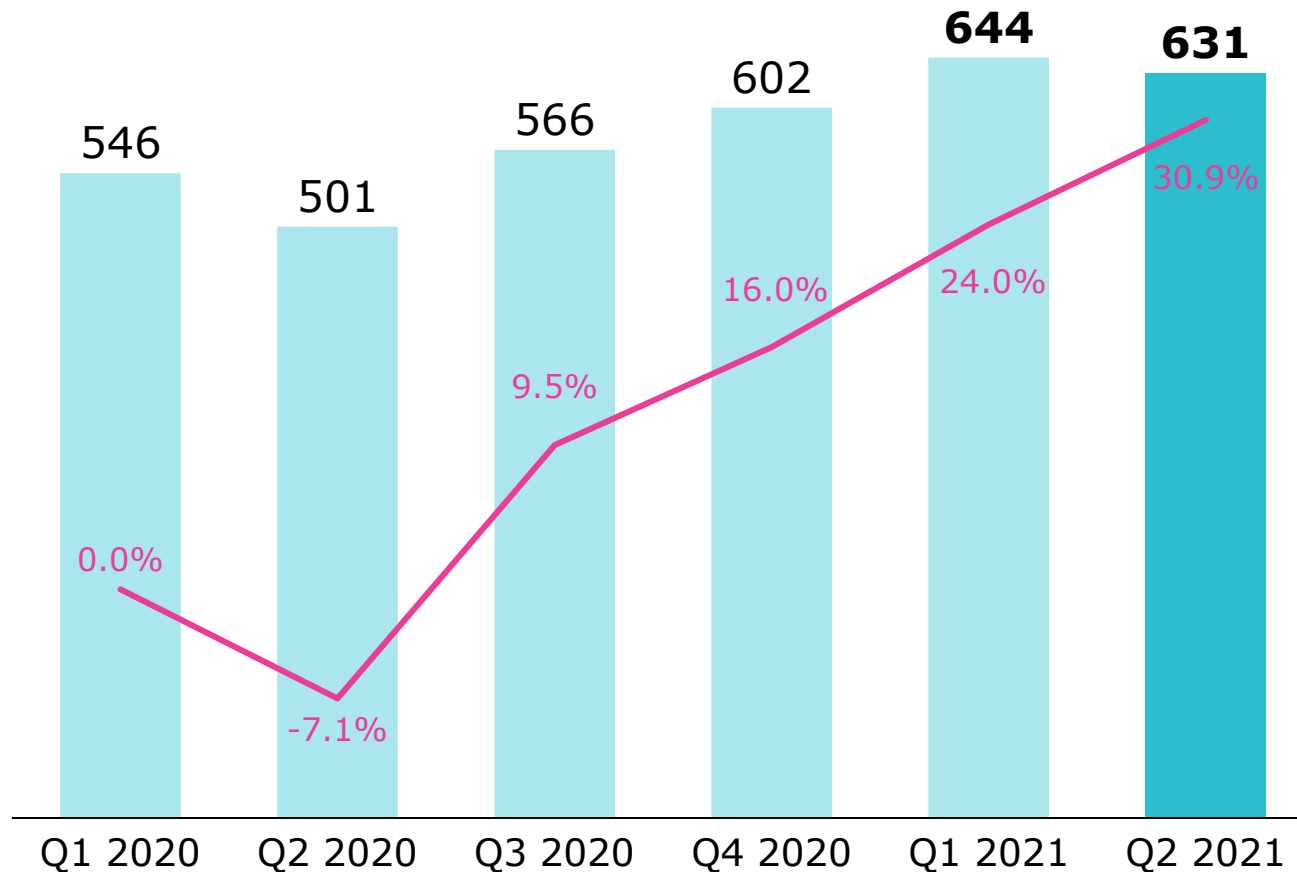
Sales development [€ m] - org. growth [%]



- Continued **double-digit growth in the core business** paired with **rising COVID-19 contributions** (mainly vaccine related)
- **BioP as main growth driver**, formulation growing fastest, services also strong
- **Growth starting to moderate** as expected **amid rising comps** (Q2 2020 with initial COVID-19 contributions)
- Sequentially higher sales as output increases on the back of **ongoing productivity gains and successful capacity ramp-up**
- **Order intake growth remains above 60%**, reflecting strong demand

Research Solutions: Record organic growth amid ongoing business recovery and soft comps

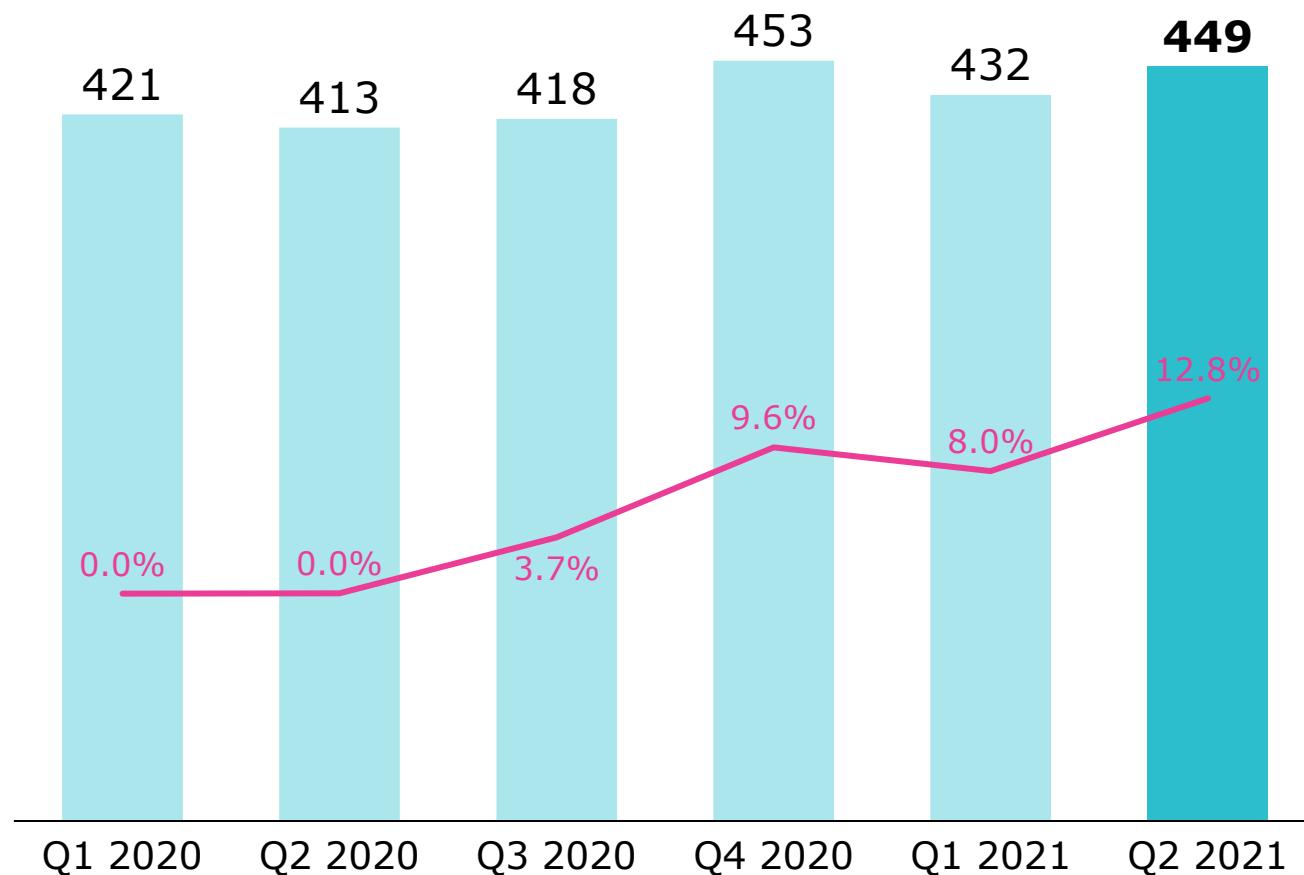
Sales development [€ m] - org. growth [%]



- Strong **double-digit growth, accelerating further** on soft comps (Q2-20 with biggest impact from lockdowns)
- Ongoing **core business recovery** and catch-up amid **rising lab activity**
- Diagnostics related **COVID-19 tailwinds continue albeit slowing** as expected
- **North America as fastest growing region**, followed by Europe and APAC (given difference in comps / phasing of lockdowns last year)
- **Strong rebound in academia** and healthy growth in pharma

Applied Solutions: Growth accelerating as recovery is gaining traction

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



- **Growth accelerating to double-digits** as recovery continues amid still easy comps (H1-20 with flat growth due to lockdowns)
- **Core business as main driver** with broad-based performance across business lines
- **COVID-19-related sales are negligible**
- **North America as fastest growing region**, followed by Europe and APAC (given difference in comps / phasing of lockdowns last year)
- **Strong rebound in Academia** and ongoing recovery in Industrial



Life Science Q2: Strong core business and COVID-19 demand fuel record growth, mainly driven by Process and Research Solutions

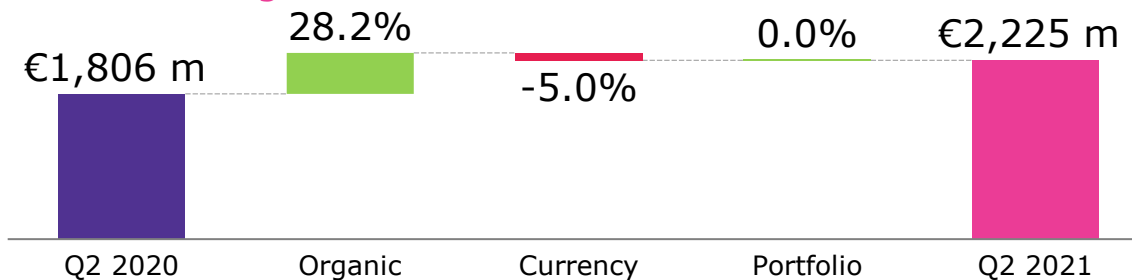
Life Science P&L

[€m]	IFRS		Pre	
	Q2 2020	Q2 2021	Q2 2020	Q2 2021
Net sales	1,806	2,225	1,806	2,225
M&S*	-488	-505	-488	-505
Admin	-100	-92	-88	-84
R&D	-75	-87	-75	-87
EBIT	386	644	370	638
EBITDA	584	835	-	-
EBITDA pre	569	829	569	829
(in % of net sales)	31.5%	37.3%	31.5%	37.3%

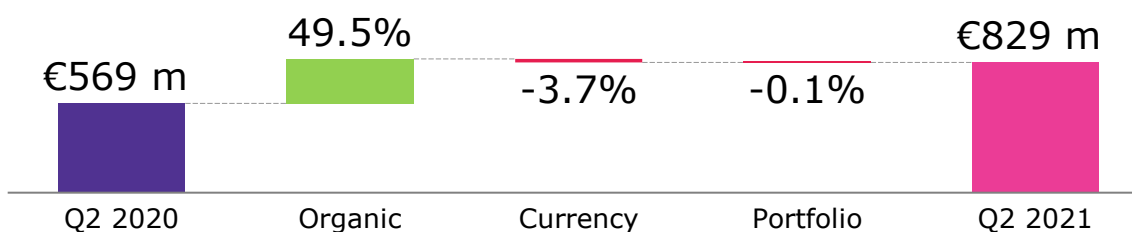
Comments

- Process Solutions: grows +34% organically, supported primarily by bioprocessing demand for COVID-19 projects; comparable base now starts including COVID-19 business
- Research Solutions: grows +31% organically against Q2 2020 COVID-19 dip, driven by recovery in base business and COVID-19 opportunities, mainly in diagnostics and pharma
- Applied Solutions: grows (+13% org.) against softest quarter of 2020
- Declining M&S in % of sales from 27% to 23% due to strong top line leverage, slightly higher in absolute terms
- Higher R&D in absolute terms with continued focused investments in high growth & emerging segments
- Business performance, operational leverage & favorable mix continue to drive strong EBITDA pre and margin expansion

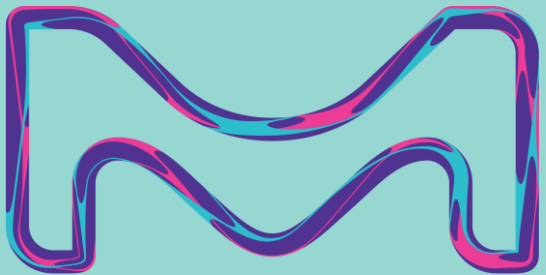
Net sales bridge



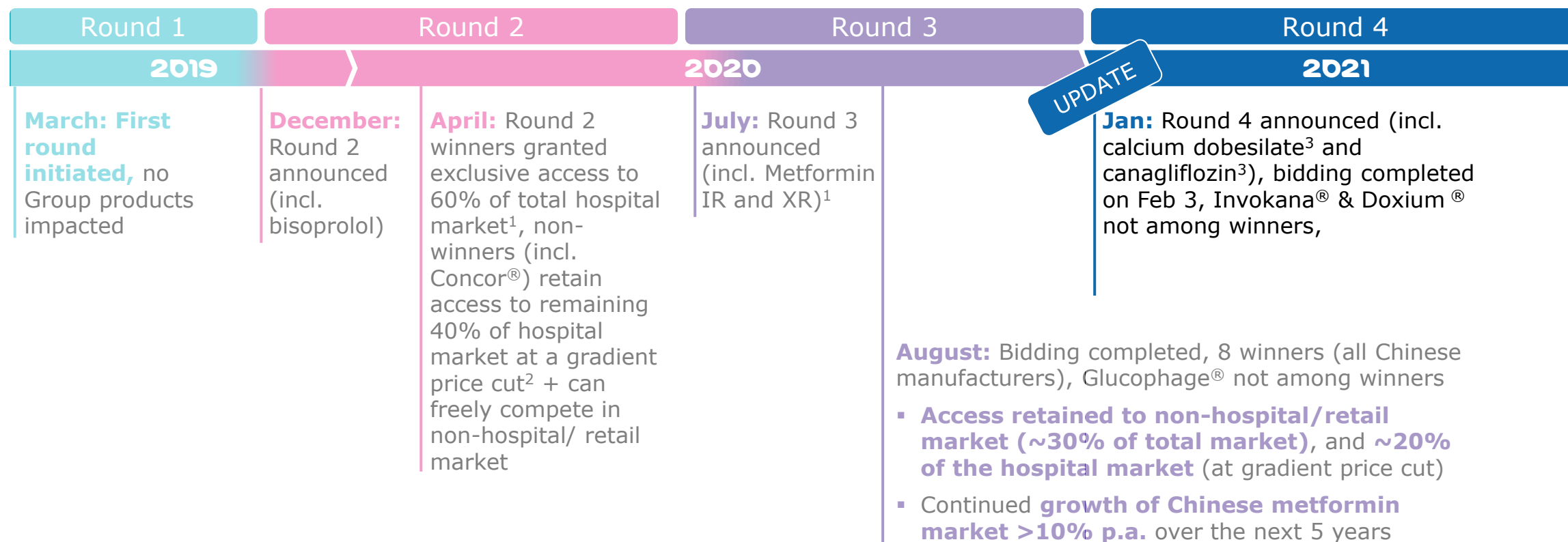
EBITDA pre bridge



healthcare



China's VBP: Round 4 implementation near completion, confidence in approx. stable base business through 2021 and 2022 sustained



China Glucophage sales represent **only ~8% of the total base business** (2020 net sales)
 Sustained confidence in **approx. stable base business (org.) through 2021 and 2022**

1: hospital market for bisoprolol and metformin makes up ~70% of total market, this includes urban hospitals, rural hospitals, and community health centers; 2: Concor® price cut in the high single digit %; 3: alliance products; Acronyms: VBP = Volume-Based Procurement



Phase I

M1231
Bispecific MUC1xEGFR
ADC
Solid tumors

M1774
ATR inhibitor
Solid tumors¹

M4076
ATM inhibitor
Solid tumors

peposertib
DNA-PK inhibitor
Solid tumors²

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Cervical cancer 1L

M6223
anti-TIGIT mAb
Solid tumors³

enpatoran (M5049)
TLR7/8 antagonist
Systemic lupus erythematosus /
Cutaneous lupus erythematosus

M5717
PeEF2 inhibitor
Malaria

Phase II

berzosertib
ATR inhibitor
Small-Cell Lung Cancer⁴

tepotinib
MET kinase inhibitor
Metastatic Colorectal Cancer
RAS/BRAF wt, *MET* amplified⁵

tepotinib
MET kinase inhibitor
Non-small cell lung cancer,
EGFR mutant, *MET* amplified⁶

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Non-small cell lung cancer 1L/2L

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Locally advanced non-small cell
lung cancer

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Biliary tract cancer 1L

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Cervical cancer 2L

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Triple negative breast cancer
(HMGA2 positive)

enpatoran (M5049)
TLR7/8 antagonist
COVID-19 pneumonia

- Oncology
- Immuno-Oncology
- Immunology
- Neurology
- Global Health

Phase III

xevinapant
IAP inhibitor
Locally advanced squamous cell carcinoma
of the head and neck^{7,8}

avelumab
anti-PD-L1 mAb
Non-small cell lung cancer 1L

evobrutinib
BTK inhibitor
Relapsing multiple sclerosis

Registration

tepotinib
MET kinase inhibitor
Non-small cell lung cancer,
*MET*ex14 skipping⁹

ADC: Antibody Drug Conjugate; 1L: first-line treatment; 2L: second-line treatment

¹ Study as monotherapy and in combination with niraparib. ² Study in combination with avelumab. ³ Includes study in combination with bintrafusp alfa. ⁴ Includes studies (phase I/II) in collaboration with/ sponsored by external partners, e.g. US National Cancer Institute (NCI). ⁵ In combination with cetuximab. ⁶ In combination with osimertinib. ⁷ In unresected LA SCCHN patients eligible for cisplatin. ⁸ On March 01, 2021, Group announced a worldwide in-licensing agreement with Debiopharm, Switzerland, for the development and commercialization of xevinapant (Debio 1143). ⁹ As announced on November 26, 2020, the European Medicines Agency (EMA) has validated for review the application for tepotinib for the treatment of adult patients with advanced non-small cell lung cancer.

Additional information: Several combination studies (phase II) of avelumab with talazoparib, axitinib, ALK inhibitors or chemotherapy ongoing under sponsorship of Pfizer.

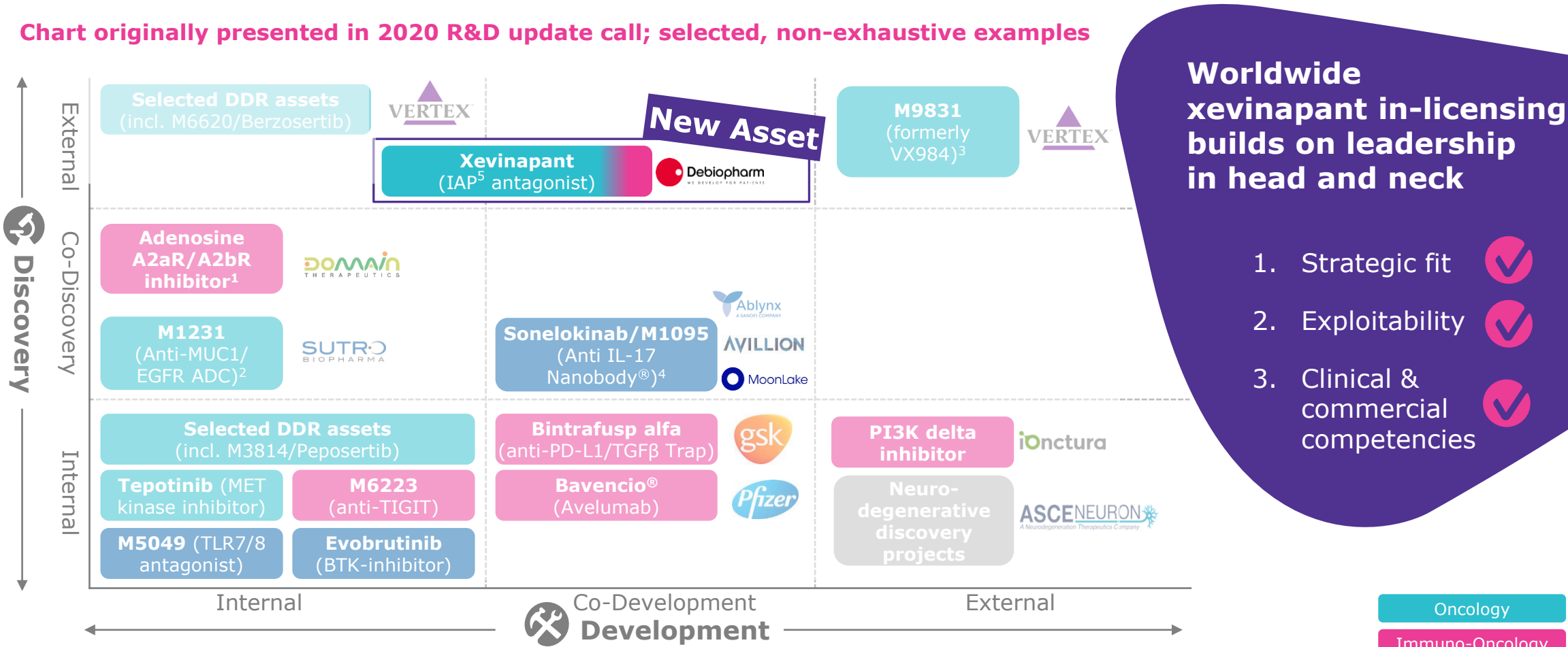
Unless noted otherwise, clinical programs conducted in collaboration with external partners are not shown unless Company has co-ownership of data. In such case the indication is shown in *Italics*.

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.



Xevinapant

Potential to become standard of care in core area for the Group

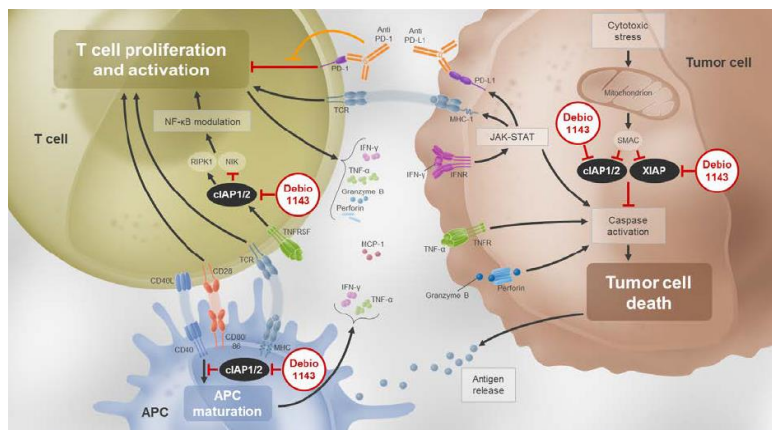


1: In 2017, Domain Therapeutics and Group entered into a collaboration and licensing agreement for the development of adenosine receptor antagonist drugs specifically designed for oncology and immuno-oncology; 2: In 2014, Sutro and Company initiated a collaboration to discover and develop ADCs utilizing Sutro’s cell-free protein synthesis platform, Xpress CF+™. Group is responsible for drug product, clinical development and commercialization of any resulting products; 3: In 2019, an exclusive license was granted to Vertex for the use of M9831 in gene-editing applications; 4: Avillion conducted Ph II of M1095 in Psoriasis, Group decided to out license sonelokinab to a new partner to initiate Phase III development in 2021 5: Inhibitor of Apoptosis Proteins

Xevinapant (Debio 1143)

Potentially first in class oral IAP antagonist with FDA BTB

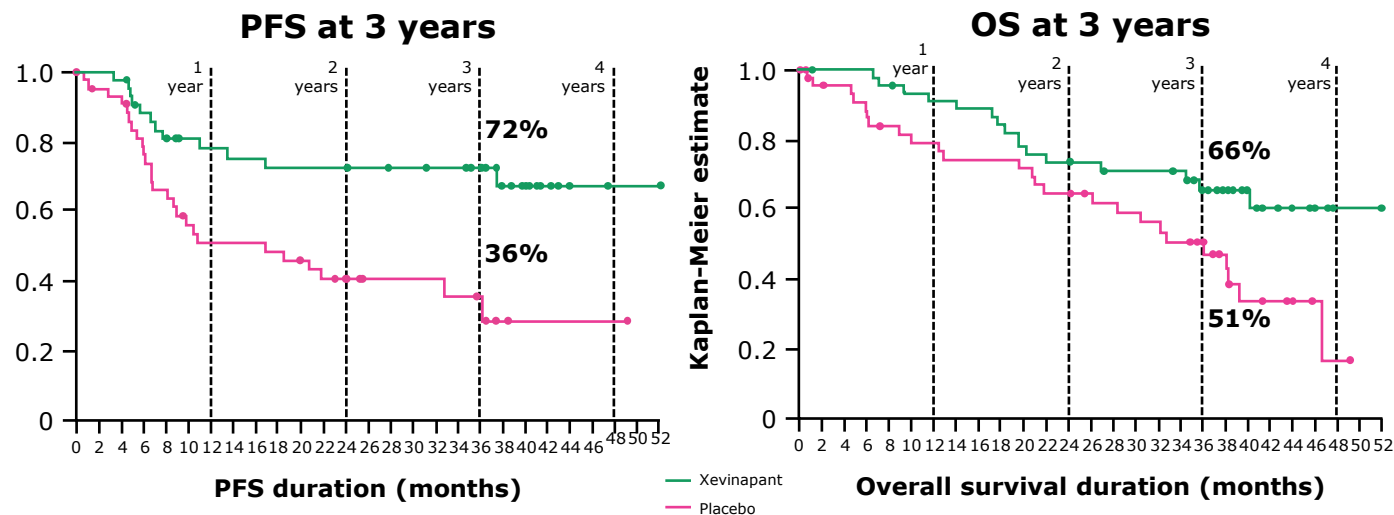
Mode of Action¹



- Oral Inhibitor of Apoptosis Proteins (IAP) antagonist: chemo-/radio-sensitizer & enhancer of anti-tumor immunity
- IAP antagonists tackling two cancer hallmarks:
 - Enhancing anti-tumor immunity
 - Lowering threshold for tumor cell death

Compelling Phase 2 data² published in *The Lancet Oncology*, and presented at ESMO 2020

- Improvement in OS statistically significant and clinically meaningful: HR 0.49 (0.26–0.92); $p=0.0261$
- Clinically compelling PFS improvement: HR 0.34 (0.17–0.68); $p=0.0023$
- Predictable and manageable safety profile without substantial additional toxicity to standard CRT



Acronyms: BTB = Breakthrough Therapy Designation; IAP = Inhibitor of Apoptosis Proteins; 1: Debiopharm; 2: ESMO 2020 - Late Breaking Abstract 39 - 3-years follow-up of double-blind randomized phase II comparing concurrent high-dose cisplatin chemo-radiation plus xevinapant or placebo in high-risk patients with locally advanced squamous cell carcinoma of the head and neck

Xevinapant

Total deal-volume of up to ~ €900 m and industry-typical sales royalties

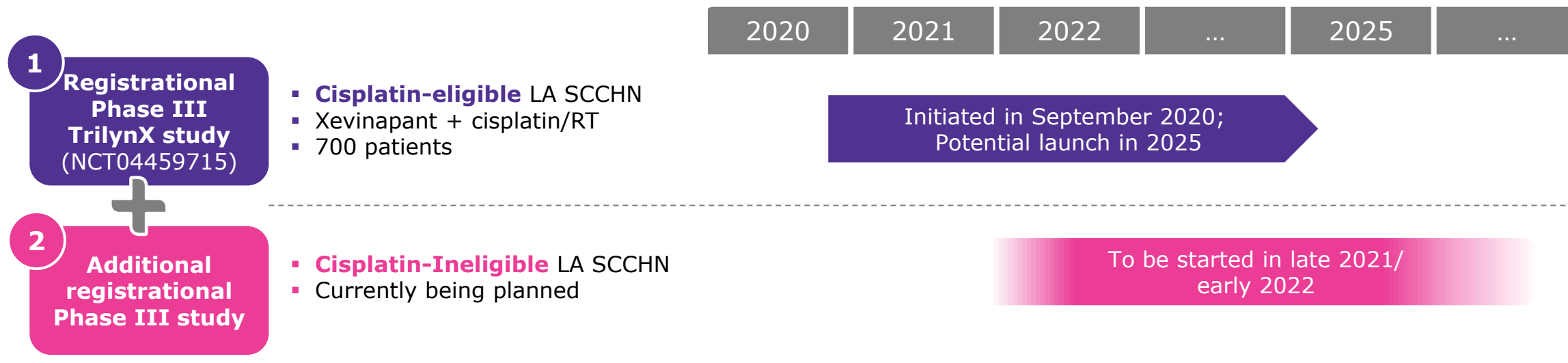
Payment type	Amount (in €)	Accounting treatment ²
Upfront payment	~ €190 m	Largest part to be capitalized as an intangible asset
Approval milestones	Up to ~ €380 m ¹	To be paid and capitalized as an intangible asset upon approval and to be amortized once asset is ready for use
Commercial milestones	Up to ~ €330 m	To be paid and capitalized as an intangible asset, based on sales thresholds and to be amortized over remaining useful life
Sales	n/a	Group to recognize sales globally (incl. US)
R&D Costs	n/a	For ongoing TrilynX study <ul style="list-style-type: none"> ▪ Cash view: 50/50 cost sharing ▪ P&L view: fully shown in Company P&L 2nd study for cisplatin-ineligible patients: Group incurs 100% of cost
Royalties	n/a	Company to pay industry-typical sales royalty to Debiopharm

¹ thereof up to ~€300 m for focus H&N indications)

² final accounting treatment is still subject to alignment with auditors

Xevinapant (Potentially first in class oral IAP antagonist)

Two Phase III studies are designed to target the majority of unresectable LA SCCHN patients receiving systemic therapy + RT



Blockbuster potential provided success of both studies



20,000+ unresectable LA SCCHN patients in US and EU-5 each

Independent real-world data (RWD) differentiates Mavenclad®

- A high-efficacy DMT that demonstrates **full antibody response to COVID-19 vaccination**
- **Differentiated vs. other high-efficacy therapies** in light of COVID-19 vaccinations for MS patients

Patient population		Total N=125	Protective humoral immunity ^a
DMT treated patients	Mavenclad®	23	100% ($p = 0.99$) ^b
	Ocrelizumab	44	22.7% ($p < 0.0001$) ^b
	Fingolimod	26	3.8% ($p < 0.0001$) ^b
Untreated MS patients		32	100%
Healthy subjects		47	97.9%



In the first-ever real-world data study of its type **all patients on Mavenclad® who received a mRNA COVID-19 vaccine were able to mount a full antibody response**, similar to healthy subjects and untreated people with MS, irrespective of lymphocyte counts¹

DMT = disease-modifying therapy

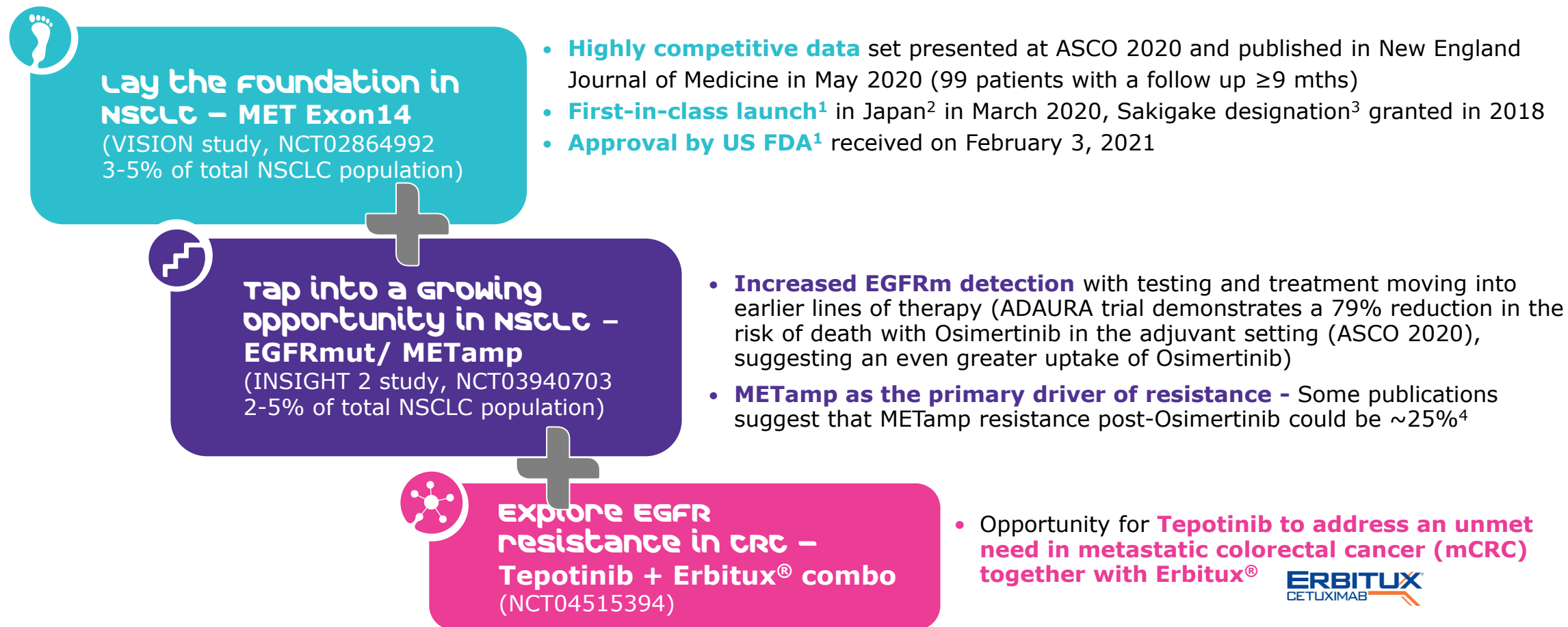
1. Achiron et al. Ther Adv Neurol Disord <https://doi.org/10.1177/17562864211012835>

^aProtective humoral immunity defined as an index value higher than 1.1 using EUROIMMUN semiquantitative ELISA for IgG specific for the recombinant S1 subunit of SARS-CoV-2 spike protein

^bFisher's exact test to detect differences in categorical variables between DMT-treated patients with MS and untreated patients with MS

Tepotinib (MET kinase inhibitor)

First-in-class launch in MET Exon14 sets foundation for EGFRm/ METamp opportunity and exploration in other tumor types



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: 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; Acronyms: CRC = Colorectal cancer; EGFR = Epidermal Growth Factor Receptor; NSCLC = Non-small cell lung cancer



Tepotinib (MET kinase inhibitor)

Tapping into the rapidly evolving EGFRmut/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)
 - **Increasing METamp prevalence** - Some publications suggest that METamp resistance post-Osimertinib could be ~25%¹
- Estimated primary completion date: **November 2022**



Tepotinib + Erbitux® (Cetuximab) - Addressing a significant medical need in 2L metastatic colorectal cancer (mCRC)

Recruiting

- Opportunity for **Tepotinib to address an unmet need in CRC** together with Erbitux®
- Estimated primary completion date: **March 2023**

A solid foundation - Encouraging INSIGHT 1 data (18-months follow-up presented at WCLC 2019)²

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

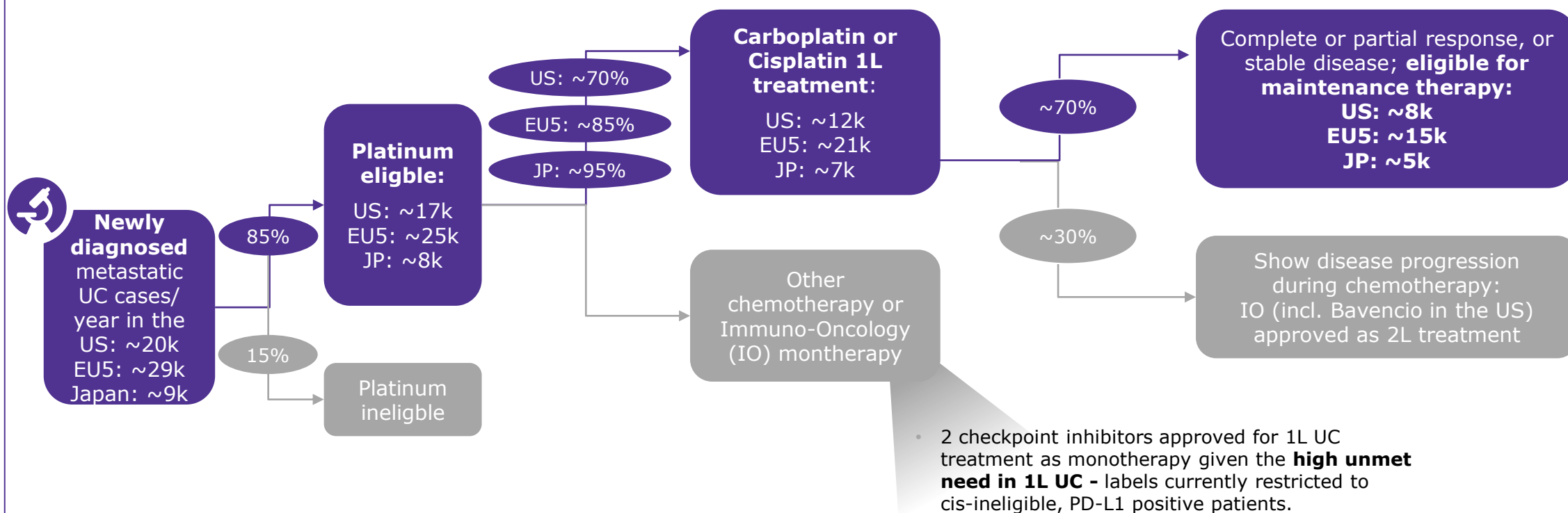
1: Piotrowska et al., "Landscape of Acquired Resistance to Osimertinib in EGFR -Mutant NSCLC and Clinical Validation of Combined EGFR and RET Inhibition with Osimertinib and BLU-667 for Acquired RET Fusion", AACR Cancer Discovery 2018; 2: Wu et al., "Long term outcomes to tepotinib plus gefitinib in 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



Bavencio® (Avelumab) – Urothelial Carcinoma (UC 1L)

UC 1L maintenance treatment achieving transformative OS benefit (31% reduction in risk of death, 7 months increase in median overall survival)


Durable responses to standard of care (1L chemotherapy) are rare with most patients experiencing progression within 9 months of treatment¹

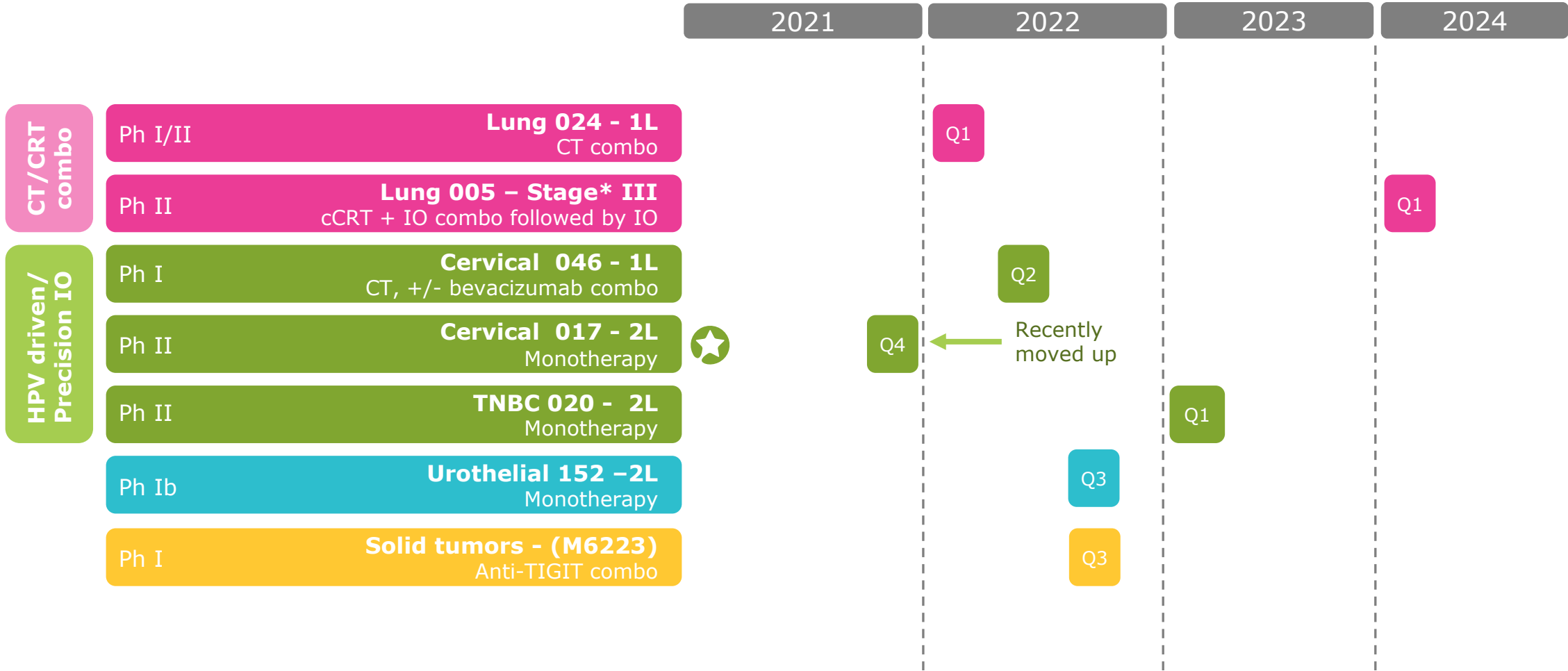


1: Kantar Health Patient Metrics & Kantar Health Treatment Architecture for epidemiological data; IMS Claims, Kantar and IPSOS for triangulation of market shares

Bintrafusp alfa

INTR@PID Program: Upcoming Readouts

 Registrational potential

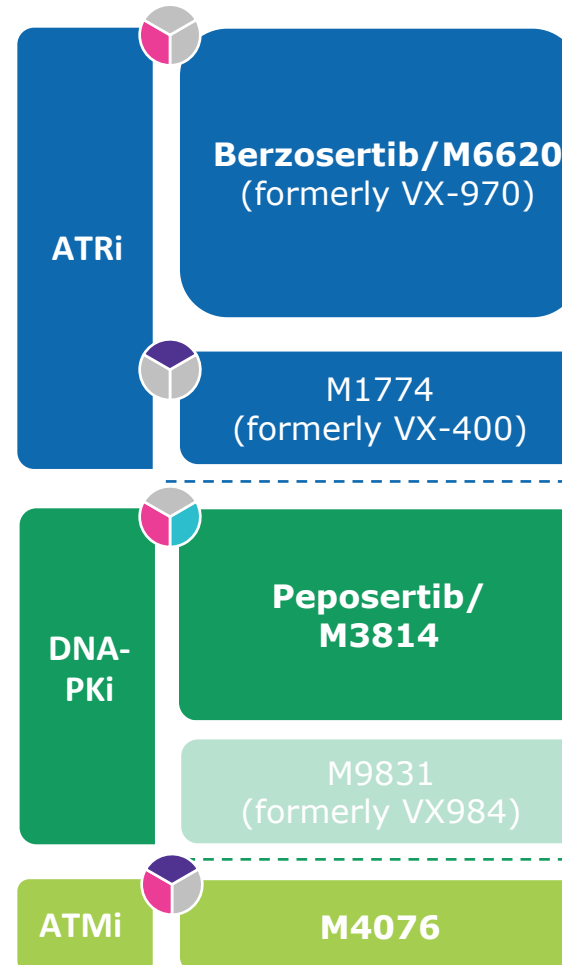
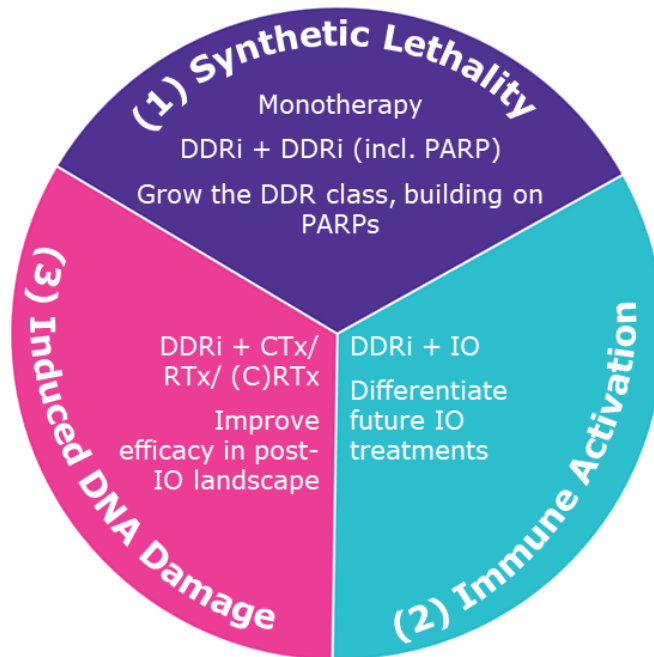


Acronyms: BTC = Biliary Tract Cancer; CT = Chemotherapy; EMT = Epithelial-mesenchymal transition; HPV = Human papillomavirus; NSCLC = Non-small Cell Lung Cancer; RT = Radiation therapy; TNBC = Triple-Negative Breast Cancer; * unresectable; **All clinical timelines are event-driven and may be subject to change**



DNA Damage Response (DDR)

Leading DDR portfolio with a broad clinical program



- Only ATR-inhibitor with a POC from an RCT (Ovarian cancer, Berzosertib +/- Gem)
- Promising Ph II POC data from NCI study recently published in Cancer Cell
- Phase II study (NCT04768296) of Berzosertib + Topotecan in SCLC recently started
- Multiple NCI studies in various tumor types ongoing



Update

- Oral ATRi
- Phase I FiH study (monotherapy & combination with PARPi) ongoing

Update

- Rectal cancer (CRT combo): discontinued after Ph Ib
- Combo with Avelumab: Study with and w/o RT ongoing (PhI, solid tumors)
- Multiple NCI studies in various tumor types ongoing

Update



- Exclusive license¹ granted to Vertex in 2019 for use in gene-editing applications

- Phase I FiH study in advanced solid tumors (NCT04882917) ongoing

Update

1: incl. upfront payment + milestone/royalties on future sales; Acronyms: ATMi = Ataxia telangiectasia-mutated; ATRi = Ataxia telangiectasia and Rad3-related inhibitors; CRT = Chemoradiotherapy; DDR = DNA Damage Response; DNA-PKi = DNA-dependent Protein Kinase Inhibitor; FiH = First in Human; PARP = poly(ADP-ribose) polymerase inhibitor; POC = Proof of concept; RCT = Randomized Controlled Trial; RT = Radiation Therapy

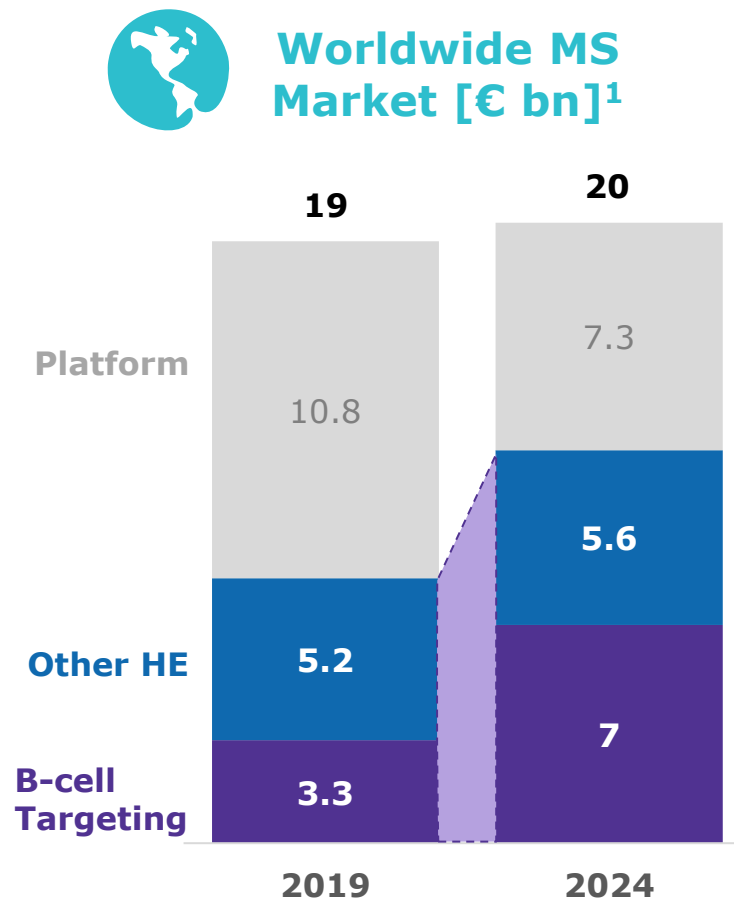


We pioneered BTKi development for MS with Evobrutinib

Potential to have 3 complementary MS branded products by 2025

Unmet need in Multiple Sclerosis (MS) – Need for new mechanisms to control disease

- ~50% of patients with Relapsing MS (RMS) continue to have ongoing disease activity over 2 years even when treated with the most effective agents
- No therapy with impact on progression mediated by CNS myeloid cells
- Systemic side effects of therapies limit patient acceptance and compliance
- All approved higher efficacy therapies associated with elevated risk of infection



B-Cell Targeting + High-Efficacy (HE) Orals represent >60% of MS sales

- ✓ BTKi is a novel class of non-depleting therapies selectively targeting both B-cells and innate immune cells including disease progression-relevant microglia
- ✓ Merck KGaA, Darmstadt, Germany was the first to conduct a full Phase II dose-ranging study in MS with Evobrutinib, a highly selective covalent BTKi²
- ✓ Merck KGaA, Darmstadt, Germany is a growing MS player and could have 3 complementary branded products by 2025 – Mavenclad®, Rebif®, Evobrutinib

Platform agents – interferons, copaxone, DMFs and Teriflunomide; Other HE (high-efficacy) – cladribine, S1Ps, alemtuzumab; B-cell Targeting – ocrelizumab, ofatumumab, ublituximab. Includes branded products, generics and biosimilars; 1: Merck KGaA, Darmstadt, Germany internal estimates; 2: Montalban et al. NEJM 2019; 380:2406-2417; Acronyms: BTKi = Bruton's tyrosine kinase inhibitor



Evobrutinib stands out amongst BTK inhibitors under development

Uniquely positioned both in terms of clinical evidence and mode of action

	Fenebrutinib ^{##}	Tolebrutinib ^{**}	Evobrutinib
Clinical Evidence	Long-term* efficacy on relapses	✗	✓ ⁽¹⁾
	Long-term* safety	✗	✓ ⁽¹⁾
	Convenience (oral)	✓ BID	✓ BID
	Exposure in CSF	✗	✓ ⁽³⁾ in MS
	Biomarker of inflammation and progression in MS patients (sNfL)	✗	✓ ⁽³⁾
Preclinical data	BTK occupancy in the CNS	✗	✓ ⁽⁴⁾
	Efficacy in progressive EAE model and reduction of leptomeningeal inflammation[#]	✗	✓ ⁽⁶⁻⁸⁾



Phase III studies: Recruitment on track → Target data in-house in Q4 2023 and potential filing shortly after

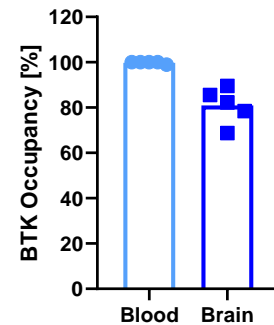
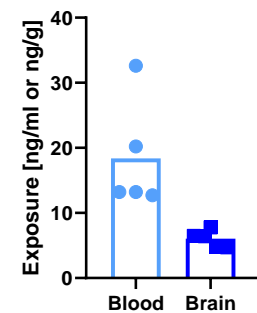
✗ : not reported



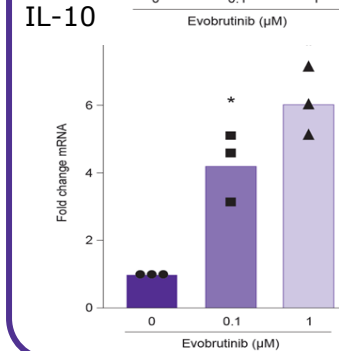
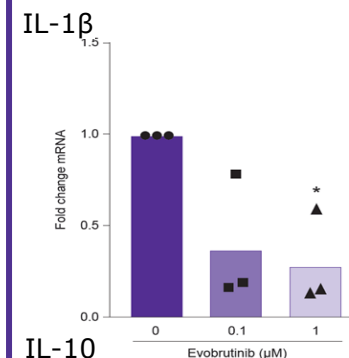
Dual mechanism of action offers an innovative oral approach to MS therapy

The diagram illustrates the central role of "CNS-directed autoimmune responses" in multiple sclerosis. A central purple circle labeled "CNS-directed autoimmune responses" is connected by double-headed arrows to four surrounding cell types: T cell (yellow), B cell (blue), Microglia (orange), and Macrophage (green). Additionally, pink arrows point from each of these four cell types towards the central purple circle, indicating their contribution to the autoimmune response.

Evobrutinib is a CNS penetrant BTKi²



Macrophages after GM-CSF activation

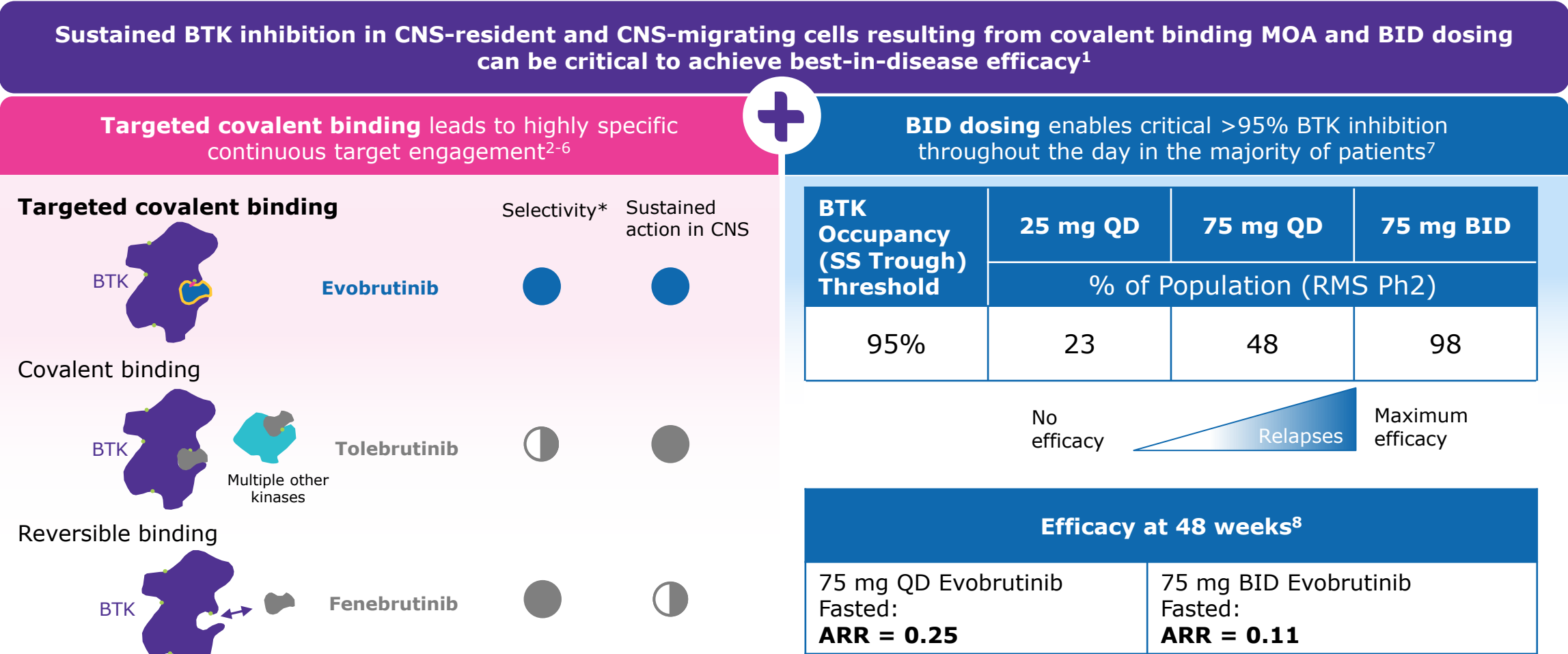


Leptomeningeal structures

- Important role of macrophage/ microglia cells in addition to B and T cells in both **periphery and CNS**¹
- Evobrutinib **reaches brain** to potentially impact compartmentalized inflammation²
- Effects may be mediated through effects on **CNS-resident and CNS-migrating cells**^{3,4}

Evobrutinib is optimally dosed to offer best-in-class BTK inhibition

Optimized dose selection & targeted covalent binding results in sustained BTK inhibition that is necessary for robust efficacy

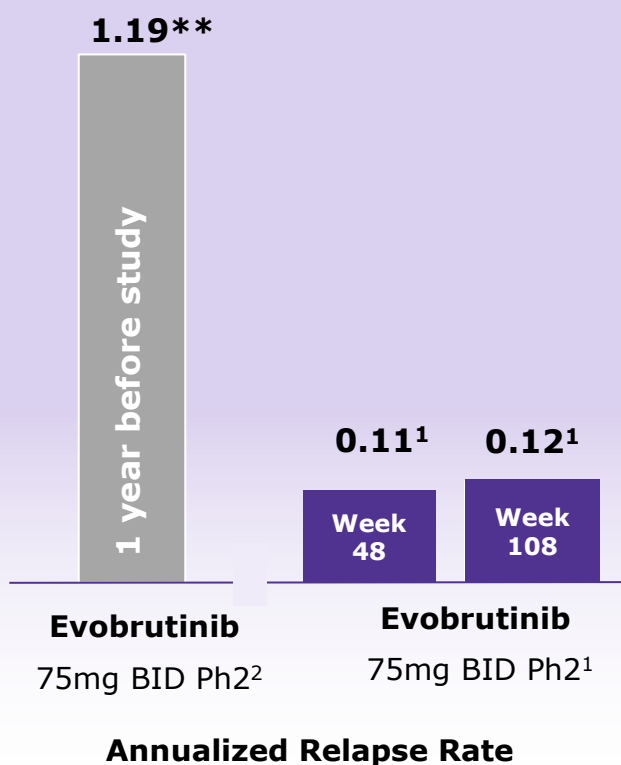


Evobrutinib holds unmatched Long-Term Data among BTKi class in MS

Best-in-disease efficacy & favorable safety over 2 years in largest Phase II study in MS



Very high, sustained efficacy



Early and substantial impact on sNfL*



- Evobrutinib is the **only BTKi to have demonstrated very high, sustained efficacy and favorable safety** in the largest Phase II study in MS (n=267), with an ARR of confirmed relapses of 0.12 up to 108 weeks¹
- Evobrutinib **impacts sNfL levels**, a biomarker of neuronal damage, reflecting **disease activity and drug response in patients with MS³**, **starting at 12 weeks** and maintained through 24 weeks²
- Evobrutinib is **highly selective resulting in targeted kinase inhibition**, and its safety data in >1200 patients over 2+ years supports the potential for an **optimal long-term safety profile²**

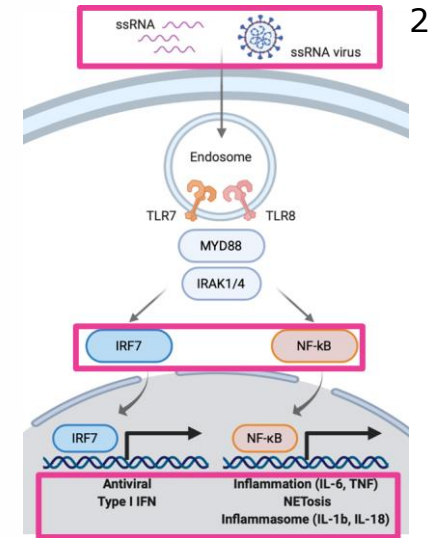


M5049 (TLR7/8 antagonist)

TLR7/8 are drivers of SLE pathology and possibly of COVID-19

Mechanism of Action¹

- M5049 (**discovered in-house**) is a **potentially first-in class small molecule** that blocks activation of Toll-like receptors TLR7 and TLR8, two innate immune sensors that detect single-stranded (ss) RNA from viruses such as SARS-COV-2, the virus responsible for COVID-19, and inflammatory self-RNAs in the context of autoimmunity
- Activation of TLR7/8 leads to immune cell activation and inflammation, which when not properly controlled can cause severe immunopathology



Results from Phase I study in healthy volunteers

(NCT03676322)¹

- **Well-tolerated** over the dosing interval, no significant or dose-limiting adverse event
- Pharmacokinetic parameters linear and dose-proportional from 1 to 200 mg
- Exposure-dependent inhibition of ex vivo-stimulated IL-6 secretion observed, with maximum inhibition achieved at 200 mg



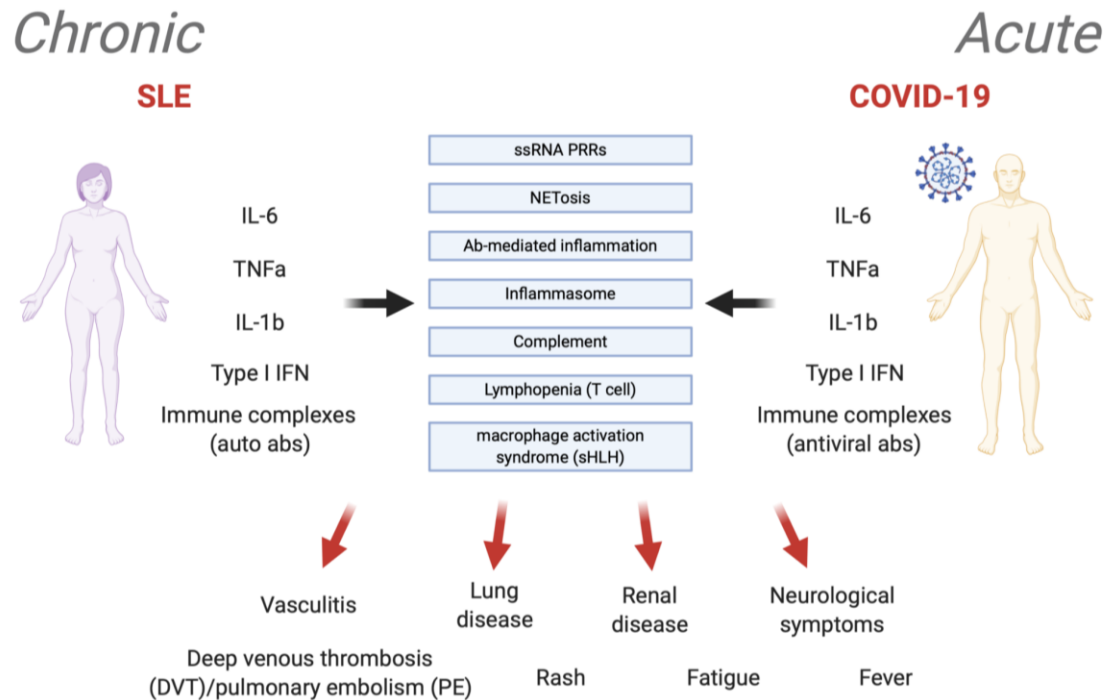
Preliminary Phase I data warrant further investigation as a potential treatment for autoimmune diseases including SLE

1: Port et al., A PHASE I, FIRST-IN-HUMAN STUDY TO ASSESS THE SAFETY, PHARMACOKINETICS AND PHARMACODYNAMICS OF SINGLE AND MULTIPLE ASCENDING DOSES OF M5049, A DUAL ANTAGONIST OF TLR7/8, IN HEALTHY SUBJECTS, *Lupus Science & Medicine* 2020;7(Suppl 1):A1–A131, conference cancelled due to COVID-19; 2 Adapted from ImmunoHorizons July 1, 2018 Dowling, D; Acronyms: SLE = Systemic lupus erythematosus; TLR = Toll-like receptors

M5049 (TLR7/8 antagonist)

Similarities between SLE and COVID-19

Similarities between SLE and COVID-19¹



1: Illustration created in-house; Acronyms: SLE = Systemic lupus erythematosus

Phase II study started in July 2020

Rational:

- Investigate if M5049 intervention at critical point in course of COVID-19 disease may prevent or ameliorate hyper-inflammatory response in patients with COVID-19 pneumonia and **prevent progression to 'cytokine storm'**
- Successful intervention with investigational drug may reduce life-threatening complications of COVID-19, including severe respiratory symptoms often necessitating further interventions such as mechanical ventilation

Design:

- Phase II randomized, controlled clinical study
- Commenced in July 2020

Results:



Dependent on recruitment and COVID-19 infection rates
Data read-out expected in Q3/Q4 2021

Healthcare Q2: Strong Fertility recovery & Bavencio® performance; Mavenclad® returns to sequential growth as dynamic market picks up

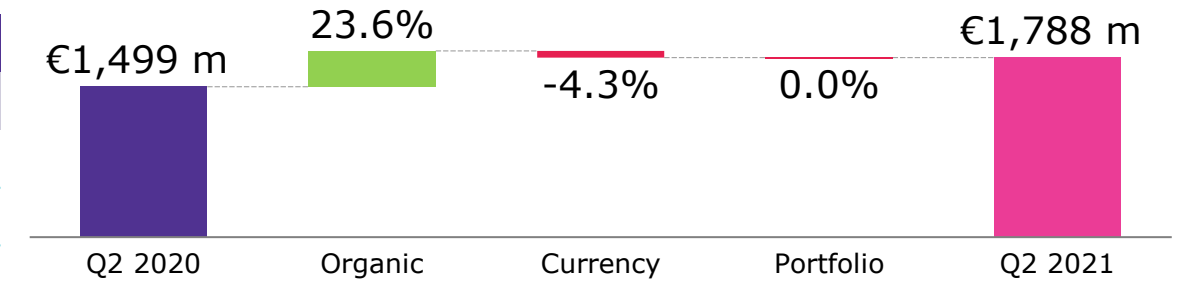
Healthcare P&L

[€m]	IFRS		Pre	
	Q2 2020	Q2 2021	Q2 2020	Q2 2021
Net sales	1,499	1,788	1,499	1,788
M&S*	-409	-391	-401	-389
Admin	-81	-78	-79	-76
R&D	-366	-415	-366	-414
EBIT	269	501	284	512
EBITDA	359	572	-	-
EBITDA pre	374	581	374	581
(in % of net sales)	24.9%	32.5%	24.9%	32.5%

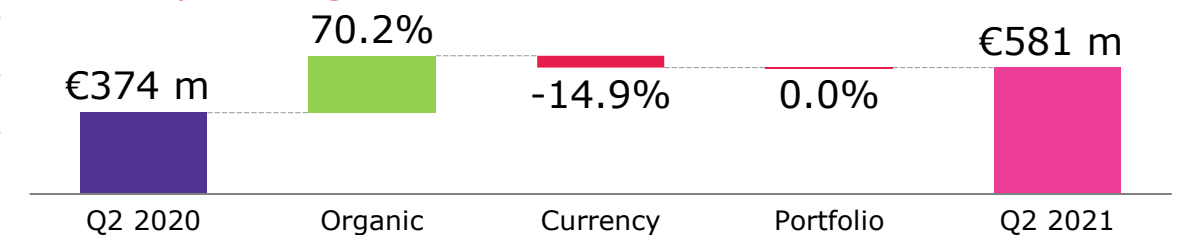
Comments

- Mavenclad® grows +102 % organically to €157 m, amid first signs of recovery of dynamic market and low comps; Rebif® declines -9%
- Oncology up +49%; Bavencio® grows +206% fueled by UC 1L launch in key markets; Erbitux® up +36% supported by Eli Lilly supply agreement
- Base business up +15%, driven primarily by strong Fertility recovery (+88% org.); CM&E +1% org. Glucophage VBP¹ impact compensated for by Endocrinology
- Lower absolute M&S vs. Q2 2020 with higher level of face-to-face activities amid progressing adaptation to pandemic situation
- Higher absolute R&D driven largely by ramp up of Evobrutinib and Xevinapant development activities; lower R&D as % of sales
- EBITDA pre and margin increasing with operating leverage, further supported by temporary Eli Lilly supply agreement in the U.S.

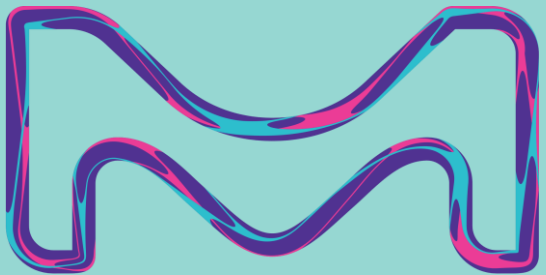
Net sales bridge



EBITDA pre bridge

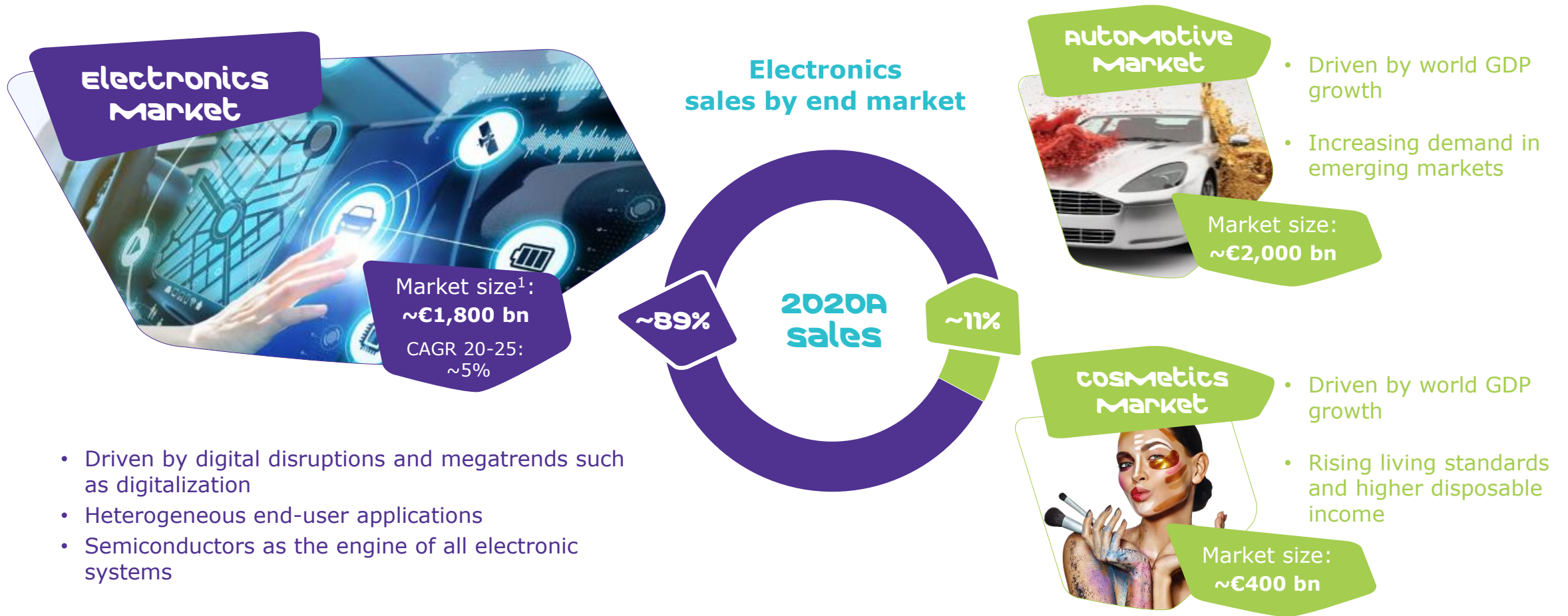


electronics



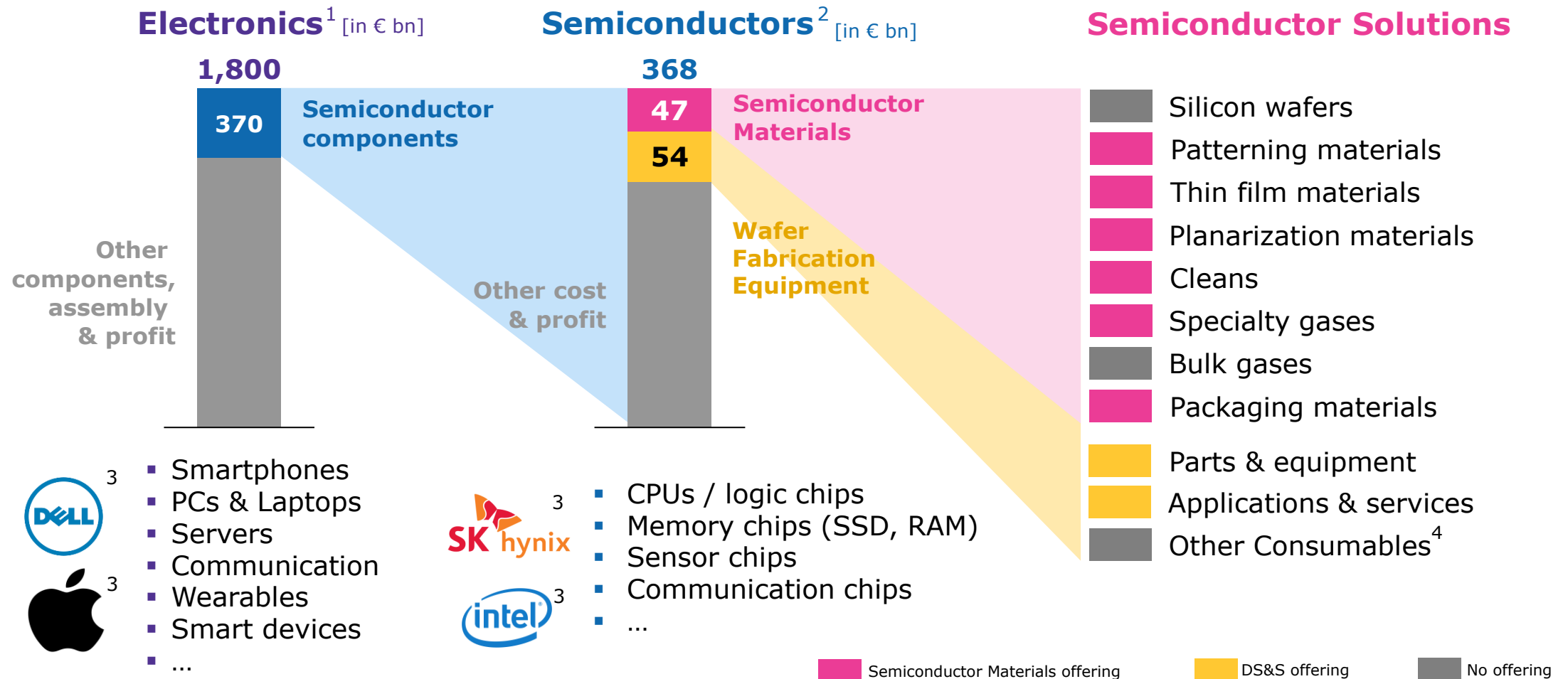
Electronics

Targets attractive markets – especially in the electronics space



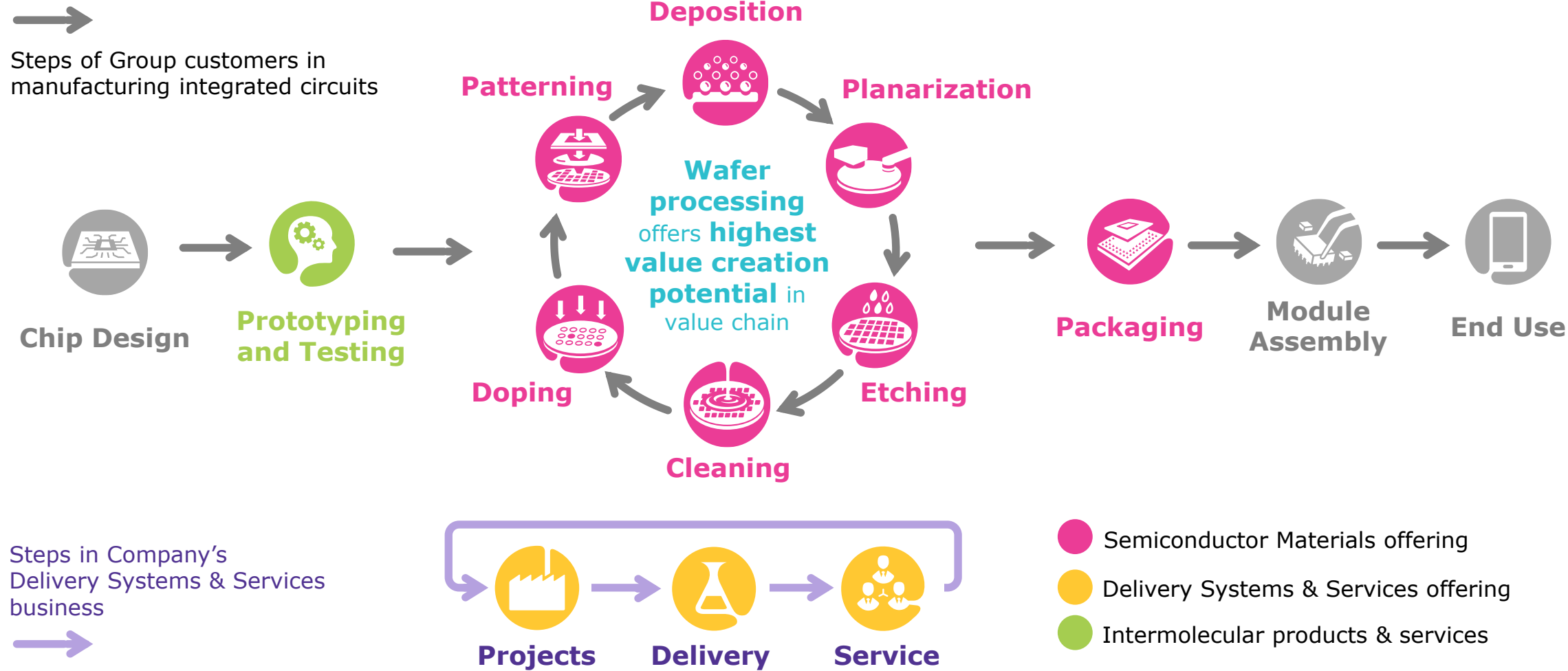
¹Prismark 2021

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



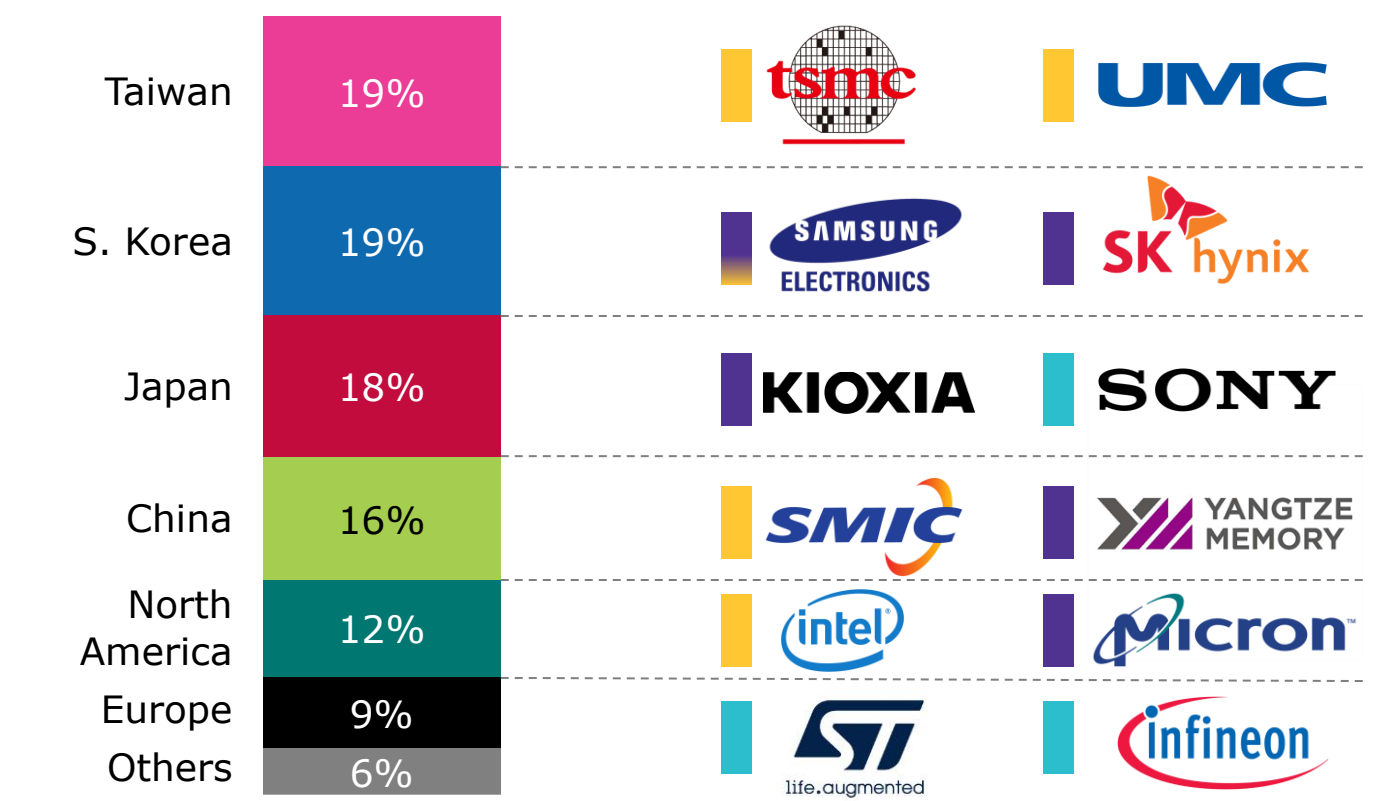
Illustrative Industry P&Ls based on Sources: ¹Prismark 2021, ²Prismark 2021 & WSTS/SIA & SEMI Q1 2020; ³Representative player in the industry, non-exclusive list, not based on any underlying criteria; ⁴e.g. Filters, Pads, etc.; CPU = Central Processing Unit; RAM = Random Access Memory; SSD = Solid State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

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



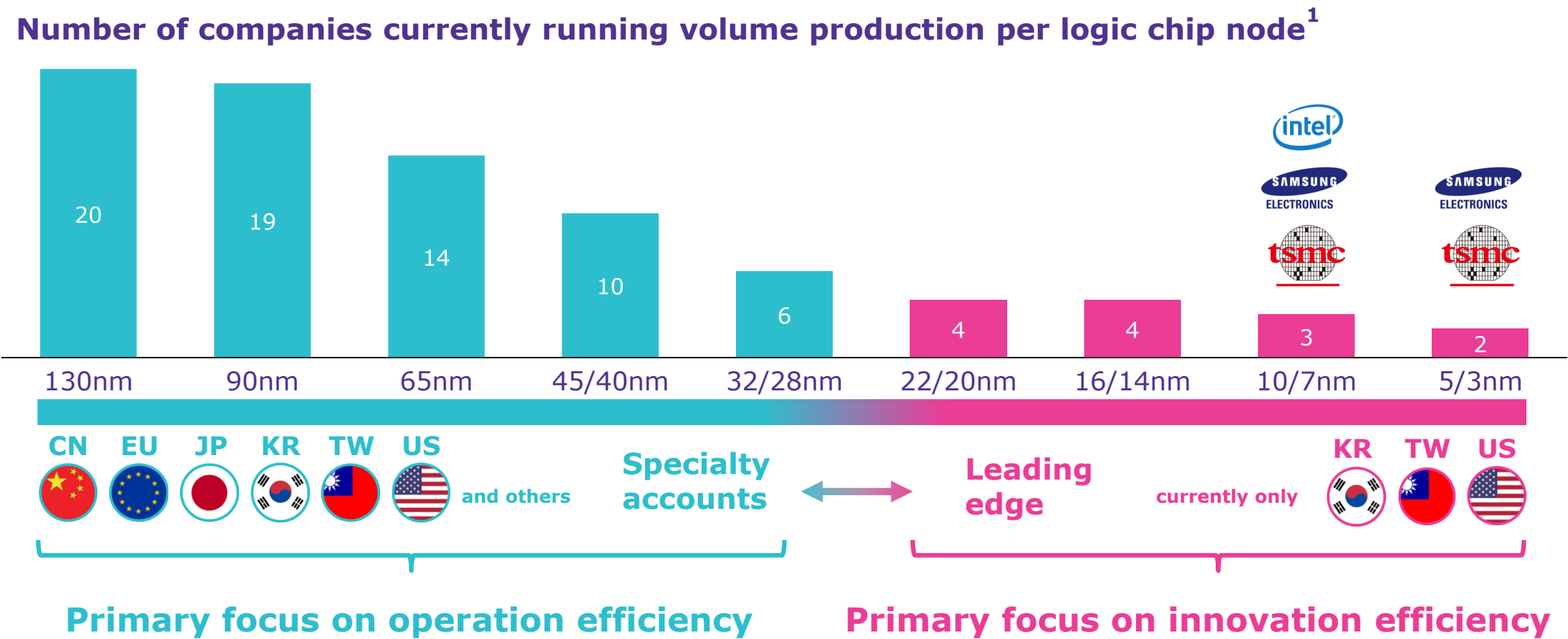
Beyond a comprehensive portfolio Semiconductor Solutions also has an industry spanning customer base, supplying various end markets

2019 wafer capacity by region¹ Selected customers per region²



Semiconductor Solutions has **OVER 100 customers** supplying all top 10 chip makers and virtually all of the top 100³

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



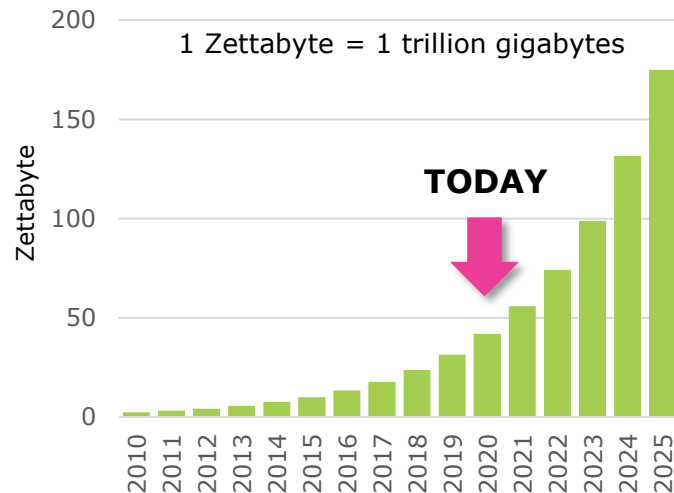
Technology trends inevitably drive exponential data growth... ...more chips needed to generate, transfer, process & store data

Data created worldwide
is growing +30% annually

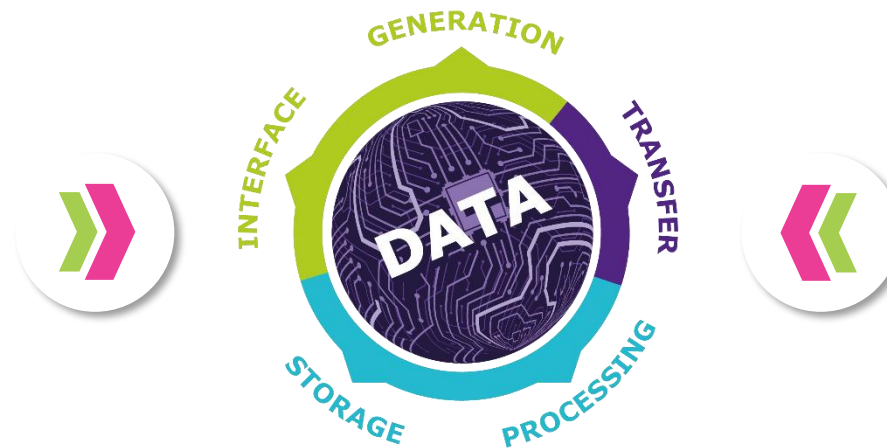
All segments of data application
are affected by global data growth

Technology trends strongly impact
relevance of data application segments

Size of global data sphere



Source: IDC DataAge 2025 Whitepaper



Technology market growth - examples

5G Technology¹
>122% CAGR

Artificial Intelligence²
>33% CAGR

IoT Sensors³
>24% CAGR

Data Center Services⁴
>13% CAGR

Autonomous Driving⁵
>18% CAGR

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

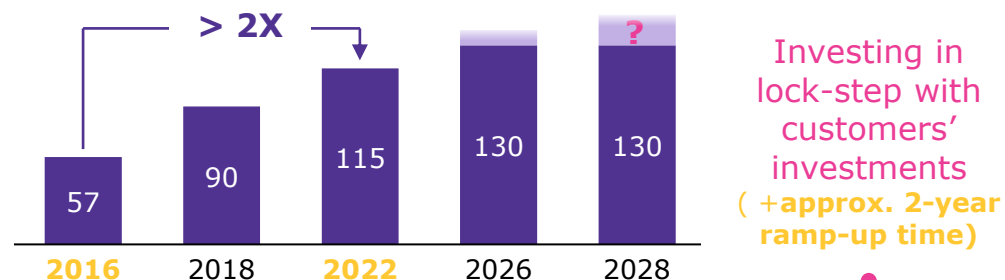
1) [alliedmarketresearch.com](https://www.alliedmarketresearch.com), Prismark 2020, CAGR 2021-2026; 2) [fortunebusinessinsights.com](https://www.fortunebusinessinsights.com), [post-gazette.com](https://www.post-gazette.com), CAGR 2018-2026; 3) [mordorintelligence.com](https://www.mordorintelligence.com), [computerweekly.com](https://www.computerweekly.com), CAGR 2020-2025; 4) [mordorintelligence.com](https://www.mordorintelligence.com), Prismark 2020; CAGR 2020-2025; 5G = 5th-generation cellular wireless; IoT = Internet of Things 5) [mordorintelligence.com](https://www.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

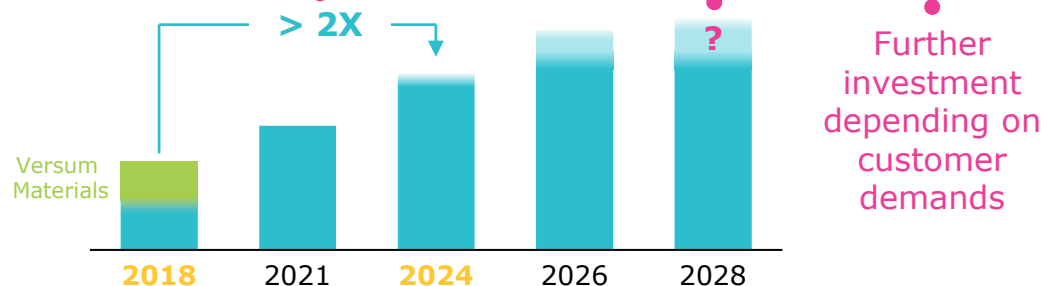
Semiconductor industry

CAPEX p.a.¹ [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

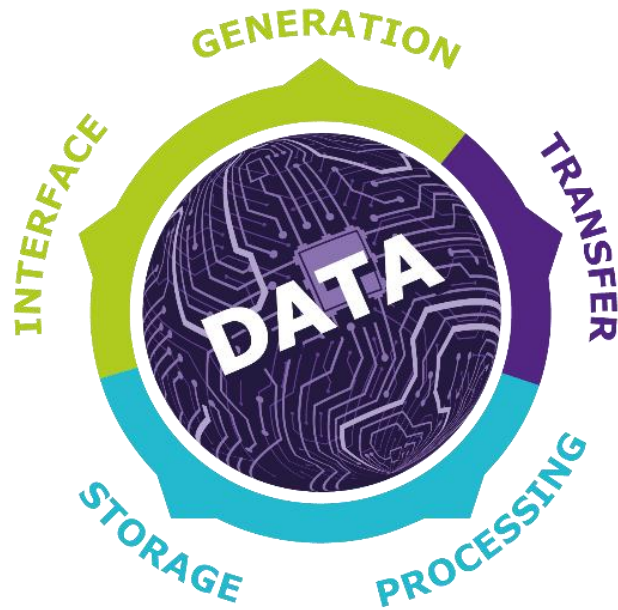
Share of semi material market ¹	Key investments
Taiwan  ~25%	<ul style="list-style-type: none"> ▪ Additional large site ensuring supply for key customers ▪ Further expand R&D footprint
Korea  ~25%	<ul style="list-style-type: none"> ▪ Expand strong footprint, even higher customer proximity
China  ~15%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

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

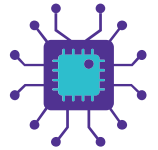
Novel etchants & dopants allowing higher scaling & lower power consumption

3D NAND with >300 layers

ALD¹ materials that help minimize cross talk between memory cells

Foldable displays

Broad set of materials from encapsulation to the OLED stack



Our contribution

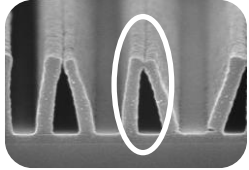
1) Atomic Layer Deposition



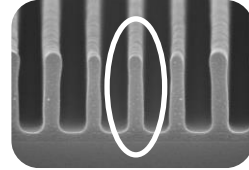
Electronics

Expanding the limits of how small you can go

Pattern collapse

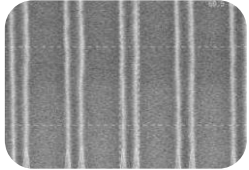


AZ® rinse materials



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

Lithography limitation

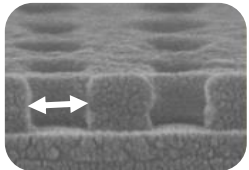


Directed self-assembly (DSA)

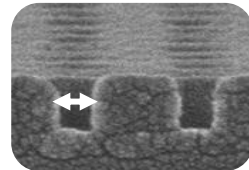


Block copolymer can generate small lines or contact holes by self-assembly. This allows miniaturization without expensive new equipment.

Wide features



AZ® 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

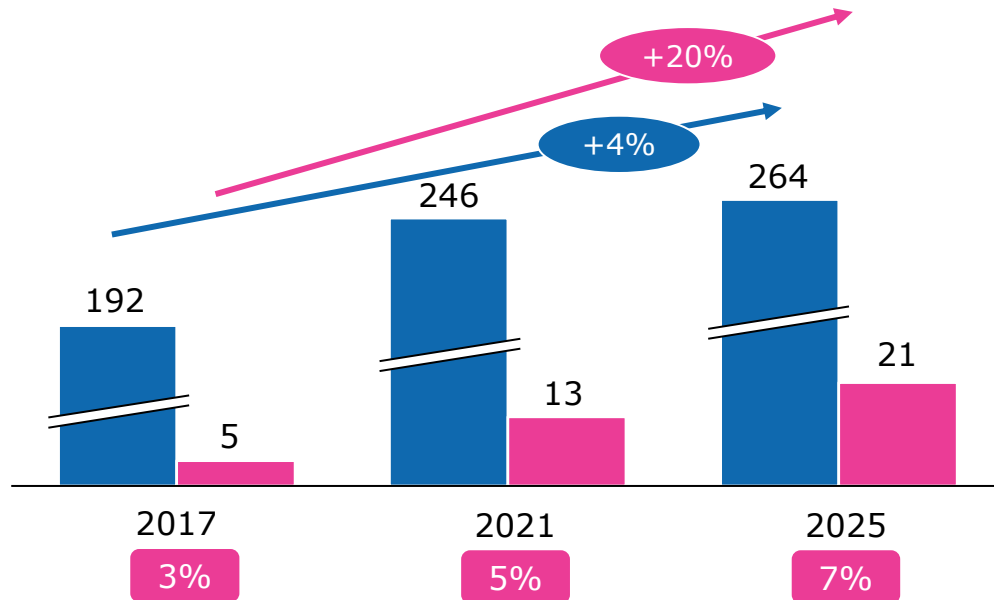


Electronics

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

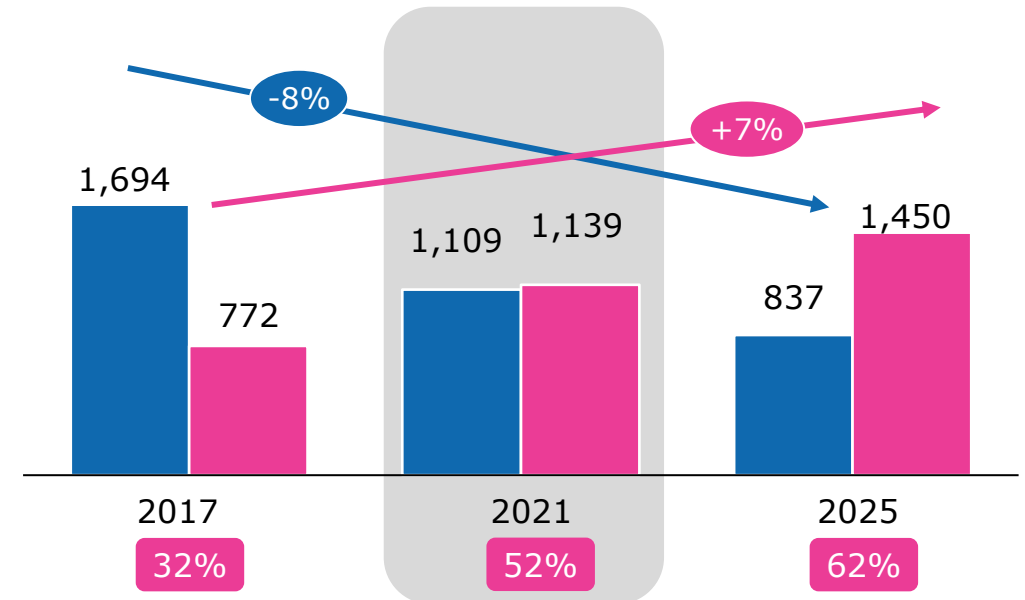
x% OLED shipment area / addressable material market [in % of total] Liquid Crystals OLED

Display shipment area¹
[km²]



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

Addressable material market²
[€m]



- **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**

¹Omdia; ²Internal 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



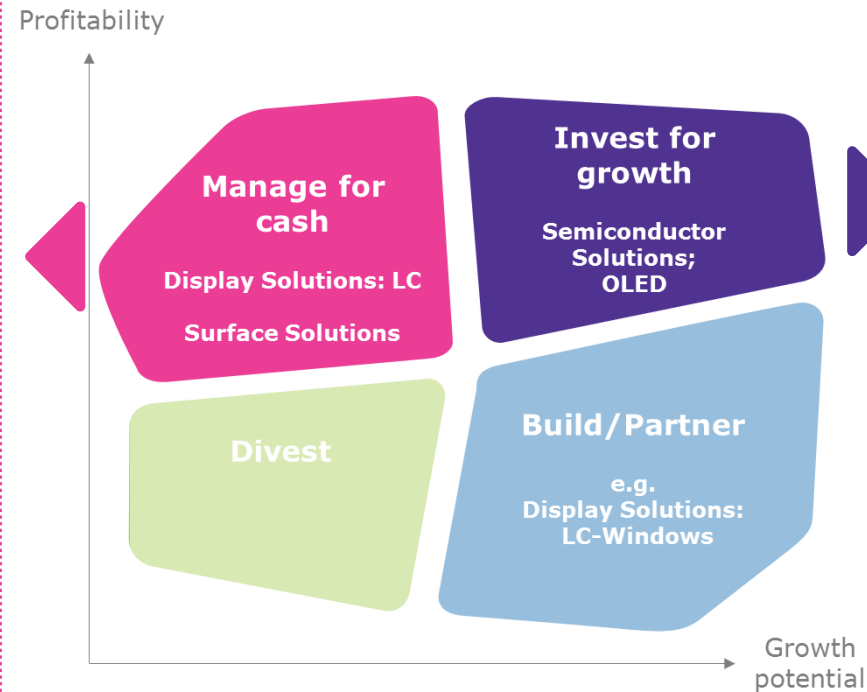
Chilworth

- 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**

INTERMOLECULAR®

- 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 Q2: Strong performance in Semi, recovery in Surface, and stabilizing Display Solutions drive double-digit organic sales growth

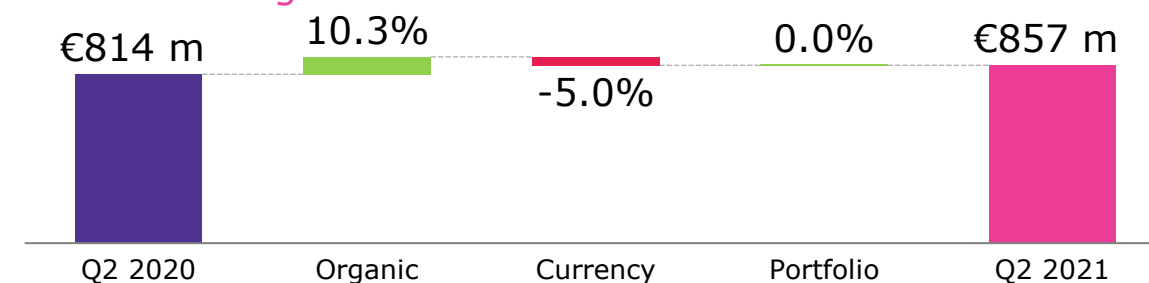
Electronics P&L

[€m]	IFRS		Pre	
	Q2 2020	Q2 2021	Q2 2020	Q2 2021
Net sales	814	857	814	857
M&S*	-134	-137	-131	-136
Admin	-44	-30	-36	-28
R&D	-68	-67	-69	-66
EBIT	-30	118	101	129
EBITDA	219	252	-	-
EBITDA pre	238	258	238	258
(in % of net sales)	29.3%	30.1%	29.3%	30.1%

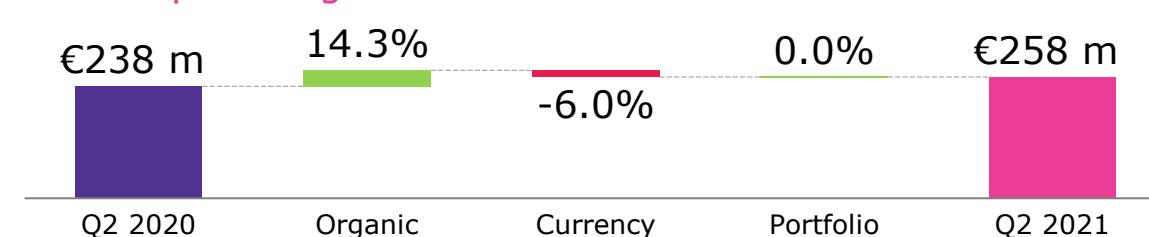
Comments

- Semiconductor Solutions: record quarter in terms of sales; 12% organic growth across all businesses with Semi Materials growing even faster than strong DS&S
- Display Solutions: down -1% organically as LC decline was nearly fully offset by growth in remaining portfolio primarily strong OLED
- Surface Solutions: delivers 41% organic growth over pandemic-impacted Q2 2020; visible recovery across all end markets
- M&S up 4%, largely driven by higher logistic costs, while admin and R&D are declining
- All P&L lines continue to reflect diligent cost management amid Bright Future transformation and Versum integration synergies
- EBITDA pre (+14% org.) continues to exceed sales growth, but burdened by -6% FX headwinds

Net sales bridge



EBITDA pre bridge



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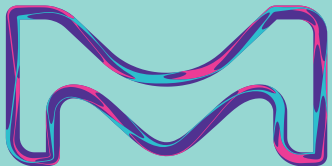


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