



*Science for a Better Life*

# ***A Global Leader in Health & Nutrition***

////////////////

## ***Investment Case***

*December 2023 / Bayer AG*



# Cautionary Statements Regarding Forward-Looking Information



**This presentation may contain forward-looking statements based on current assumptions and forecasts made by Bayer management**

Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are available on the Bayer website

► [WWW.BAYER.COM](https://www.bayer.com)



**The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments**



# Index



**Group  
overview**



**Crop Science**



**Pharmaceuticals**



**Consumer  
Health**



**Sustainability**

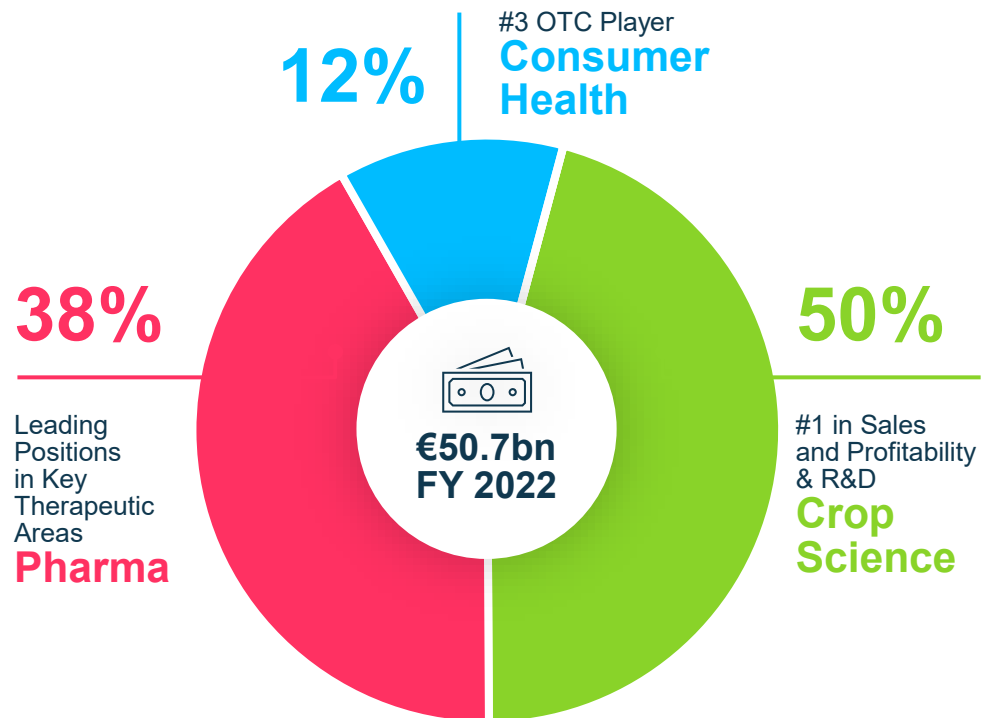




# Bayer: A Global Leader in Health and Nutrition

Well Positioned to Create Value in Growing Markets using Science to Address Societal Megatrends

## BAYER GROUP SALES



## MARKET SIZE

### CROP SCIENCE



2022 > €100bn<sup>1</sup>

2030 > €200bn<sup>1</sup>

### PHARMACEUTICALS



~ €1,400bn<sup>2</sup>

### CONSUMER HEALTH



~ €150bn<sup>3</sup>

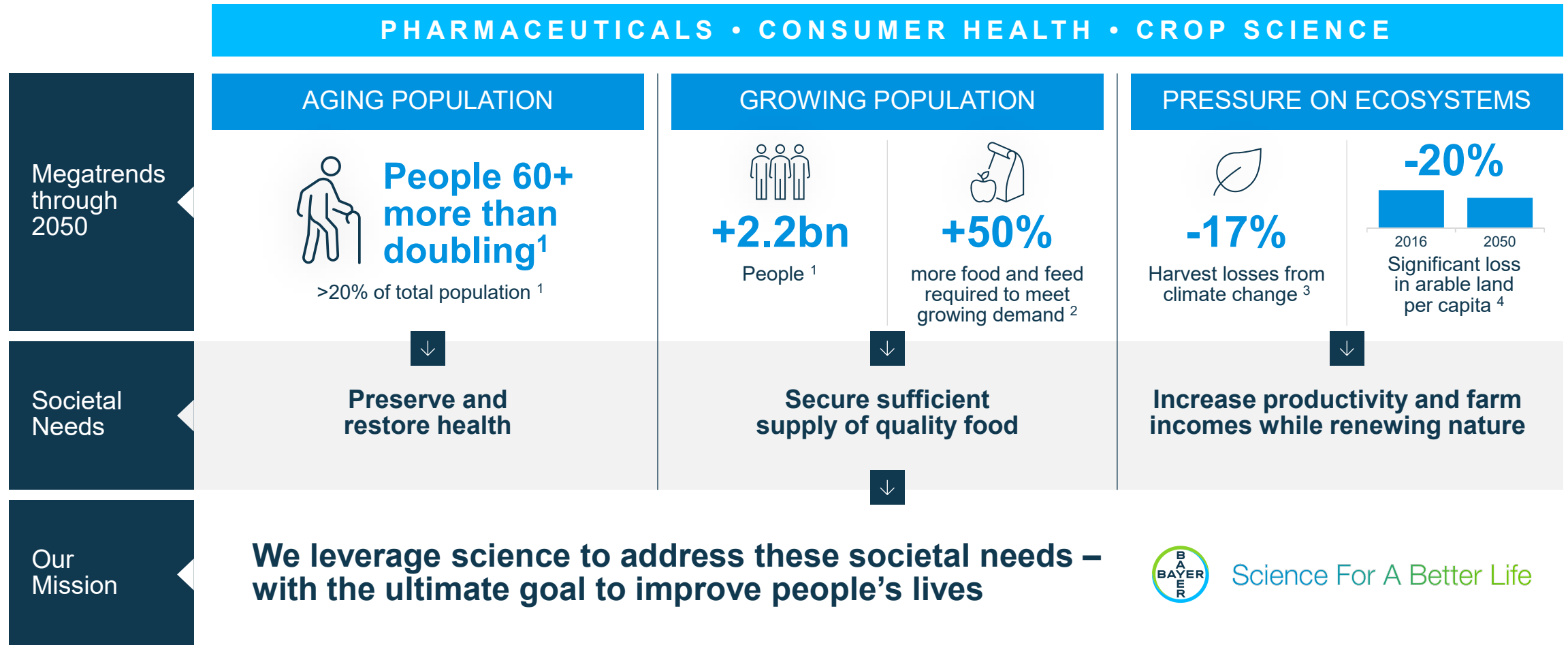
<sup>1</sup>Source: Company Estimates, >€200bn market opportunity by 2030 includes global Ag input market + related adjacencies

<sup>2</sup>Source: IQVIA Market Prognosis as of September 2022

<sup>3</sup>Source: Nicholas Hall

# Global Megatrends in Health & Nutrition

Attractive Macro Drivers of Our Strategy and Underpin the Need for Innovation



<sup>1</sup> UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)

<sup>2</sup> FAO 2017, (FAO Global Perspective Studies)

<sup>3</sup> Nelson et. al, (2014); FAO 2016 "Climate change and food security"

<sup>4</sup> FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data





# Leadership and Innovation

## Set the Course for Our Future Growth



### KEY GROWTH DRIVERS



**Long-term megatrend**  
tailwinds are propelling growing demand in the Life Sciences



**Number one position**  
in Ag inputs and leading positions in key Pharma and Consumer categories



**World-class innovation:**  
technological breakthroughs driven by the bio-revolution



**Accelerated transformation**  
and further efficiency gains in our operations



**Focus on sustainability**  
to create new value



### CROP SCIENCE INNOVATION PIPELINE

Annual R&D Investment:

€2.6bn<sup>1</sup>

Key Current Launch Products:

VT<sup>PRO</sup>4 SmartStax<sup>PRO</sup>  
PLATAFORMA INTACTA<sup>2</sup> X<sup>TEND</sup> FLEX<sup>SOYBEANS</sup>  
Fox Supra (Indiflin®)<sup>2</sup> Xivana<sup>®</sup>

#### Key Mid-/Late-Stage Pipeline Opportunities

- // Preceon Smart Corn System featuring Short Stature Corn
- // Soybean Herbicide Trait Stack with Five-Tolerances
- // New Herbicide Molecule
- // New Fungicide Molecules
- // Next Gen Corn Insect Traits (LEP4, 5, CRW4)

01



### PHARMACEUTICALS INNOVATION PIPELINE

Annual R&D Investment:

€3.4bn

Key Current Launch Products:

NUBEQA<sup>®</sup> (darolutamide)  
Kerendia<sup>®</sup> finerenone  
VITRAKVI<sup>®</sup> (vitraciclinib)  
Verquvo<sup>®</sup> (vericiguat) tablets

#### Key Mid-/Late-Stage Pipeline Opportunities

- Finerenone**
  - // Non-diabetic CKD
  - // Heart Failure
- Factor XI(a) portfolio**
  - // Thrombo-embolic diseases
- Elinzanetant (KaNDy NT-814)**
  - // Vasomotor symptoms during menopause

02

Note: Subject to regulatory approvals and pending registrations. Represents a subset of the pipeline; <sup>1</sup>R&D expenses exclude special items <sup>2</sup>In collaboration with Sumitomo

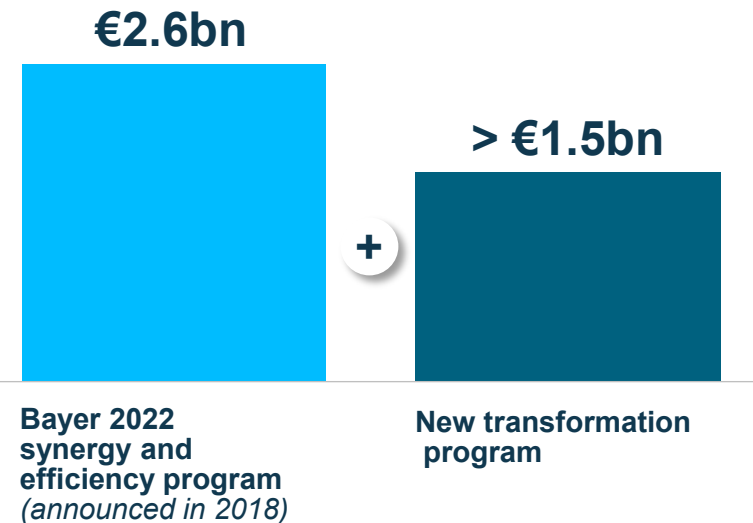
# New Transformation Program with Gross Contributions of >€1.5bn

Expect Partial Reinvestment to Drive New Opportunities; Remainder to Drive Margin Expansion



## Transformation Programs

GROSS CONTRIBUTIONS\*



## Delivery

### BAYER 2022 PROGRAM SUCCESSFULLY CONCLUDED

**We accelerate our transformation to become leaner and more agile**



- // Optimizing Divisions and Enabling Functions
- // Improving our go-to-market models
- // Strengthening our digital and data capabilities
- // Structural measures and optimization of external spend
- // Increasing resilience of supply chain

\* Gross contributions will be partially re-invested to fuel growth and are included in our guidance for 2022-24 Note: One-time costs in same magnitude as for Bayer 2022 (1.7x the total contribution)



# Focus on Cash Generation Embedded in Incentive Plans

Improvements Expected from Sales Growth, Working Capital & Divestments;  
Litigation Pay-outs and One-Time Costs for Transformation Mitigating Factors



## Improve free cash flow

**Optimize working capital focusing on overdue management, inventory and payables; prioritizing CapEx**



## Adapt incentive scheme

**Free Cash Flow integrated as a key performance metric** in our short-term incentive plan for all managerial employees



## Capital Employed / Divestments

**Optimization of fixed asset portfolio, for example, sale of property**

**Sale of businesses / brands** below division level (e.g. ES professional)



## Litigation pay-outs & special items

**Our Free Cash Flow is impacted** by litigation pay-outs and cash-effective one-time costs for transformation



# Disciplined Capital Allocation to Delever, Pay Dividends and Invest

Financial Strategy Directed Towards Regaining Long-Term “A” rating

## Capital Allocation Priorities



**Free Cash Flow**



**Divestment proceeds<sup>1</sup>**



**Deleveraging**



**Rating target:**  
A category



**Dividends**



**Pay-out range:**  
30-40% of cEPS

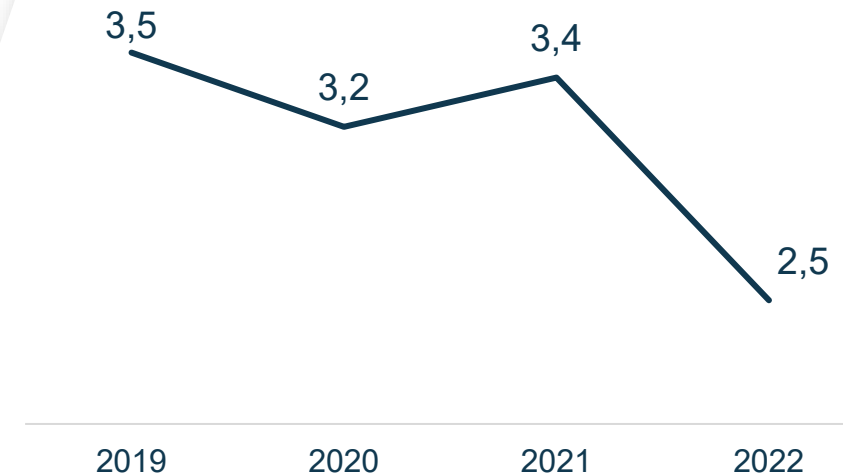


**External growth investments**



**Bolt-on M&A, Leaps**

## Development of Leverage\*

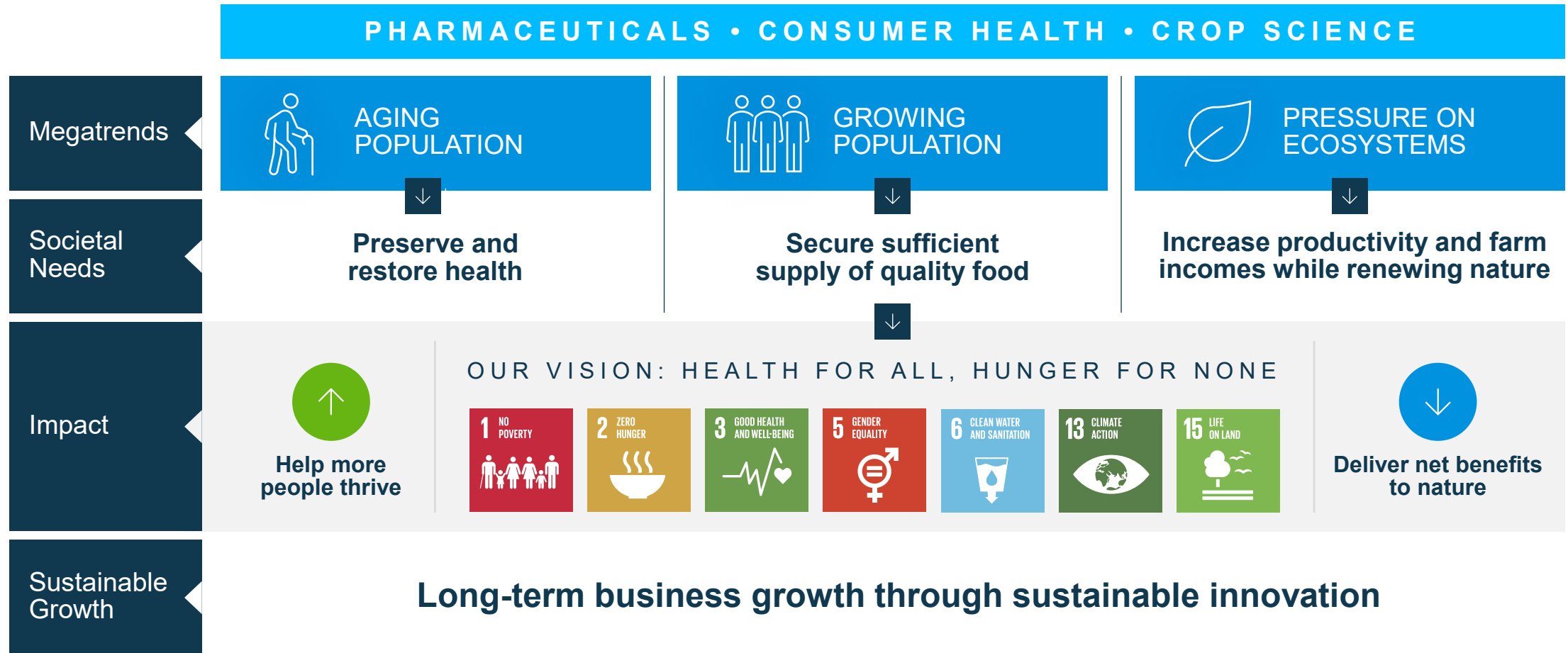


\* (Net Financial Debt + Pensions – 50% of Hybrid Volume) / reported EBITDA before special items



# Sustainability is Integral to Our Values, Strategy and Operations

We intend to create bold impact and generate sustainable business opportunities



# Investment Thesis

## Key Takeaways

01

We are a **global leader in Health & Nutrition** that addresses societal megatrends

02

We are **well-positioned** to shape **regenerative agriculture**

03

We expect to **translate innovation** into profitable **mid-term growth**

04

We expect to **improve our profitability** by **accelerating our transformation**

05

We have **disciplined capital allocation priorities**: delever, pay dividends and invest

06

We have **integrated sustainability** in our business **strategy** and **incentive systems**





Science for a Better Life

# Shaping the Future of Regenerative Agriculture



# 01

Investment Case  
December 2023 /  
Bayer AG





# Shaping the Future of Regenerative Agriculture



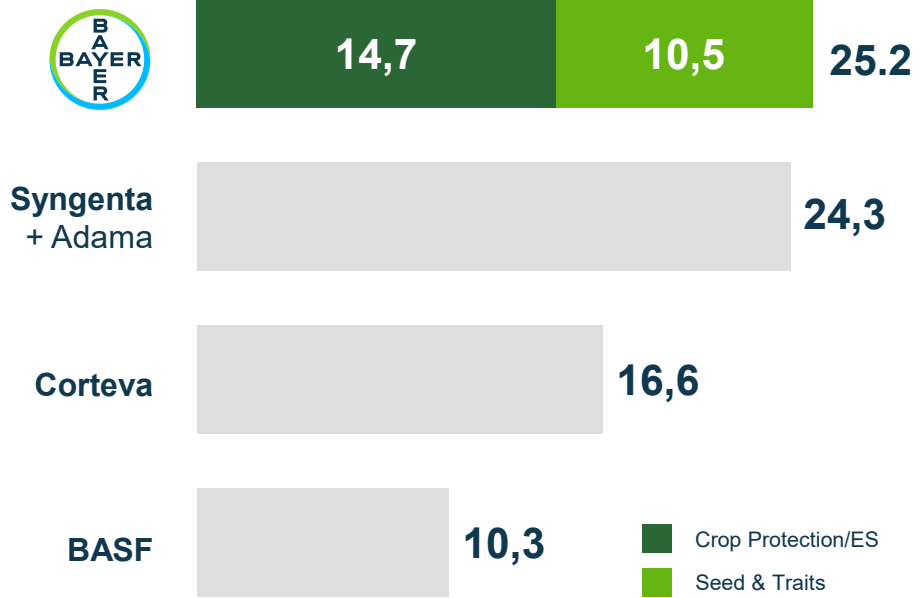
# The Established Leader in Crop Science

Industry Leading Profitability underpinned by ~€2.6bn in Annual Seed & Trait Licensing Revenue



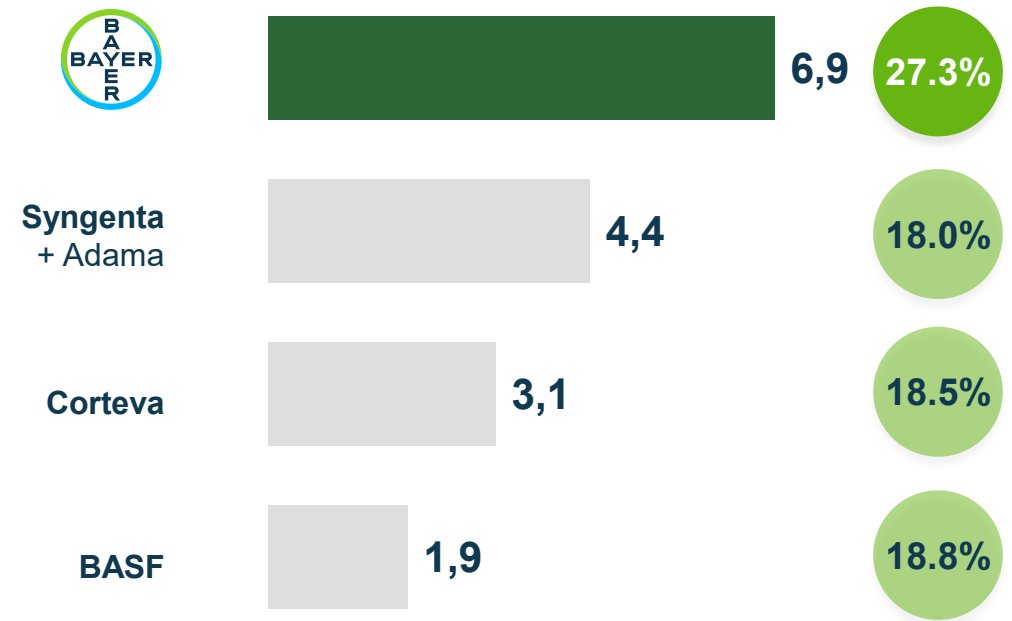
## Largest in Sales

Total Sales<sup>1</sup> (€bn), FY 2022



## Highest Profitability

EBITDA<sup>1</sup> (€bn) / EBITDA<sup>1</sup> Margin (%), FY 2022



<sup>1</sup> Company information; exchange rate: FY 2022 ~1.05 USD/EUR. EBITDA before special items; Representing the legacy Syngenta AG results plus Adama



01

# Growers Worldwide Recognize the Value We Deliver

#1 in Seed & Traits with Leading Crop Protection Portfolio in €100bn Global Ag Input Market



## Bayer Crop Science 2022 Sales (€25.2bn)<sup>1</sup>

### #1 Market Position

Corn Seed & Traits

Herbicides

Soybean Seed & Traits

### #2 Market Position

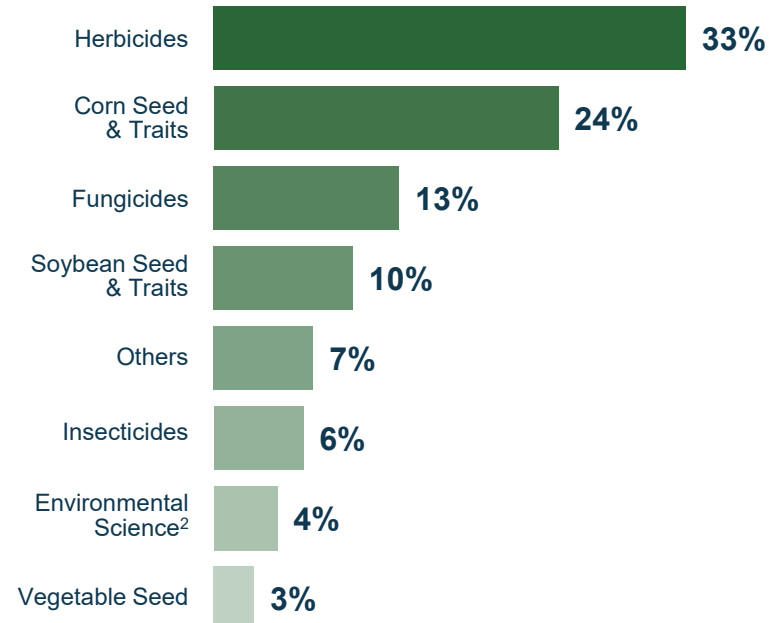
Fungicides

Vegetable Seed

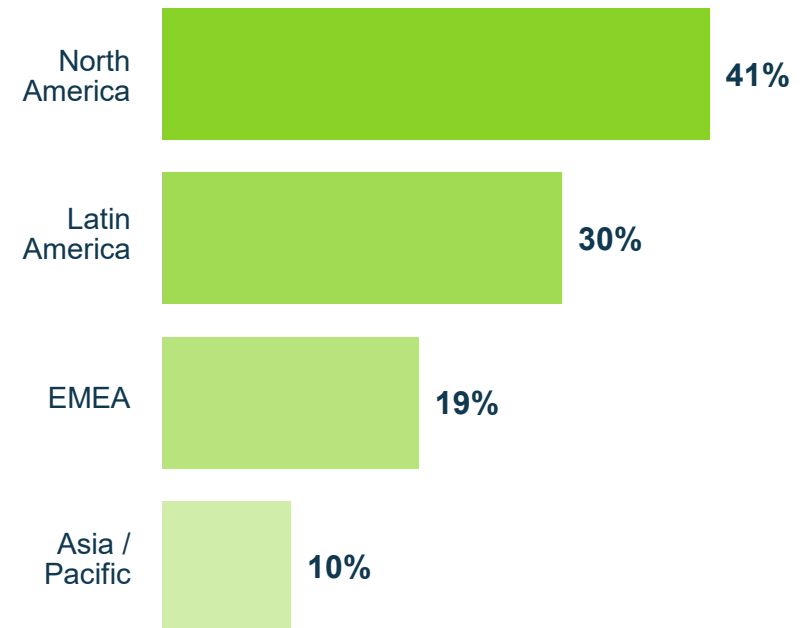
### #3 Market Position

Insecticides

#### SALES BY STRATEGIC BUSINESS ENTITY



#### SALES BY REGION



Note: Market Position determined annually, as of Q1-2023

<sup>1</sup> Company information; exchange rate: FY 2022: ~1.05 USD/EUR.

<sup>2</sup> Environmental Science Divestiture - October 2022



# Our Global Food Systems are Under Increasing Pressure

Demand for Sustainably Sourced Food and Renewable Fuels Never Greater



<sup>1</sup> UNDESA 2017 (United Nations Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision)

<sup>2</sup> FAO 2017, (FAO Global Perspective Studies)

<sup>3</sup> FAO, 2020 (Water Scarcity | UN-Water (unwater.org))

<sup>4</sup> UN-Water, 2021 (Water Scarcity | UN-Water (unwater.org))

<sup>5</sup> FAO Saving our soils by all earthly ways possible | FAO Stories | Food and Agriculture Organization of the United Nations

<sup>6</sup> FAOSTAT (accessed Oct 30, 2018) for 1961-2016 data on land, FAO 2012 for 2030 and 2050 data on land, and UNDEDA 2017: World Population Prospects for world population data

<sup>7</sup> Nelson et. al, (2014); FAO 2016 "Climate change and food security"



# Lead

with Regenerative Ag Solutions



# Win

by being more grower centric

## Our Strategic Priorities



02

01

**Maintain Leadership** positions in our core markets

02

**Shape Regenerative Ag** by investing to increase food production, farm incomes and resilience in a changing climate, while renewing nature

03

**Digitally Enable Our Sales** to offer full crop system solutions, creating an outstanding customer experience

04

**Invest** in innovation **to Win** in new markets





# More than Doubling Our Accessible Market by Driving Productivity and Sustainability Together to Unlock Adjacent Spaces

**>100bn<sup>1</sup> €**  
2022 Global Ag Input Market

**>200bn<sup>1</sup> €**  
2030 Global Ag Input Market & Related Adjacencies

Crop  
Protection

Seed and  
Traits



**>2x**  
opportunity

Precision  
Application

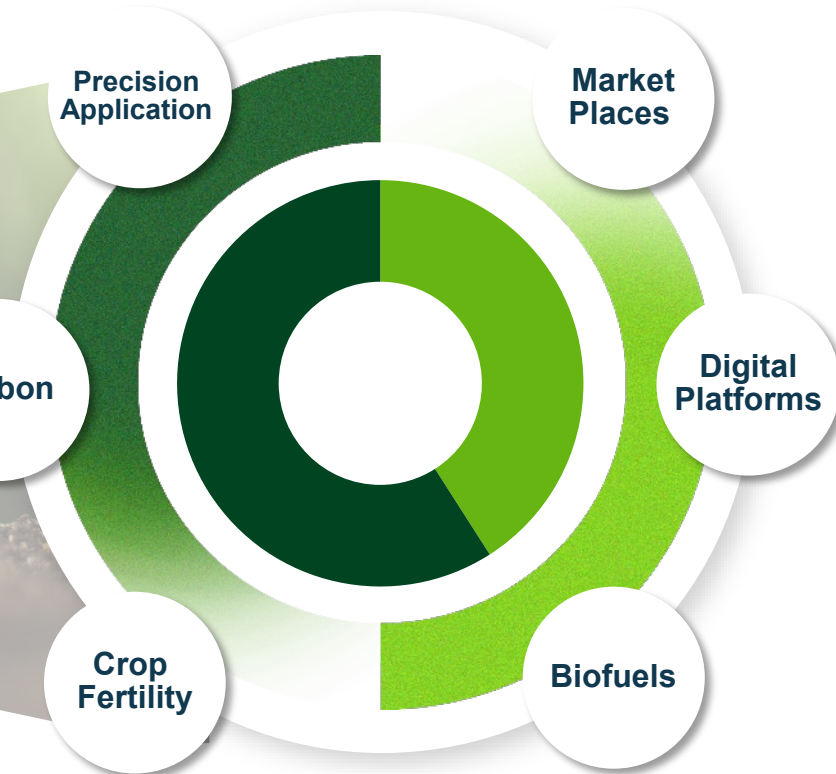
Market  
Places

Carbon

Digital  
Platforms

Crop  
Fertility

Biofuels



<sup>1</sup> Company estimates

# A Clear Operational Plan to Create New Value and Outperform the Market in the Mid-term

01

Deliver growth in **crop protection** sales through **new products, integrated offerings** and effective management of **glyphosate-based herbicide dynamics**

02

Grow **corn seed & traits** with annual **portfolio refresh** and **new insect traits**

03

Upgrade the Americas to **next-gen soybean trait technology**

04

Implement **new vegetable seeds strategy** and launch **new traits in cotton** to drive growth

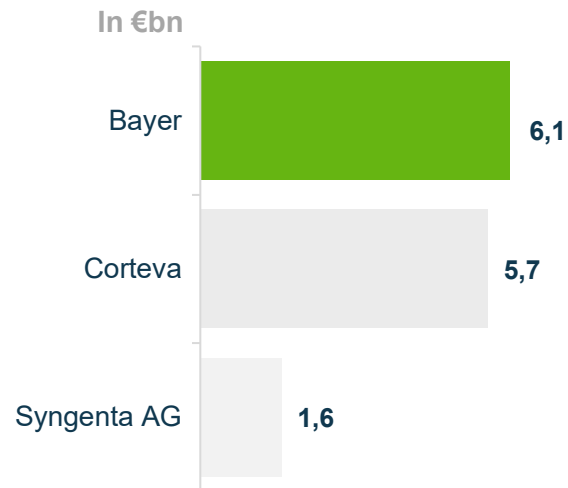
05

Execute **efficiency program** to reinvest in new opportunities and drive margin expansion

# #1 Position in Global Corn Seed & Traits

Expect to Widen the Gap with Corn S&T Pipeline with €11bn of Peak Sales Potential<sup>1</sup>

## 2022 Corn S&T Sales<sup>2</sup>



## Bayer 2022 Corn Seed Share<sup>3</sup>

		Seed Share & Position <sup>4</sup>		Trait Share <sup>5</sup>
	U.S.	>55%	#1	~85%
	Brazil	~35%	#1	~35%
	Argentina	~50%	#1	~50%
	Mexico	~75% <sup>4</sup>	#1	NA
	Europe	~20%	#2	NA
	South Africa	~75%	#1	~65%

## Key Seed Brands



## Key Corn Traits in Bayer Pipeline – Underpinned by Annual Launch of >250 New Hybrids Globally



<sup>1</sup> Expect ~50% of peak sales potential to be incremental and expect ~80% of the projects to reach peak by 2037; <sup>2</sup> Source: Bayer and Corteva as reported in FY 2022, exchange rate FY2022: ~1.05 USD/EUR, Syngenta based on Agbiolinvestor estimates; <sup>3</sup> Internal estimates; market position, seed (germplasm) share and trait share measured as of 2022 for U.S. and Europe and as of 22/23 season for Brazil, Argentina, Mexico and South Africa; <sup>4</sup> Includes the sum of branded plus licensed seed share in the respective countries/region; <sup>5</sup> Represents the percentage of corn acres planted in the country that contain at least one Bayer biotech trait



# Rollout of Most Advanced Corn Rootworm Control Trait Continues

CRW3: Industry's Only RNAi-Based Corn Rootworm Trait Launched in Brazil in VTPRO4 and in the U.S. in SmartStax PRO; Expected 2024 Launch in VT4PRO in U.S. as Additional Offering

LAUNCHED / / / / /

BRAZIL/ ARGENTINA 20/21

VTPRO4

2023/2024e: >15m acres



- **Most advanced technology** for control of insects in Brazil corn
- Two modes below-ground insect control, including **CRW3**, plus three modes above-ground insect control and glyphosate tolerance

SmartStax<sup>PRO</sup>  
With RNAi TECHNOLOGY

LAUNCHED U.S. 2022

2022: ~100k acres

2023e: >1m acres

Average Root  
Rating: 0.30

Location: Ireton,  
Iowa July 20, 2021

Average Root  
Rating: 1.20



- **SmartStax PRO with RNAi Technology** has less average corn rootworm damage in 100% of the trials vs. Corteva Qrome® products in 34 Bayer trials in medium to very high corn rootworm pressure environments<sup>1</sup>

- For each root node damaged by CRW larvae, a yield loss of ~15% can be expected.<sup>3</sup> Root injury score of **0.97 nodes** in a 200 bu/acre yield environment could result in **29 bu/acre yield loss**
- ~30m acres infested with CRW in the U.S.

VT4PRO<sup>™</sup>  
With RNAi TECHNOLOGY

VT4PRO with CRW3 expected 2024 launch in the US; additional offering with 5+ bu/ac advantage over Corteva Qrome products<sup>3</sup>

<sup>1</sup> Head-to-head comparisons across 34 Bayer trials in medium to very high corn rootworm pressure environments;

<sup>2</sup> Tinsley, N.A., Estes, R.E. and Gray, M.E. 2012. Validation of a nested error component model to estimate damage caused by corn rootworm larvae. Journal of Applied Entomology. DOI:10.1111/j.1439-0418.2012.01776.x

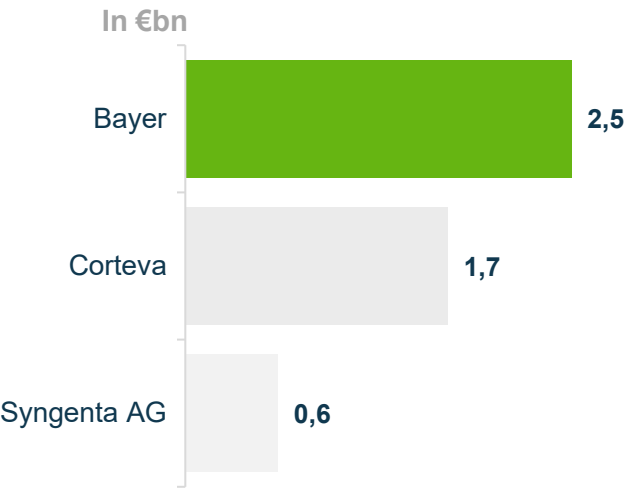
<sup>3</sup> Based on 2022 Bayer breeding data generated over 253 locations, 2838 comparisons of 2024 launch class of VT4PRO with RNAi technology vs. key commercial Qrome products within +/- 2 RM maturity range



# Global Soybean Seed & Trait Sales Leader

Upgrading the Americas with Recent XtendFlex and Intacta 2 Xtend Trait Launches

## 2022 Soybean S&T Sales<sup>1</sup>



## Bayer 2022 Soybean Seed & Trait Share<sup>2</sup>

		Seed Share & Position <sup>3</sup>		Trait Share <sup>4</sup>
	U.S.	>35%	#1	~50%
	Brazil	~15%	#2	>80%

## Key Seed Brands



## Key Soybean Traits in Bayer Pipeline – Underpinned by Annual Launch of ~150 New Varieties in the Americas



HT4 Soybeans  
3rd Gen Insect Protection Trait

HT5 Soybeans  
4th Gen Insect Protection Trait

2021

2025

2030

<sup>1</sup> Source: Bayer and Corteva as reported; Syngenta based on AgbiolInvestor estimates – exchange rate FY'2022: ~1.05 USD/EUR; <sup>2</sup> Internal estimates; market position and seed (germplasm) share measured as of 2022 for U.S (final market share and positions for 2023 to be reported at Q4'23, current estimate at ~45% trait share) and as of 22/23 season for Brazil; <sup>3</sup> Includes the sum of branded plus licensed seed share in the respective countries/region; <sup>4</sup> Represents the percentage of soybean acres planted in the country that contain at least one Bayer biotech trait.



# Leading North America Soybean Performance Driven by XtendFlex Technology and XtendiMax Herbicide



03

Upgrade to >20m XtendFlex Acres in North America in 2022

# #1

In North America  
soybean performance<sup>1</sup>



Only technology that includes **14-days residual activity**;  
Controls significantly more weeds than the Enlist system<sup>2</sup>

ROUNDUP READY 2  
**XTEND**  
SOYBEANS

- > Provides tolerance to dicamba and glyphosate
- > **Recommended Herbicide Pairings:**



- > Proven performance, high-yield potential, strong agronomics
- > Broadly licensed across the industry

**XTENDFLEX**  
SOYBEANS

- > Adds glufosinate tolerance to the proven performance of Roundup Ready 2 Xtend Technology to provide additional flexibility to manage tough-to-control weeds
- > **Recommended Herbicide Pairings:**



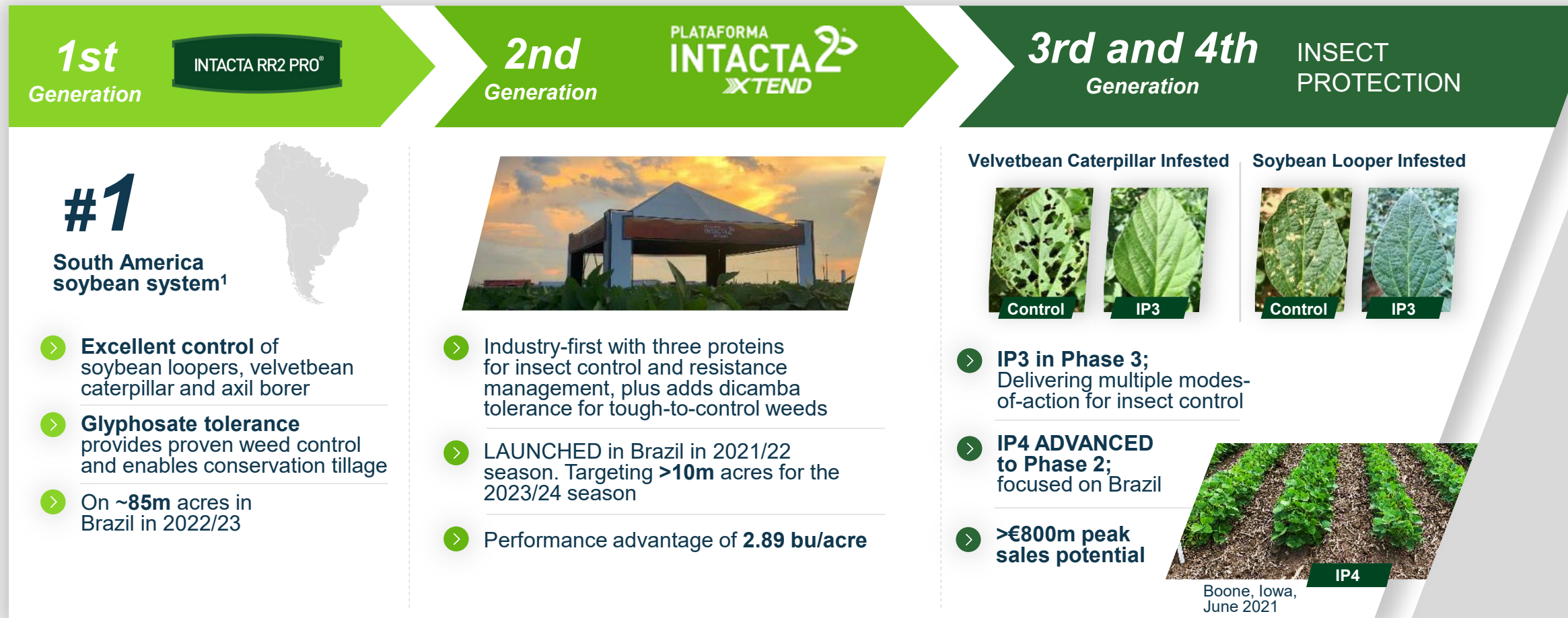
- > Reached **>20m** acres in the U.S. in 2022
- > Over the last 4 years, **RR2Xtend & XtendFlex** soybeans saw a **2.9+bu/acre** advantage vs. Enlist™ E3 soybeans

<sup>1</sup> Bayer internal estimates; <sup>2</sup> Based on EPA labels of the chemistries; <sup>3</sup> Soybean Crop Trials (184 locations with 20 in 2019 (Roundup Ready® 2 Xtend), 57 in 2020 (Roundup Ready® 2 Xtend), 67 in 2021 (XtendFlex® Soybeans) and 40 in 2022 (XtendFlex® Soybeans) reporting data located with 22-IA, 24-IL, 23-IN, 11-KS, 1-KY, 7-MI, 30-MN, 10-MO, 1-MS, 5-ND, 17-NE, 15-OH, 1-OK, 11-SD, 4-PA and 2-WI, ). Significant at P ≤ 0.10 LSD at 0.6 Bu/A as of 12/13/2022. Roundup Ready® Xtend Crop data = XtendFlex® soybeans with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include dicamba, glyphosate, glufosinate and various residual herbicides. Enlist™ Weed Control System data = Enlist E<sup>3</sup> soybeans with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include glyphosate, Enlist One® herbicide, Liberty® 280 SL herbicide and various residual herbicides.



# Next-Gen Intacta Traits to Expand Leading Soybean Franchise

Intacta 2 Xtend Successfully Launched; IP3 and IP4 in Pipeline to Deliver >€800m peak sales potential





# Next-Generation Traits Further Enhance Cotton Productivity

Driving Sustainability and Profitability in our >€600m Cotton S&T Business<sup>1</sup>

Scott, Mississippi, U.S. | Sep. 27, 2021



## Global Leader in Cotton Seeds and Traits

 U.S. Germplasm Share of Market: **>60%**

Trait Share of Market:  U.S. **~70%** |  Brazil **>40%** |  Australia **100%**

## Next Generation Cotton Trait Technologies



Building on Bollgard 3 XtendFlex Technology with 2023 commercial **launch of ThryvOn Technology**



### Phase 3:

- > **4<sup>th</sup> gen herbicide tolerance**, adding HPPD and PPO tolerance to XtendFlex
- > **4<sup>th</sup> gen Bollgard 4 cotton** also in **Phase 3**, offering multiple modes of action to control lepidopteran insects

<sup>1</sup> 2022 cotton seed & trait sales for Bayer Crop Science; shares measured as of 2022 for U.S and as of 22/23 season for Brazil and Australia ThryvOn™ Technology has received full approval for planting in the United States but, as of the date this material was published, is pending approval in certain export markets. Specific plans for commercialization depend upon regulatory approvals and other factors.



# Vegetable Seed Business on Path to Regain #1 Position



*Driving Vegetable Seed Profitability and Growth*



- Expect above market growth across all **four customer segments**: protected, smallholder, open field and processing
- Deployed >90 new varieties in 2022; sell **~2,000 vegetable hybrids** and varieties in **22 crops** across **110 countries**
- Developing innovative varieties **to drive more sustainable and regenerative food systems** and increase access to essential nutrients
- Portfolio well positioned to deliver on expanding markets in **EMEA** and **APAC**
- Focused on value creation by driving customer operations & innovation excellence
- Partnering across the value chain to deliver products for sustainability & consumer value

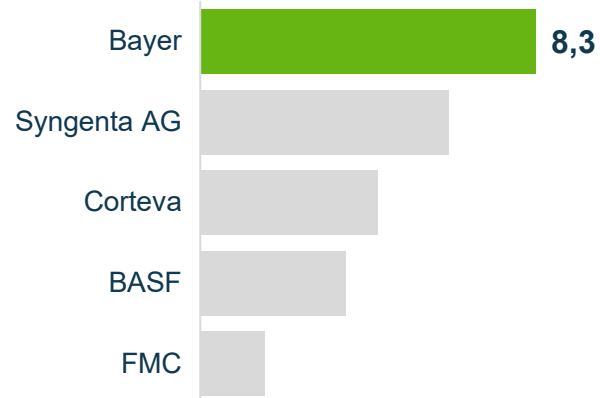


# Leading Positions in Global Crop Protection

Driving >€13bn in Sales in 2022

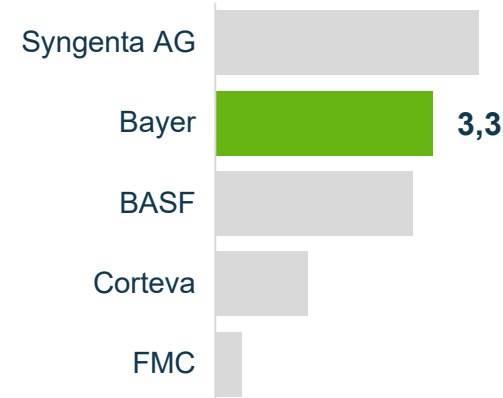
## > 2022 Herbicides Sales<sup>1</sup>

In €bn



## > 2022 Fungicides Sales<sup>1</sup>

In €bn



## > 2022 Insecticides Sales<sup>1</sup>

In €bn

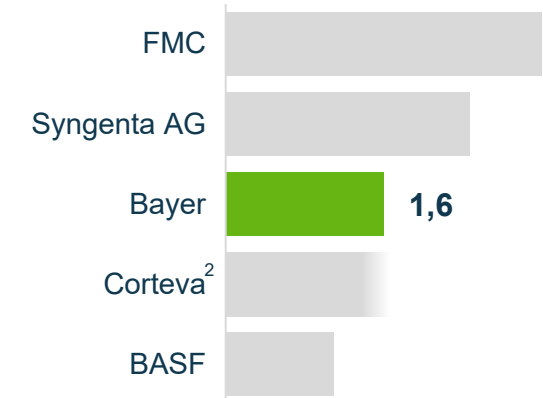


Chart shows comparison to strategic peer group

<sup>1</sup> Source: Company reporting, exchange rate FY2022: ~1.05 USD/EUR

<sup>2</sup> Corteva Insecticides sales exclude non-crop business, internal estimates

# Bringing New Crop Protection Innovation to Market

Launched Two New Actives, 10 New Formulations and >250 Registrations in 2022

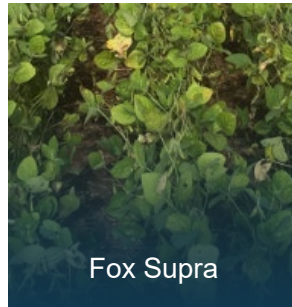
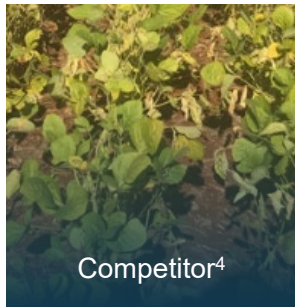
## Industry Leading Crop Protection Development...

15 new AIs launched in the past 15 years;  
9 advancing, including 2 launches, in 2022

**Fox Supra**

- Includes next-gen technology **Indiflin®<sup>1</sup>**, with Prothioconazole
- Offers **unrivalled control** of Asian Soybean Rust
- Builds on **#1 position** in soybean fungicides<sup>2</sup> in LATAM

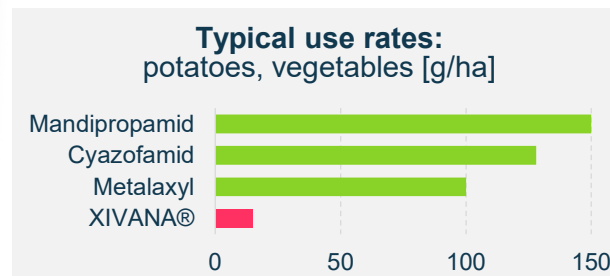
**PSP of Fox Family<sup>3</sup> ~€850m**  
*Pre-launched in 2022 in Brazil & Paraguay*



**Xivana**

- Powered by **Fluoxapiprolin**
- New horticulture fungicide; delivers outstanding protection of grapes – to expand to potatoes and vegetables
- High, **long-lasting efficacy**

**PSP of >€200m**  
*Launched in 2022 in Australia (grapes)*

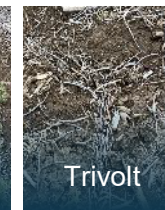


## ... drives our Life Cycle Management

10 new formulations launched in 2022

**TriVolt**

- Pre-emergence selective corn herbicide for U.S.
- Launched in 2022**
- Contains 3 AIs: Thiencazabone, Flufenacet and Isoxaflutole to provide overlapping residual control of key broadleaf weeds and grasses



**Mateno Complete**

- Includes Aclonifen, a new herbicide mode of action for Australia
- Launched in 2022**
- Suitable for use in wheat and barley for hard-to-control grass and broadleaf weeds



Fox products also sold under Cipton brand name in other markets; <sup>1</sup> In collaboration with Sumitomo; <sup>2</sup> Internal estimates; <sup>3</sup> for soybeans in LATAM; <sup>4</sup> BASF Orkestra Ultra; PSP = Peak Sales Potential

# Building on the Leading Portfolio of Biological Solutions to Meet Growing Market Needs



The power of nature.  
Empowered by science.

## Biocontrols

## Biostimulants

### Insecticides

### Fungicides

### SeedGrowth/Soil

### SeedGrowth

### Crop Performance Enhancers

**In-licensed /  
Commercial  
Products**



Table shows selected examples only



Integral Pro<sup>3</sup>  
Poncho Votivo<sup>3</sup>



B-360<sup>2</sup>  
TagTeam<sup>4</sup>  
Nitragin Gold<sup>4</sup>  
Optimize<sup>4</sup>



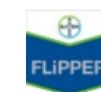
## Leading Position

## Select Key Product Offerings

- > Bayer is the **#1 Trusted Brand** in Biologicals by Growers<sup>5</sup>
- > Delivering **~€200m in annual sales** in 2022
- > Offering **>20 commercial products**



- > **Acceleron portfolio** offers advanced seed treatment solution in the industry (for corn, soybean and cotton)
- > **Designed to complement, protect, and enhance seeds including Bayer's DEKALB corn commercial hybrids from the outset** (exclusive combinations of seed treatments merging chemical and biological products)



### Biological Insecticide

- > **Natural product** containing fatty acids derived from a by-product of extra virgin olive oil
- > Consistent broad-spectrum activity across multiple fruit and vegetable crops and pests
- > **In-licensed from AlphaBio Control**

<sup>1</sup> In-licensed from Total Energies; <sup>2</sup> Also sold under BioRise and Torque brand names; <sup>3</sup> 3rd party product from BASF; <sup>4</sup> In-licensed from Novozymes; <sup>5</sup> 75-100 growers polled in each of seven countries (Europe, Brazil, US) for potato, tomato and grapes, Bayer Market Research 2020



# Serenade Soil Activ Tailored for Soil and Crop Health

Accelerate Growth in Emerging Global Soil Application Market Across Fruits & Vegetables



NEW Serenade Soil Activ propelling Serenade brands to >€170m peak net sales in next 10 years

**Serenade brand family:** the biological active *bacillus amyloliquefaciens strain QST 713* delivers solutions in emerging soil treatment and expanding bacterial disease markets:

- > **Serenade ASO** offers QST 713's combination of several modes of action to help **control foliar bacterial and fungal diseases while reducing residues**
- > **NEW Serenade Soil Activ** with its higher concentration of QST 713 spores provides farmers handling efficiency with low use rates and less water consumption
  - > The concentrated QST 713 spores, applied in furrow or via drip, can speed up root formation and uptake of nutrients, raising marketable qualities (skin, shelf life, nutrient content)
  - > Launched in U.S., Canada & Australia, sales in all global regions expected with coming registrations



Higher proportion of big potatoes



~10% more premium class potatoes



Better skin finish, improved uniformity



Lower use of water/ac



**Sustainably increases marketable yield with spores** optimized for improved root colonization

SERENADE SOIL ACTIV



UNTREATED



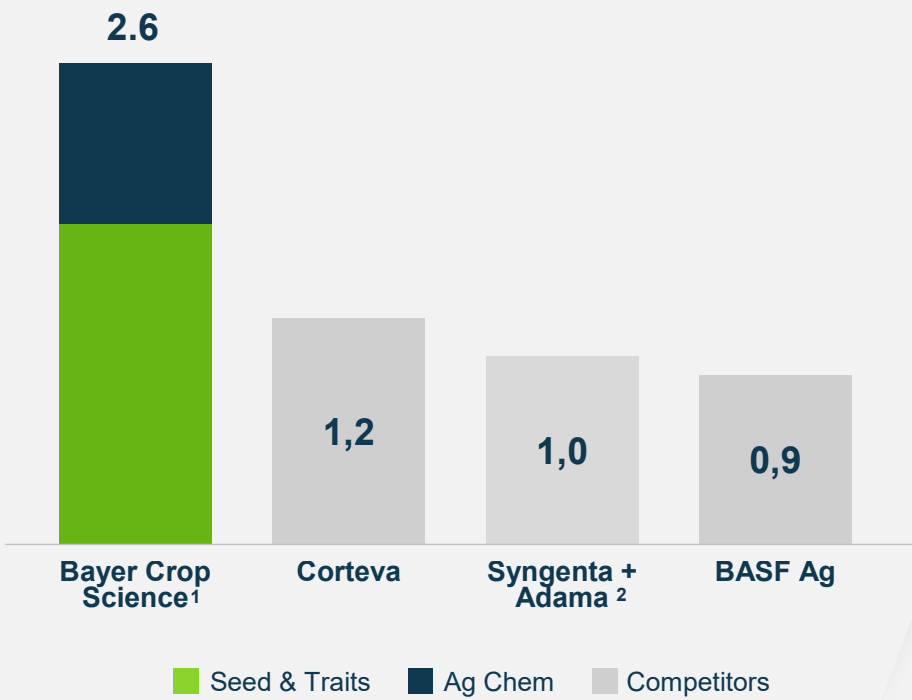




# Building the Farm of the Future with €2.6bn Annual R&D Investment

## 2022 Ag R&D Investment

In €bn



## Top Talent:

**>7,700**  
R&D employees<sup>3</sup>

**>100**  
Key Collaborations

## Providing Next Generation Solutions:

**>500**  
Hybrids & Varieties  
Deployed in '22

**12**  
New Biotech Traits in  
Development

**>250**  
New Crop Protection  
Registrations in '22

**30-60**  
New Molecules in  
Field Trials Annually

2022 reported results, exchange rate: FY 2022: ~1.05 USD/EUR; <sup>1</sup> Bayer R&D expenses exclude special items; <sup>2</sup> Represents the legacy Syngenta results plus Adama for FY'22; <sup>3</sup> Per Bayer annual report

# R&D Investment Powers Pipeline with >€30bn Peak Sales Potential

~50% of Peak Sales Incremental to Current Annual Sales

## Other SBE<sup>2</sup>

- › Hybrid Wheat, ~€700m
- › Digital Platforms, HortiView
- › 100's of cotton varieties, 1000's of vegetable varieties/hybrids, canola hybrids and rice hybrids

## Insecticides

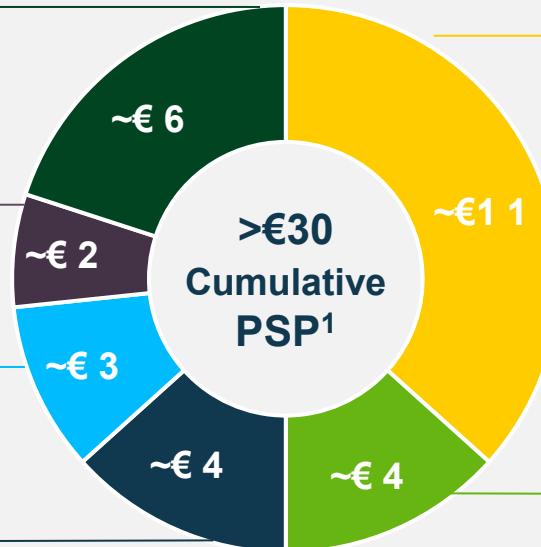
- › Plenexos Insecticide, ~€500m
- › Various LCM projects (formulations and mixtures)
- › Digital Farming Solutions Franchise Value

## Fungicides

- › Next generation Fungicide Small Molecules, >€1.2bn
- › Various LCM projects (formulations and mixtures)
- › Digital Farming Solutions Franchise Value

## Herbicides

- › New Herbicide Small Molecule, >€750m
- › Various LCM projects (formulations and mixtures)
- › Digital Farming Solutions Franchise Value



by Sales Reporting SBE

## Corn S&T

- › Preceon Smart Corn System, >€1.5bn globally
- › Next Gen Corn Insect Traits (LEP4, 5, CRW4), >€1bn
- › 5<sup>th</sup> Generation Herbicide Tolerance in Corn
- › 1000's of new corn hybrids
- › Digital Farming Solutions Franchise Value

## Soy S&T

- › 4<sup>th</sup> and 5<sup>th</sup> Gen Herbicide Tolerance Trait in Soybeans, >€1bn
- › 3<sup>rd</sup> and 4<sup>th</sup> Gen Insect Protection Trait in Soybeans, >€800m
- › 1000's of new soybean varieties
- › Digital Farming Solutions Franchise Value

## Upside Opportunities:

- › Direct Seeded Rice
- › Corn Biotech Traits in new markets in Asia & Africa
- › New Herbicide Small Molecule, over-the-top label
- › Carbon Farming
- › ~€1.5bn Biologicals Sales Ambition

Phasing of €30bn PSP<sup>1</sup>: 30% by 2032, 80% by 2037

<sup>1</sup> Represents non-risk adjusted estimated peak sales for the combined breeding, biotech, crop protection and environmental science pipelines, as well as new business models and new value areas. Note that products are excluded from the pipeline PSP typically the year following launch. Projects listed are only a subset of the pipeline.

SBE = Strategic Business Entity; LCM = Life Cycle Management; PSP = Peak sales potential

<sup>2</sup> "Other SBE" category includes seeds and traits, such as cotton, canola, wheat, OSR, rice, vegetable seeds and sugarbeets, plus digital platforms

# Convergence of Leading R&D Platforms to Unlock Next Layer of Value Creation in Agriculture

SEEDS & TRAITS		CROP PROTECTION		DIGITAL FARMING
BREEDING	BIOTECH	CHEMISTRY	BIOLOGICALS	DATA SCIENCE
<p>&gt; <b>Leading germplasm libraries</b> paired with advanced breeding and data science technology application</p> <p><b>&gt;3,500</b> unique field-testing locations</p> <p><b>&gt;500</b> deployments in 2022:</p> <ul style="list-style-type: none"> <li>&gt;250 in corn</li> <li>~150 in soybeans</li> <li>&gt;90 in vegetables</li> <li>&gt;10 in cotton</li> </ul>	<p>&gt; Leading protein optimization technology with extensive protein libraries</p> <p>&gt; First-ever biotech trait for piercing and sucking insect protection</p> <p><b>&gt;65</b> traits products in 27 years – reaching ~300m acres annually</p> <p><b>~3bn</b> datapoints generated by Precision Genomics team to deliver biotech traits and accelerate genetic gain</p> <p><b>12</b> next-gen. traits in development</p>	<p>&gt; <b>Strong discovery platform</b> for molecules with new modes-of-action and differentiated profiles</p> <p><b>100%</b> Novel Mode of Action in early discovery</p> <p><b>30-60</b> molecules selected for field trials per year</p> <p>Expect <b>~90-100</b> new formulations to launch in the next decade</p> <p>Launched <b>15</b> new actives in past 15 years</p>	<p>&gt; <b>Open Innovation Model</b> to deliver innovative and sustainable solutions to growers</p> <p><b>&gt;40</b> assets under evaluation for new collaborations or in-licensing</p> <p><b>&gt;1,300 trials</b> in 46 countries in 2022</p> <p><b>2</b> Multi-year strategic partnerships with Ginkgo Bioworks and Kimatec</p> <p><b>&gt;60m</b> acres in row crops, plus additional high value horticulture and vegetables acres</p>	<p>&gt; <b>#1 database</b> of grower and field trial seed performance data in the industry</p> <p><b>&gt;115bn</b> data points of product performance under real-world farmer management practices</p> <p><b>&gt;220m</b> subscribed acres across 23 countries</p>

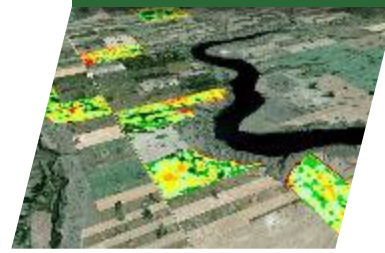
# Data Connected Plant Breeding Advantage



## Breeding Product Development Process (8-10 years)



Data & analytics driving decisions & AI connected pipeline - enabling a dynamic breeding pipeline



Fieldview Field Health Imagery Data Collection



Seed Chipping Technology for accelerated discovery



Marana, AZ Protected Culture Design Center



Cassette Planter delivers large scale field testing



Drone Sensors; globally connected data ecosystem



Seed Bulk-Up for Pre-Launch testing

### Customer Insights

**Data & Insights**  
Customer driven quantitative economic indices

### Discovery

**Population Selection**  
Population simulation and human supervised, model driven selection for desired characteristics

### Phase One

**Early Design**  
Advanced genomic selection including future environmental challenges

### Phase Two

**Intermediate Development**  
Large-Scale Field Testing, Trait Integration and prescriptive data collection to inform models and feed pipeline

### Phase Three

**Advanced Product Understanding**  
Traited Testing, Early Tailored Solutions data generation, and preparation of digital data package for Climate models

### Phase Four

**Pre-Launch**  
Broad product testing by R&D and Market Development, Seed Bulk-Up, System Testing and Pre-Marketing

## Competitive Advantages

- › Extensive environmental and on-farm data driving targeted discovery
- › Unique data-driven bio-economic models that allow precise fitting of product concepts

- › Industry-leading global germplasm libraries across crops and markets- 100X larger
- › Decades of field and genomic data combined with industries leading data science platform

- › Ability to rapidly sample and genetically evaluate millions of seeds- 15X faster
- › Advanced Product Design facilities that enable multiple cycles of planting per year

- › Industry leading Trait Integration programs stack traits into elite germplasm
- › Largest global field-testing footprint & digital field-testing twin capabilities diversifies geographic data insights

- › Fully automated seed distribution centers prescriptively sample diverse growing environment
- › Traited-Testing evaluates products as they would be experienced by the growers

- › Most advanced and distributed network of field testing in the industry
- › Evaluation of agronomic systems for product deployment & customer recommendations



# Deploying >250 Corn Hybrids in 2022 to Expand Leading Position

Foundational to Expected Growth in Our >€6bn Global Annual Corn Seed & Trait Sales

## Extensive Corn Germplasm Delivers



- > **>100m** acres of Bayer Corn Germplasm grown in 2022
- > Deployed **>250** new hybrids globally in 2022; offer **>1,500** hybrids globally
- > **>7 bu/acre U.S. yield advantage** with leading hybrids in like-for-like trait package hybrid comparisons<sup>1</sup>
- > **Best NCGA Yield Performer<sup>2</sup>** in 2022, winning **>70% of the ~National Spots**, with 20 of the 27 spots from Bayer germplasm



## Key Seed Brands



<sup>1</sup> Annual yield advantage calculated each year by comparing 3 leading DEKALB products within each state having a minimum of 100 comparisons to national competitor products containing similar crop protection traits as of 2022. All comparisons are head-to-head using +/- 2RMs and weighted average calculated using 15% moisture; <sup>2</sup> NCGA = National Corn Growers Association – National Corn Yield Contest.

# Soybeans, Cotton and Vegetable Seed Businesses Annual Germplasm Refresh to Drive Sales Growth



## Soybeans



- Deployed **~150** new varieties in 2022; offer **>850** varieties in North America
- Over last 4 years, RR2Xtend & Xtend Flex Soybeans saw a **2.9 bu/acre advantage<sup>1</sup>** over Enlist™ E3 Soybeans



## Cotton



- Deployed **>10 varieties** in 2022; offer **>30 Deltapine varieties in the U.S.**
- U.S. lint/acre yield advantage with leading varieties; 2022 was **~70 lbs/ac advantage for Deltapine<sup>2</sup>** vs. top-planted competitor varieties



## Vegetables



- Deployed **>90** varieties in 2022; sell **~2,000 vegetable hybrids** and varieties in **22 crops** across **110 countries**
- Innovative varieties of fruits and vegetables can **help develop more sustainable and regenerative food systems** and increase access to essential nutrients

<sup>1</sup> Soy Trials: (184 locations with 20 in 2019 (Roundup Ready® 2 Xtend), 57 in 2020 (Roundup Ready® 2 Xtend), 67 in 2021 (XtendFlex® Soybeans) and 40 in 2022 (XtendFlex® Soybeans) reporting data located with 22-IA, 24-IL, 23-IN, 11-KS, 1-KY, 7-MI, 30-MN, 10-MO, 1-MS, 5-ND, 17-NE, 15-OH, 1-OK, 11-SD, 4-PA and 2-WI, ). Significant at  $P \leq 0.10$  LSD at 0.6 Bu/A as of 12/13/2022. Roundup Ready 2 Xtend or XtendFlex® soybeans planted with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include dicamba, glyphosate, glufosinate and various residual herbicides. Enlist E3® soybeans planted with a farmer-selected (or in case of Bayer Trials, Bayer-selected) weed control program that may include glyphosate, Enlist One® herbicide, Liberty® 280 SL herbicide and various residual herbicides; <sup>2</sup> Cotton 3-year average: 2600 trials comparing top DP varieties within a region vs. the top 3 planted competitors based on market survey data (Kynetec).

# Hybrid Wheat: New Production System for the World's Largest Crop

Potential to Shape Transformation of Wheat Production by End of the Decade

## Resilient Hybrid Wheat System

- Hybrid wheat expected to provide **higher yield** and **yield stability**, with potential fit on a significant portion of the **~555m acres of wheat** grown globally and **~€700m PSP**
- Envision a **more sustainable and resilient system** with better nitrogen use efficiency, disease, drought and heat tolerance
- Advancements in **genomic tools** and the **cytoplasmic male sterility system** are enabling the development of hybrid wheat at competitive cost
- 'Blue ocean' market potential to drive value of market for Wheat seed and technologies, which has already happened in crops like corn



Hybrid Wheat Row Configuration Testing  
Nampa, Idaho | June 2022



Hybrid Wheat Nursery  
Filer, Idaho | June 2022

## Market Leaders in Hybrid Wheat

**Different climatic zones** in key regions Europe and North America require **distinct approaches**:

### Europe

- In 2021, we launched a **strategic R&D partnership with RAGT**, the European market leader in varietal wheat, leveraging strong complementarity of partners:
  - RAGT**: Best-in-class germplasm and rich portfolio of native traits
  - Bayer**: Wide array of R&D assets, seed production know-how; leader in CP

### US

- Hybrid wheat program based on our leading U.S. WestBred germplasm position



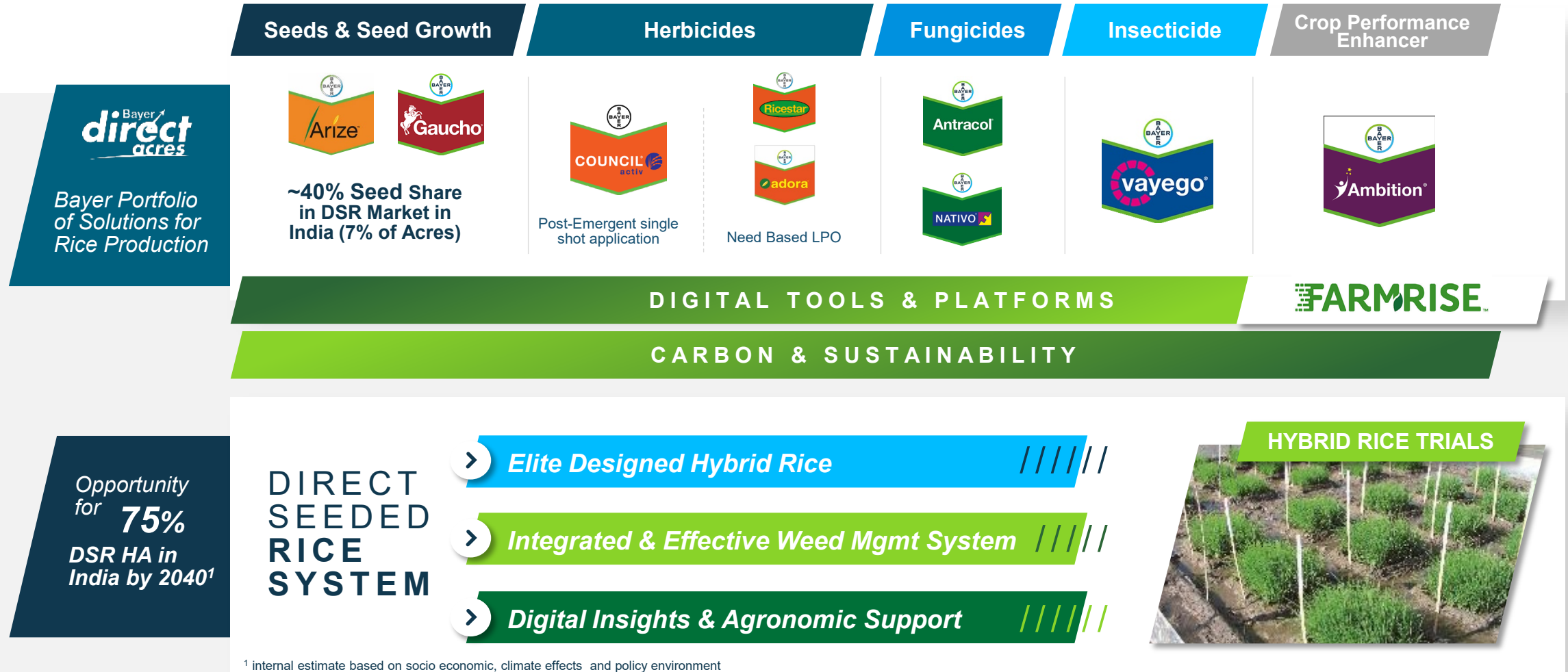
**Our Vision:**

A digitally enabled sustainable hybrid wheat system offering



# Bayer Direct Acres: Direct Seeded Hybrid Rice System

Elite Rice Germplasm, Effective Weed Mgmt. and Digital Tools to Drive Sustainable, Operational Efficiency

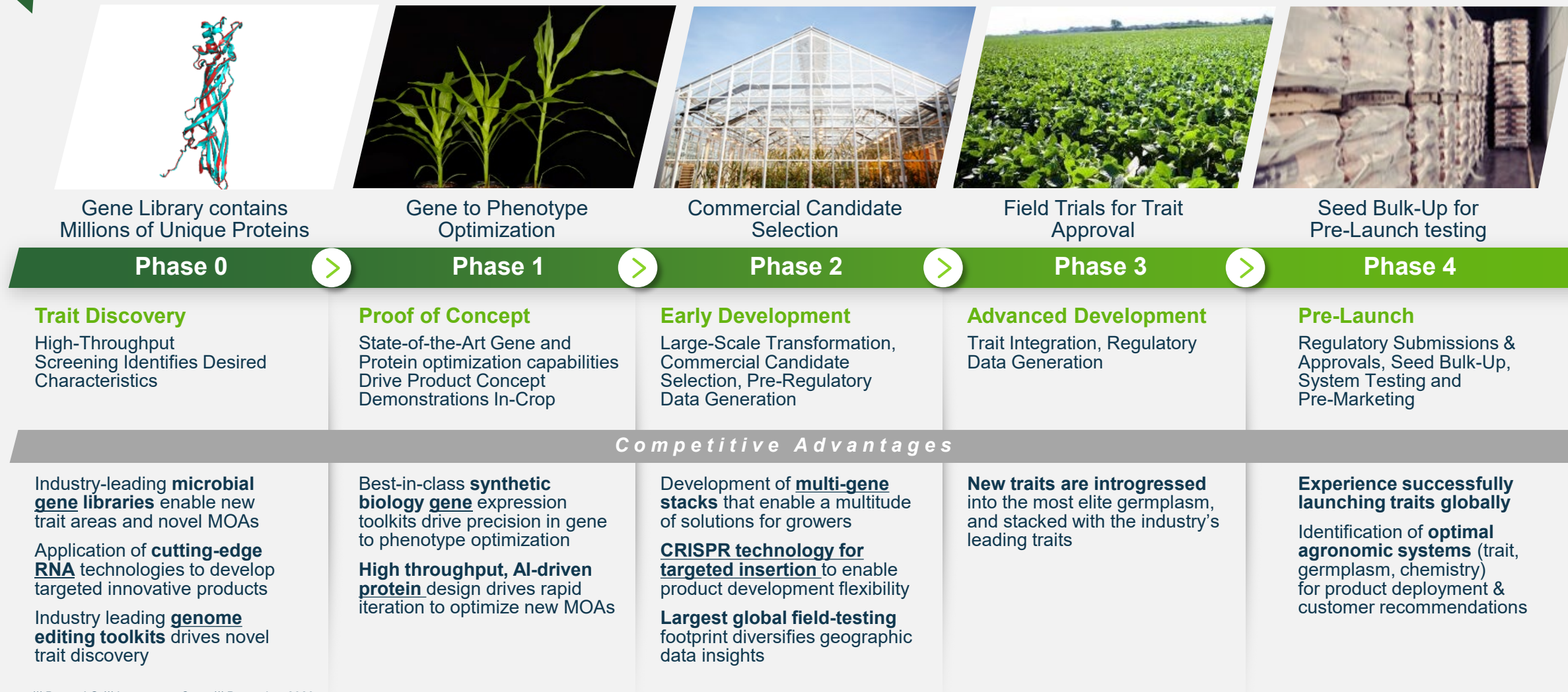


<sup>1</sup> internal estimate based on socio economic, climate effects and policy environment



# Decades of Investment and Expertise Unlocks Biotech Advantage

## Biotech Trait Development Process (12-15 years)



# Offers Transformational Shift in Production

Powered by Short Stature Corn Hybrids and **FIELDVIEW**

**PREC/EON**<sup>TM</sup>  
SMART CORN SYSTEM



04

## Key Features and Benefits Enhance Profitability and Environmental Sustainability of Corn Production



### Protection

- Production stability with improved standability in high winds and challenging weather conditions
- Annual yield losses due to stalk lodging in the U.S. range from 5% to 25%<sup>1</sup>



Iowa 2020 Trials Following Derecho Windstorm



### Access

- Improved in-season crop access due to reduced height
- Supports tailored solutions with precise in-season crop protection



Spray Rig in Short-Stature Corn Plot  
Jerseyville, IL August 2019



### Yield potential

- Shows promise in unlocking yield potential through increased opportunity to optimize crop inputs, planting densities, and field placement
- Potential to optimize use of key nutrients like nitrogen, as well as reducing land and water requirements



Poseyville, Indiana July 2021  
Nitrogen Y-Drops for Precise In-Season Application

<sup>1</sup> Purdue University (<http://www.extension.purdue.edu/ay/ay-262.html>)





# Global On-Farm Trials for PRECEON Smart Corn System

Powered by Short Stature Corn Hybrids and **FIELDVIEW**



04

**PREC/EON**<sup>TM</sup>  
SMART CORN SYSTEM



**New era in corn production to help farmers manage risk and protect yields**

**NA**

➤ **300** on-farm trials on **30,000** U.S. acres

**LATAM**

➤ Trialing with large key customers in Brazil, Argentina and Mexico

**EMEA**

➤ **80** trials in 2 countries

**APAC**

➤ Early phase testing in multiple countries

**<7ft**

**Short stature corn hybrid plant height**

+  
Fieldview Digital Insights  
+  
Tailored Support

**9-12ft**

**Traditional corn hybrid plant height**

**Highest likelihood to plant a new trait in the history of our trait introductions<sup>1</sup>**

<sup>1</sup> Source: Online farmer survey Feb./Mar. 2020 (n=900)



# Planning Regional Tailored Approaches

Holistic Smart Corn System Powered by Short Stature Corn  
Developed via Three Technology Approaches



04

## Planned Technology Approach for Launch of Preceon Smart Corn System



**Breeding Approach – Phase IV**  
2023 Ground Breaker Trials in the U.S.  
Native Trait: advanced breeding used to introgress naturally occurring short stature characteristics into elite germplasm

**Biotech Approach<sup>1</sup> – Phase III**  
Uses transgene to shorten internodes; enables applicability across wide array of germplasm

**Gene Editing Approach - Discovery**  
Location of launch will be dependent upon regulatory environments

**>220m**  
Corn Acres Global Potential

**Americas Alone Account  
for 140m Acres**



**>€1.5bn**  
Global Peak Sales Potential



# Next Gen Soybean Herbicide Tolerance Traits to Provide Industry Leading Flexibility

Drives ~€1bn Peak Sales Potential by Addressing Farmers' Herbicide Resistance Challenges

## 4<sup>th</sup> Gen Herbicide Tolerance (HT4)

In Phase 3

Expected 2027 launch

- > Adds 2 additional herbicide tolerances:  
HPPD (Mesotrione) + 2,4-D



Potential Opportunity Across  
**>180m**  
Soybean Acres

## 5<sup>th</sup> Gen Herbicide Tolerance (HT5)

Advanced to Phase 3

- > Adds 1 additional herbicide tolerance:  
PPO

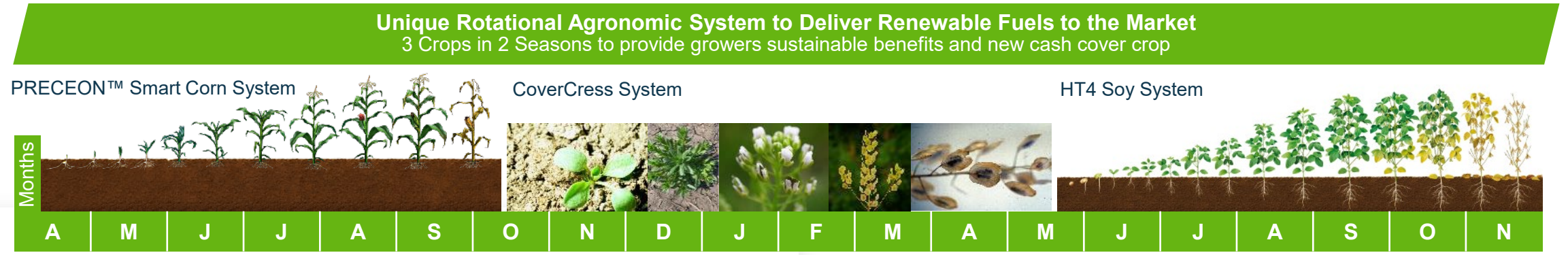


# Developing Novel Cash Cover Crop with Potential for Low-Carbon Renewable Feedstock

Bayer Acquires Majority Share (65%) in CoverCress Inc. (CCI)



Example: CoverCress seed fits in Bayer rotational corn/soy crop system



## CoverCress

- **Low carbon intensity rotational cash crop** that can deliver many ecosystem benefits of a cover crop and attractive economics of an oilseed crop
- **Carbon sequestration** potential
- **Developed through gene editing and advanced breeding tools;** improved the oil profile, protein content and yield of field pennycress
- **Niche market in U.S. Midwest initially;** within draw area in proximity to crushing and refining facilities
- Expect to launch crush-ready **CoverCress product mid-2020's**

## The Need

- Aviation and industrial transportation sector emissions reductions to come from sustainable low carbon intensity biofuels, due to lack of electrification options
- Expect demand for 6bn gallons of Renewable Diesel/Sustainable Aviation Fuel by 2030

## The Business Model

- Closed Loop Production Contract (i.e. Farmers will be paid a premium to produce CoverCress; Bunge delivers oil to Chevron to convert to Renewable Diesel/Sustainable Aviation Fuel; CoverCress receives value from crusher (i.e. Bunge))
- CoverCress ownership: Bayer 65%; Chevron and Bunge 35%

# Industry-Leading Expertise in Chemical Crop Protection R&D

Designing Molecules to Safely & Sustainably Address Needs of Farmers and Society

## Chemical Crop Protection R&D timeline (10-14 years)





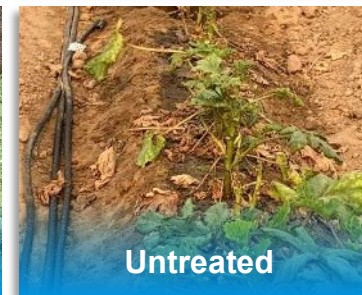
# Plenexos... Where Healthier Fields Meet Higher Yields

Our Next Generation Ketoenol Insecticide with ~€500m Peak Sales Potential

## > Plenexos will be the first ketoenol insecticide expected to offer both foliar and soil uses

**Plenexos** will enhance ketoenol insecticides by offering: // // // // // // // // // // // // // // //

- > High plant mobility, which will ensure **high efficacy** against key sucking pests (aphids, whiteflies, scales, mealybugs) at **low dose rates** for **foliar and soil uses**
- > Featuring a **broad crop scope**, Plenexos will be suitable for application in **arable and horticulture** crops (soybeans, cotton, fruits and vegetables)
- > Favorable pollinator and beneficial toxicological profile which will ensure **broad flexibility** and **fit to Integrated Pest Management programs**, as well as **low residue levels** for several uses
- > Targeted markets: LATAM, NA, APAC and TAMECIS<sup>1</sup>
- > **First regulatory submissions** in key markets in **2022, first launches** expected from **2025 onwards**<sup>2</sup>



Increases productivity per acre and field health through improved insect control

Always read and follow label instructions. Products not registered in all jurisdictions. Plenexos is the brand name of the ketoenol insecticide Spidoxamat

<sup>1</sup> TAMECIS stands for Turkey, Africa, Middle East, Commonwealth of Independent States; <sup>2</sup> Commercialization is dependent on multiple factors, including successful conclusion of the regulatory process. The information presented herein is provided for educational purposes only and is not and shall not be construed as an offer to sell, or a recommendation to use, any unregistered pesticide for any purpose whatsoever. It is a violation of federal law to promote or offer to sell an unregistered pesticide



# New Broad Spectrum Fungicide<sup>1</sup> with a PSP of >€1bn

A New Fungicide with Broad Geographical, Crop and Disease Scope, Currently in Phase 3

## > New broad-spectrum Fungicide with blockbuster potential



- > For global use confirmed in cereals, corn, fruits & vegetables with upside potential in numerous other crops
- > Proven Mode of Action in a highly competitive future market
- > Favorable regulatory profile
- > Providing farmers worldwide with a reliable tool to ensure healthy crops and robust resistance management
- > Excellent fit with Bayer's fungicide portfolio, helping to strengthen our leading position

<sup>1</sup> in collaboration with 3rd party; PSP = Peak Sales Potential

# Enriching Our Pipeline with Novel and Sustainable Modes of Action

**CropKey** First representatives of CropKey approach are being brought from conception to reality in record time

## New **Herbicide** Molecule

- /// First new mode of action in post emergence weed control in 30 years, based on CropKey approach
- /// Securing farmers production in situations with tough to control grasses
- /// Allows use in various new market segments, as well as potential for precision application

**PSP of >€750m**

Project is currently in **Phase 3**



**Glyphosate Only**



**Mix Partner + New Herbicide**  
Product concept with new active

## New **Fungicide** Molecule

- /// Broad-spectrum Horticulture fungicide with a new mode of action, based on CropKey approach
- /// Control of key leaf spot fungi (incl. Anthracnose) across key regions
- /// Opportunities to extend beyond horticulture to cereals (barley), oil seed rape and seed treatment<sup>1</sup>

**PSP of >€200m<sup>1</sup>**

Project is currently in **Phase 2**



**Standard Only**



**New Fungicide**

<sup>1</sup> Expansion into oil seed rape and seed treatment not yet included in PSP; PSP = Peak Sales Potential

# Industry-Leading Technology for the Next Generation of Biologicals

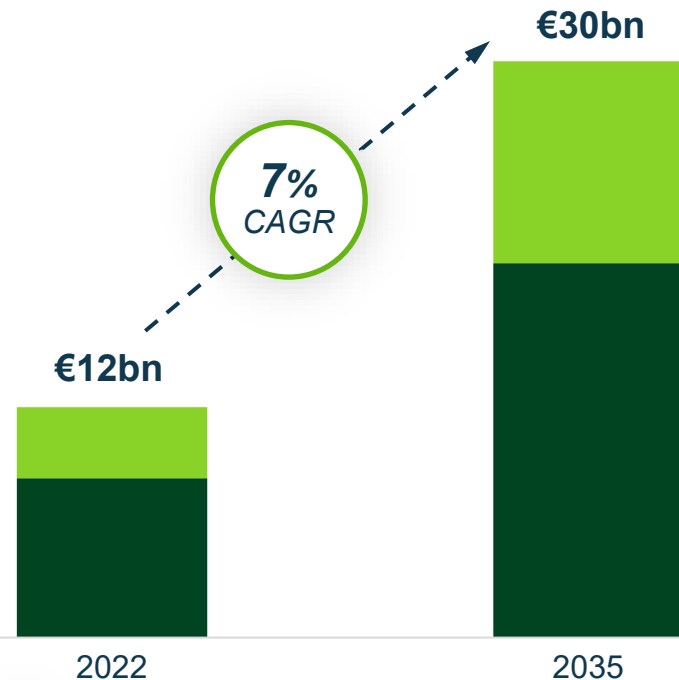




# Biologicals Market Expected to More than Double to €30bn by 2035

We aim to Outgrow the Market with a 17% CAGR

## Global Biologicals Market



○ CAGR ■ Biocontrol ■ Biostimulants

Source: Global Agricultural Biologicals Market, Forecast to 2030, Frost & Sullivan, 2022 and internal estimates

## Bayer Biologicals Opportunity

€**200**m  
Sales 2022

**17%**  
CAGR

> €**1.5**bn  
Sales 2035e



In-licensing or distribution;  
expanding current portfolio



Pipeline  
advancements



Strategic research  
partnerships



**Increasingly stringent regulatory approvals processes,** consumers' demand for low- and no-residue food products and retailer food sourcing standards drive growers to look for new innovations in crop protection










# Expanding a World Class Biological Platform with Open-Innovation

Partner of Choice with Industry Leading Capabilities in Development, Regulatory and Commercialization

## Open Innovation Ecosystem



 <p>Robust asset evaluation for <b>in-licensing or distribution</b> of commercial or late stage products</p>	 <p><b>Pipeline advancements</b> through development of internal assets and co-development with selected partners</p>	 <p><b>Multi-year strategic research partnerships</b> with technology leaders to develop proprietary portfolio of next generation biologicals</p>
<p><b>January 2023</b>      <b>Commercialized</b></p> <div>   </div>	<p><b>SeedGrowth Corn Yield PHASE 3</b>      <b>SeedGrowth Bird Repellant PHASE 3</b></p>	<p><b>October 2022</b>      <b>February 2023</b></p> <div>   </div>
<ul style="list-style-type: none"> <li>&gt; Scouting to meet <b>short to mid-term portfolio needs</b></li> <li>&gt; M2i: partner to supply fruit and vegetable growers around the world with pheromone-based crop protection products</li> <li>&gt; Ecología y Protección Agrícola: commercialized Vynity Citrus</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Evaluating opportunities for <b>mid-term portfolio differentiation</b></li> <li>&gt; Actively advancing products in our pipeline</li> <li>&gt; Establishing preferred partners for co-development and commercialization</li> </ul>	<ul style="list-style-type: none"> <li>&gt; <b>Driving next-generation biological concepts</b></li> <li>&gt; <b>Ginkgo</b>: 3-year collaboration on nitrogen optimization, carbon sequestration, and next generation crop protection</li> <li>&gt; <b>Kimatec</b>: strategic partnership to accelerate the development and commercialization of biological crop protection solutions and biostimulants</li> </ul>

Complementing efforts with academic partnerships and Leaps by Bayer investments, such as:



# Comprehensive Open-Innovation Strategy for Nitrogen Fixation

## The Need

- Synthetic nitrogen fertilizer has helped feed **>3.5bn** people<sup>1</sup>
- Regulatory requirements are increasing around the globe
- But accounts for **~3%** of global greenhouse gas emissions

// "Pulling fertilizer out of thin air" //



<sup>1</sup> Source: [Our World in Data](#)

## Our Approach



In-licensing or distribution



Pipeline advancements



Strategic research partnerships



## Transformational Partnership with



- Enhance nitrogen fixing bacteria through synthetic biology
- Leverage Ginkgo's expertise in microbial discovery, our expertise in agronomics, product development and commercialization
- Exclusive commercialization rights to programs already started at Bayer and/or Joyn Bio
- Aiming to reduce use of added synthetic fertilizers while maintaining the yield potential of the crops

# Leaps by Bayer Technology Investments Expand R&D Reach

18 Distinct Investments in Sustainable Productivity and Improved Nutrition

## Leap 03/ Reduce environmental impact of agriculture



## Leap 07/ Provide next-generation healthy crops



## Leap 08/ Develop sustainable protein supply



## Leap 09/ Prevent crop and food loss

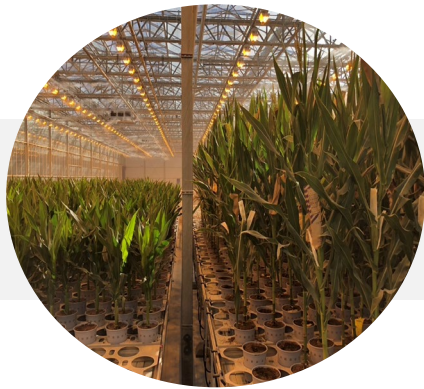


Companies shown by primary Leap but may have potential in further Leaps  
For additional information on these and other Leaps by Bayer investments, please visit: <https://leaps.bayer.com/>

# Digital Platform Optimizing Through the Farm into the Value Chain

Enabling Sustainable Solutions from Farm to Fork

FROM DATA TO VALUE



Digital shifting from data collection and visualization to an essential tool for all farming operations



Digital is transforming to enable new opportunities across the value chain



Lab & Greenhouse

Farm

Value Chain

DRONE-BASED APPLICATION  
TIMING RECOMMENDATIONS  
PEST DETECTION  
HYBRID RECOMMENDATIONS

AG MARKETPLACES  
DOWNSTREAM VALUE  
RISK SHARING  
SUSTAINABILITY & CARBON

////

////



# Digital Farming Brings Transformational Solutions While Driving Significant Franchise Value and Opportunities Downstream and in Value Chain



## Our Vision for Digital Agriculture



- ▶ Increase **yield** and improve **profitability**
- ▶ Glean insights from data to help **manage risk** and address **variability**
- ▶ Manage fields down to the square meter, to farm more efficiently and sustainably
- ▶ Seamlessly collect, visualize and analyze data to enable **more informed decisions**

## Three Core Value Drivers

01 FRANCHISE VALUE

02 DOWNSTREAM VALUE

03 PLATFORM VALUE

# Fieldview Digital Insights Maximizing Smart Corn System

**PRECISION**  
SMART CORN SYSTEM



## Comprehensive Digital Agronomic Support

- > Hybrid Selection & Placement
- > Planting Density
- > Planting Date
- > Fertility Recommendations & Timing
- > Crop Protection Recommendations & Timing

CLIMATE  
**FIELD  
VIEW**

Spray Rig in  
Short-Stature Corn Plot  
Jerseyville, IL August 2019



Poseyville, Indiana July 2021  
Nitrogen Y-Drops for Precise  
In-Season Application





# Advancing Climate Smart Practices on Farm to Achieve Carbon Goals for Growers and Businesses; Creating New Revenue Stream

**ForGround**  
by Bayer

**Digital platform** that helps farmers transition to climate-smart practices and connects growers, acres, and buyers to more meaningful opportunities.



**Growers** have access to tools, resources, discounts and financial benefits (through Bayer Carbon Program)



**Companies** have access to carbon assets and services powered by **FIELDVIEW** platform to support their sustainability goals

**Our Commitment:** 30% Reduction of Field Greenhouse Gas Emissions by 2030

## Builds on Success with our Existing Bayer Carbon Program

**~2,600** participating farmers | **10** countries covered | **~1.5m** acres globally

- // Long-term program providing **annual incentives** to **FIELDVIEW** users, enrolled in the program, for verified and validated **climate-smart practices** like no-till and cover cropping
- // Enables 3 Expected Downstream Revenue Opportunities in **>\$200bn/year** market<sup>1</sup>

**Carbon Services**

**Product Sales**

**Carbon Assets**  
First revenue generating carbon asset in 2023

## Creates new opportunities for growers and businesses alike



- > **First food value chain B2B** collaboration on ForGround platform spanning across Perdue's entire grain network
- > **Perdue grain farmers** may be **compensated** for adopting regenerative practices, allowing Perdue to decarbonize their supply chain



- > Supports Nori in **advancement of the carbon marketplace**
- > **Pave the way** for price discovery of carbon removal credits on the open market
- > Bayer Carbon Program grower payments will be reassessed in accordance with **carbon credit market price** fluctuations

<sup>1</sup> Source: <https://www.reuters.com/article/us-carbontrading-turnover/global-carbon-trading-turnover-at-record-214-billion-last-year-research-idUSKBN1ZN1RN>

# Industry First Collaboration Offering B2B Digital Solutions that Connect the Farm to the Value Chain



- > Azure Data Manager for Agriculture is the **largest connection** point of agricultural data and services **driving interoperability** across the value chain – including food, feed, fiber and fuel
- > Combines **Bayer's ag expertise** and leading digital farming platform with **Microsoft's cloud technology** for unrivaled B2B solutions
- > **Bayer AgPowered Services**, based on proprietary capabilities, now available to the industry on **Azure Data Manager's robust infrastructure**
  - Imagery Insights
  - Crop Water Use Maps
  - Growing Degree Days
  - Smart Boundary Detection<sup>1</sup>
  - Crop Growth Models<sup>1</sup>
- > **Provides cloud-based digital tools** and data science solutions for ag and agri-food businesses to license and use for **internal platforms or customer-facing digital solutions**
- > **Will provide solutions** to address farming operations, **sustainable sourcing, manufacturing and supply chain improvement, and ESG monitoring** and measurement

<sup>1</sup> Additional offerings in development



**Enabling Transparency and Sustainability  
for Companies and Consumers;  
Advancing New Opportunities for Farmers**





# Orbia JV is the Largest Digital Ag-Marketplace in LATAM

In Combination with **FIELDVIEW**, Provides an Integrated Digital Grower Experience

## Orbia



- JV between Bayer, Bravium<sup>1</sup>, Yara and Itau; Bayer with **~60% stake**
- Connects growers, input providers and grain traders to a network to expand their reach, secure financing, redeem rewards **from Bayer's Impulso loyalty program**, purchase and sell inputs
- Established in 2019 in **Brazil**, later expanded to Argentina, Colombia and Mexico<sup>2</sup>
- **~300 distributors** with inputs such as pesticides, seeds and fertilizers
- **~€460m** in commissioned online transactions (GMV<sup>3</sup>) in 2022
- **>270,000 registered growers** across LATAM
- Covers **~75% of Brazil planted area**
- Recently launched **Orbia Pag**, the first digital pre-approved credit mechanism for farmers

<sup>1</sup> Brazil-based marketing agency who managed Bayer's loyalty program in Brazil, prior to the formation of Orbia.

<sup>2</sup> Orbia is named „Nucle“ in Mexico // <sup>3</sup> GMV means Gross Merchandise Value, the most common metric for marketplace development



## Future of Farming

# Broadening our sustainability approach with a regenerative focus



## Sustainability Focus

### “Producing more with less”

We’re supporting food security while reducing agriculture’s impact on nature

We’re committed to: (1) minimizing the climate footprint of farming, (2) reducing the environmental impact of crop protection, (3) enabling smallholder farmers and (4) improving water use

**Reducing and mitigating:**  
Increasing productivity while  
reducing the impact on nature

## Regenerative Focus

### “Producing more and restoring more”

We’re supporting food security and securing farm incomes while delivering net benefits to nature

We’re committed to: (1) minimizing the climate footprint of farming, (2) reducing the environmental impact of crop protection, (3) enabling smallholder farmers and (4) improving water use



We’re delivering nature-positive outcomes by improving soil health, restoring biodiversity and protecting habitats, conserving water and sequestering carbon

We’re helping farmers increase productivity and incomes with climate adaptation solutions and new sources of revenue

**Adapting and regenerating:**  
Increasing productivity and  
incomes while renewing nature

# Broadening our Reach to Shape Regenerative Ag on >400m Acres

- // Today our seed & trait technologies reach **~340m** acres globally, anchoring our vision for regenerative system solutions
- // By the middle of the next decade, we envision broadening our reach to **>400m acres**
- // Hybrid wheat, direct seeded rice, corn traits in Africa & Asia and carbon farming enable potential in new crops and markets
- // Preceon Smart Corn System and next-gen herbicide tolerance in soybeans build out our base





# Delivering Regenerative Ag Benefits and Improved Profitability

Example: 130 HA Bayer Forward Farm Agricola Testa, located in Pergamino, Argentina 2019-2022

## Increased farmer roi<sup>1</sup>

**+13%**

grain  
productivity

**+22%**

gross  
margin/HA

## ....And more sustainable agriculture<sup>1</sup>

**65%**

Improvement in carbon  
balance (CO<sub>2</sub> eq kg/ha)

**+1,512**

carbon sequestration  
(Kg CO<sub>2</sub>/HA)

**+40%**

system biomass  
production

**-15%**

less sprays



Bayer  
Forward▶▶  
Farming

Graphical depiction of Bayer Forward Farm in Pergamino, Argentina

**Farmer expanded regenerative farming practices to 1,000 HA rented land after seeing these results**

<sup>1</sup>Since 2015, Agricola Testa has been certified in Good Agricultural Practices in sowing, spraying and harvesting. Results shown here depict the improvements achieved from adoption of no-till agriculture, crop rotation, inclusion of winter & cover crops, implementation of digital agriculture, selection of top performing germplasm, biotechnology traits, a balanced fertilization strategy and monitoring pests for defined control timing practices, from 2019 to 2022 at Bayer's Forward Farm, Agricola Testa, located in Pergamino, Argentina.



# Innovative, Sustainable Solutions to Address Global Challenges

## Global Challenges:

Water Quality  
Soil Health

Climate Change  
Sustainable Energy Sources

Growing Population  
Increasing Protein Demand

## Our Sustainability Goals:

**30%** Reduction in Crop Protection impact on the environment

**30%** Reduction in Field Greenhouse gas emitted per kg of crops produced

**25%** Improvement of Water Use per kg of crops produced in rice cropping systems

**100m** Empowering 100m smallholder farmers by 2030, to become more productive and profitable

## Our Solutions:

- Novel small molecules and biological solutions with reduced environmental impact
- Short stature corn to unlock additional yield potential by optimizing crop inputs

**Xivana** **PREC/EON** SMART CORN SYSTEM **FLIPPER**

- Digital tools for carbon sequestration measurement, precise input application
- Next-gen herbicide tolerant traits to enable no-till/ conservation tillage systems
- Covercress cover crops

**FIELDVIEW** **CoverCress** The cover crop that pays

- High-performing rice seed
- Digital precision farming
- Innovative crop protection solutions for weed control in lieu of field flooding

**Arize**

- Arize dry-seeded rice varieties and hybrids
- Better Life Farming
- FarmRise Mobile App
- Food Value Chain Partnerships and BayGAP

**FARMRISE**



Science for a Better Life

# Shaping the Future of Agriculture



01



**Investment Case**  
December 2023 /  
Bayer AG



# Crop Science: Seed & Traits and Digital R&D Pipeline

(Annual Update Feb 2023)

€21bn  
PSP

	Phase I	Phase II	Phase III	Phase IV	PSP
CORN SEED & TRAIT	Corn Disease Shield - NA	5th Generation Lepidoptera Protection 5th Generation Herbicide Tolerance w/ (RHS2) <b>Digital Disease Mgmt. - NA</b> <b>Seed Placement Digital Tool - NA</b>	Short Stature Corn – Biotech Trait <sup>2</sup> 4th Generation Coleoptera Protection	Short Stature Corn – Breeding Approach 4th Generation Lepidoptera Protection <b>Seed Density Digital Tool – EMEA</b> <b>Seed Density Digital Tool – LATAM</b>	~€11bn
	Annual Germplasm Upgrades	Annual Germplasm Upgrades	Annual Germplasm Upgrades	Annual Germplasm Upgrades	
	Digital Disease Mgmt. - NA	Seed Placement Digital Tool – NA <b>4th Generation Insect Protection</b>	3rd Generation Insect Protection 2nd Generation Soy Cyst Nematode resistance 4th Generation Herbicide Tolerance (HT4) (5 Tolerances – Adds 2, 4-D and HPPD) <b>5th Generation Herbicide Tolerance</b> (6 Tolerances – Adds PPO) Annual Germplasm Upgrades Soybean Native Resistance	Vistive Gold Xtend  Annual Germplasm Upgrades Soybean Native Resistance	
VEGETABLES and OTHER <sup>3</sup> Including Carbon Model	Canola/OSR Digital Disease Mgmt. - NA	Wheat Digital Disease Mgmt. - EMEA	Canola Dicamba Tolerance Sugarbeets 2nd Generation Herbicide Tolerance <sup>1</sup> Cotton 4th Generation Herbicide Tolerance (HT4) (5 tolerances – Adds 2, HPPD and PPO) Cotton 4th Generation Insect Protection	Lygus and Thrips Control (ThryvOn Technology) - <b>Stewarded Commercial Launch</b>	~€6bn
	Wheat Annual Germplasm Upgrades	Wheat Annual Germplasm Upgrades	Wheat Annual Germplasm Upgrades	Wheat Annual Germplasm Upgrades	
	Wheat Disease Package Upgrades	Wheat Disease Package Upgrades	Wheat Disease Package Upgrades	Wheat Disease Package Upgrades	
	Cotton Annual Germplasm Upgrades	Cotton Annual Germplasm Upgrades	Cotton Annual Germplasm Upgrades	Cotton Annual Germplasm Upgrades	
	Canola/OSR Annual Germplasm Upgrades	Canola/OSR Annual Germplasm Upgrades	Canola/OSR Annual Germplasm Upgrades	Canola/OSR Annual Germplasm Upgrades	
	Veg- Annual Germplasm Upgrades	Veg- Annual Germplasm Upgrades	Veg- Annual Germplasm Upgrades	Veg- Annual Germplasm Upgrades	
	Rice Annual Germplasm Upgrades	Rice Annual Germplasm Upgrades	Rice Annual Germplasm Upgrades	Rice Annual Germplasm Upgrades	

Breeding

Trait

Digital Model

advanced to next phase

Projects listed here and included in the peak sales potential by segment do not include projects funded by our LEAPS investments; includes all advancements made in FY'22, updated Feb'23

PSP = Peak Sales Potential, 50% incremental; Expected to reach 30% of PSP by 2032, 80% of PSP by 2037 and remainder in 2038+; **Note that products are excluded from the pipeline PSP typically the year following launch**

<sup>1</sup> In collaboration with KWS; <sup>2</sup> In collaboration with BASF; <sup>3</sup> "Other" category includes seeds and traits, such as cotton, canola, wheat, OSR, rice, vegetable seeds and sugarbeets, plus carbon and digital Models



# Crop Science: Crop Protection R&D Pipeline

(Annual Update Feb 2023)

€9bn  
PSP

	Phase I	Phase II	Phase III	Phase IV	Life Cycle Management <sup>1</sup>	PSP
<div>HERBICIDES</div> <div>FUNGIC.</div> <div>INSECT.</div> <div>SEED GROWTH<sup>2</sup></div>	<b>New AI Development</b> New Herbicide ✓ New Herbicide ✓ ✓ New Herbicide ✓		New Herbicide ✓ ✓ ✓ <b>New Herbicide</b> ✓ New Herbicide <sup>3</sup> ✓		<b>Non-Selective</b> Glyphosate LCM ✓ <b>Selective</b> Merlin Flexx / Adengo LCM ✓ Mateno Complete ✓ Balance Flexx LCM ✓ Council Family ✓ Convinto ✓ Ronstar One ✓ New over-the-top herbicide ✓ Mesosulfuron LCM ✓	~€4bn
	New Fungicide ✓	<b>New Fungicide</b> ✓	<b>New Fungicide<sup>3</sup></b> ✓ ✓ ✓		Luna Flexx ✓ Super Nativo ✓ ✓ Delaro Forte ✓	~€3bn
	<b>New Insecticide</b> ✓ ✓			Plenexos ✓ ✓ ✓	Vayego Duo ✓ Velum LCM ✓ Rice Plant Hopper ✓	~€2bn
			<b>New Seed Treatment</b> ✓ <b>New Seed Treatment</b> ✓		INS FUN ready mixture ✓ Redigo FS 25 ✓	

Corn
 Soybeans
 Fruits and vegetables
 Cereals, oilseed rape, sugarbeets, cotton and rice
 Biological
 Small Molecule

<sup>1</sup> Shown here is a subset of Bayer's total life cycle management activities; focused on new formulation developments which have the potential to bring significant innovation to customers compared to currently marketed product; Products shown may not yet be fully registered in all jurisdictions; includes all advancements made in FY'22, updated Feb'23; <sup>2</sup> SeedGrowth is currently reported within other SBEs; <sup>3</sup> 3<sup>rd</sup> party collaboration

PSP = Peak Sales Potential, 50% incremental; Expected to reach 30% of PSP by 2032, 80% of PSP by 2037 and remainder in 2038+; **Note that products are excluded from the pipeline PSP typically the year following launch.**

**advanced to next phase** Selection of projects listed here and included in the peak sales potential by segment do not include projects in early research or discovery





Science for a Better Life

# Pharmaceuticals: Driving Continued Long-term Growth



## 02



**Investment Case**  
December 2023 /  
Bayer AG





# Pharmaceuticals: Driving Continued Long-Term Growth

**01**



**Market & Position**

**02**



**Strategy**

**03**



**Growth Drivers**

**04**



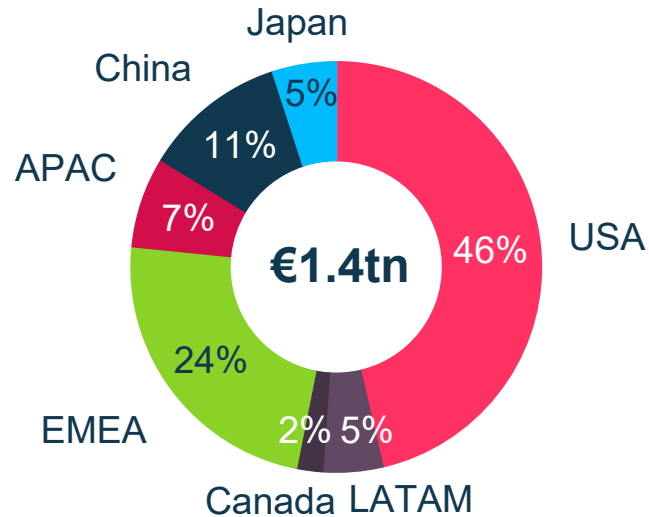
**Innovation**

# Pharma Is An Attractive And Dynamic Market With Significant Opportunities Ahead



## Global Pharmaceuticals Market

### Market Size 2022<sup>1</sup>



**Market CAGR  
2022-26e<sup>1</sup>**



**~5%**



## Trends and Challenges



**Disruptive medicines** from breakthrough science



Shift from **treatment to prevention** and potential cure



**Loss of exclusivity**



Pressure on **pricing**



**Declining R&D** productivity



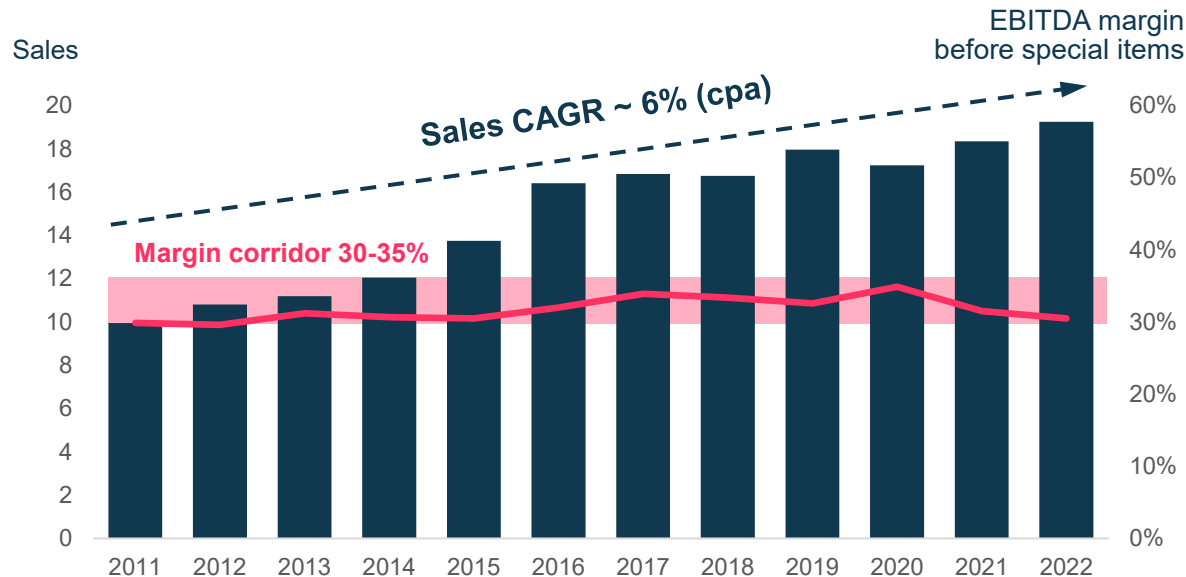
**Increased pressure** for value and real-world evidence

<sup>1</sup> Source: IQVIA Market Prognosis as of March 2023

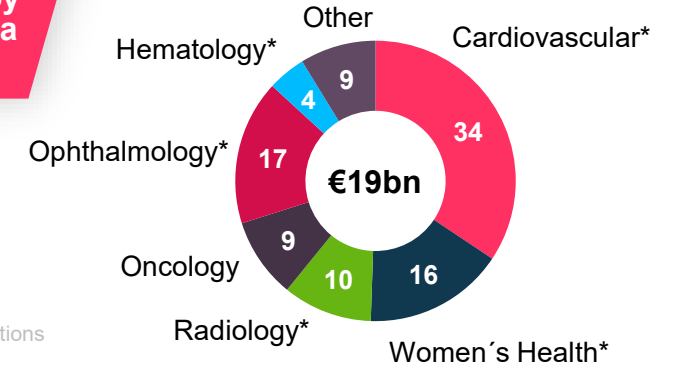
# Bayer Holds Strong Positions In Areas Of High Unmet Medical Needs, Generating Attractive Returns

## Bayer Pharmaceuticals Sales and EBITDA margin before special items 2011-2022<sup>1</sup>

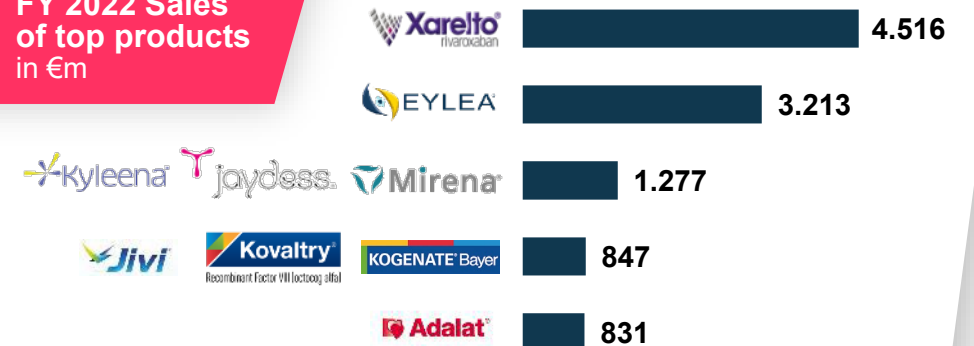
- Sales (in €bn)
- EBITDA margin before special items (in %)



## FY2022 Sales by therapeutic area in %



## FY 2022 Sales of top products in €m



<sup>1</sup> As reported in the respective fiscal years

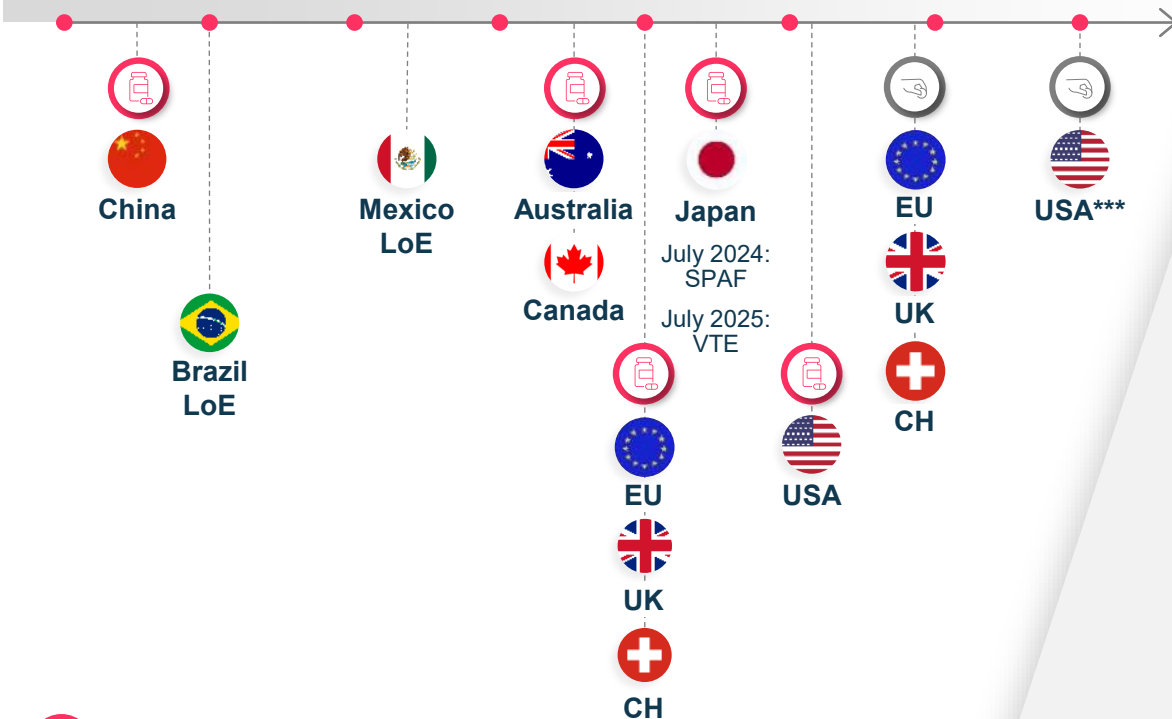


**1** **Renew  
topline****Grow potential blockbusters****Capture the full commercial value** of the current portfolio**2** **Reallocate  
resources****Build & grow US business****Shift in marketing & R&D** towards growth drivers**3** **Rebuild  
pipeline****Progress late-stage pipeline****Strengthen early pipeline**

through increasing contributions from platform companies as well as partnering

# Xarelto's Main Patent Expirations\* and Losses of Exclusivity (LoE)

2020 2021 2022 2023 2024 2025 2026 2027

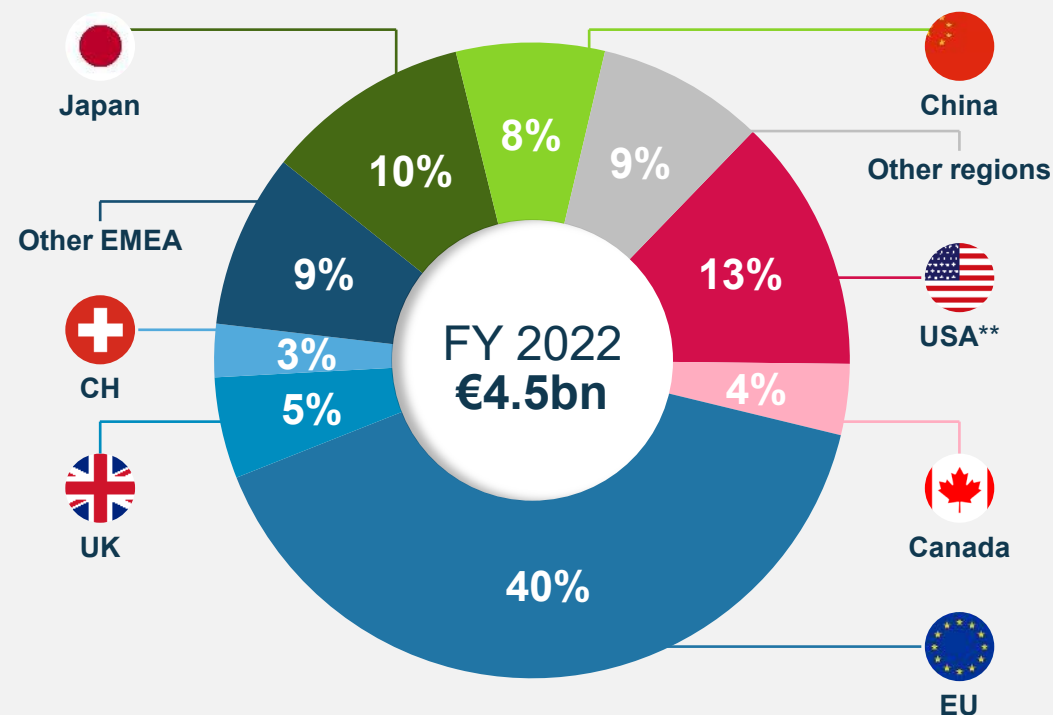


Compound patent

Once-daily use patent

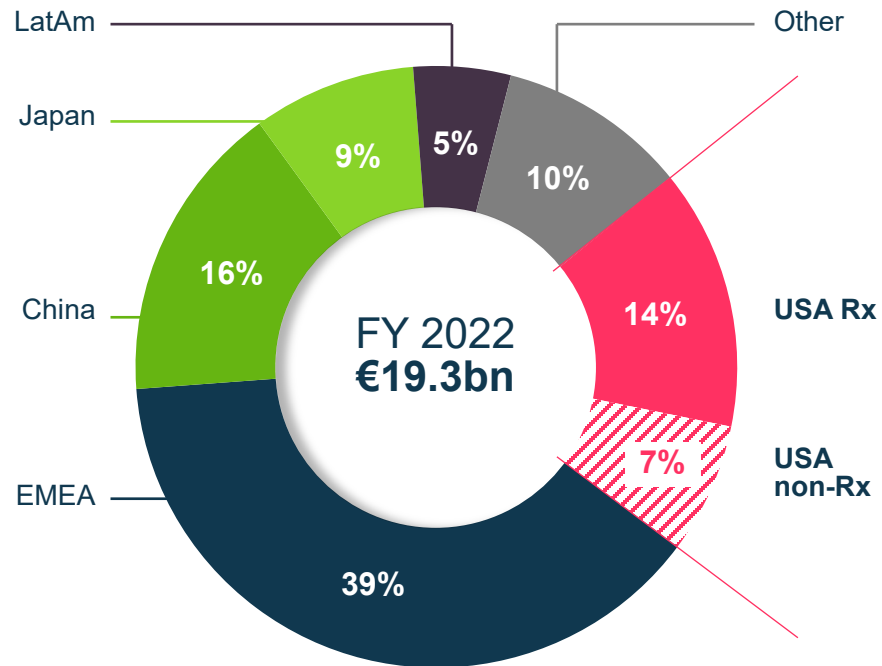
\* Additional IP rights with later expiration dates exist in some countries; \*\* Bayer royalty income; \*\*\* Gx entry on once-daily patent

## Xarelto sales by main markets in 2022

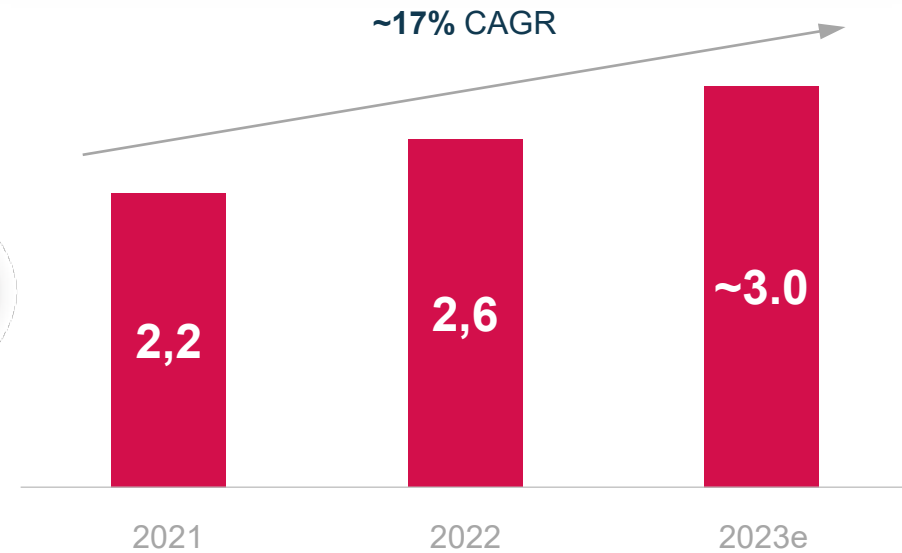


# Nubeqa & Kerendia Driving Growth of our Innovative Medicines Business in the US

Bayer Pharmaceuticals Sales by Region



Sales of Rx Pharma US (€bn)



- // Nubeqa continues to be the **fastest growing ARI<sup>1</sup> in the US**, establishing new highs in NBRx share in total prostate cancer and volume
- // **Re-entering cardio-renal with Kerendia & Verquvo**: significant investments made to build up an appropriate marketing and sales organization, headcount increased by **~50% in past 3 years**

<sup>1</sup> ARI: Androgen Receptor Inhibitor

# A Focused R&D Strategy to Deliver an Innovative, Differentiated and Sustainable Pipeline



## > Our focus

4

### Core Therapeutic Areas

- // Oncology
- // Neurology & Rare Diseases
- // Cardiovascular+
- // Immunology

6

### Modalities

Small molecules, Protein Therapeutics, Radiotherapy, Chemoproteomics, Cell Therapy, Genetic medicine

3

### Platform Companies

AskBio, BlueRock, Vividion



## > Our priorities

### Science & Portfolio

- // Launch **elinzanetant** and **asundexian** in secondary stroke prevention
- // Progress and accelerate **high-value assets**
- // Focused investments in **BD&L**
- // **Maximize impact** from platform companies
- // Unlock **full potential** of precision medicine

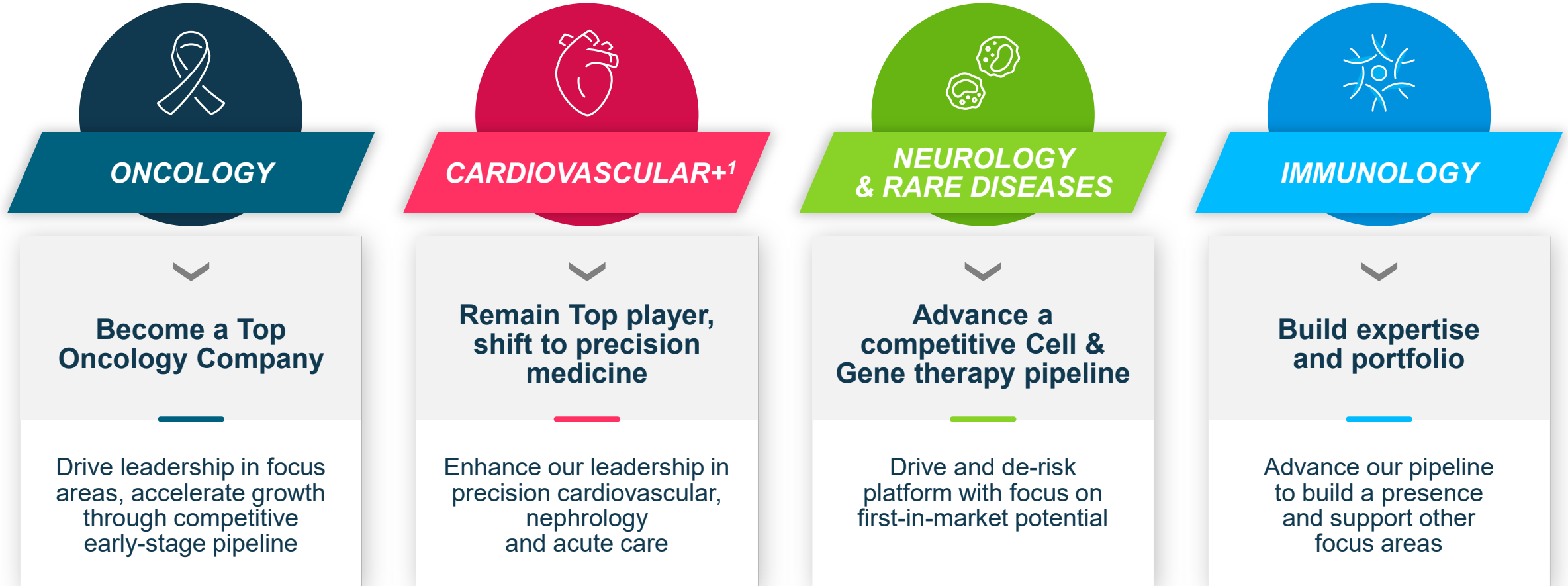
### Productivity

- // Excellence in execution to **generate more value** and **improve capital efficiency** in R&D
- // Shift to **asset-centric operating model**
- // Increase **agility and dynamic resource allocation**
- // Accelerate **data science & AI** across R&D value chain



# Refined Focus Areas with Highest Impact and Value Potential

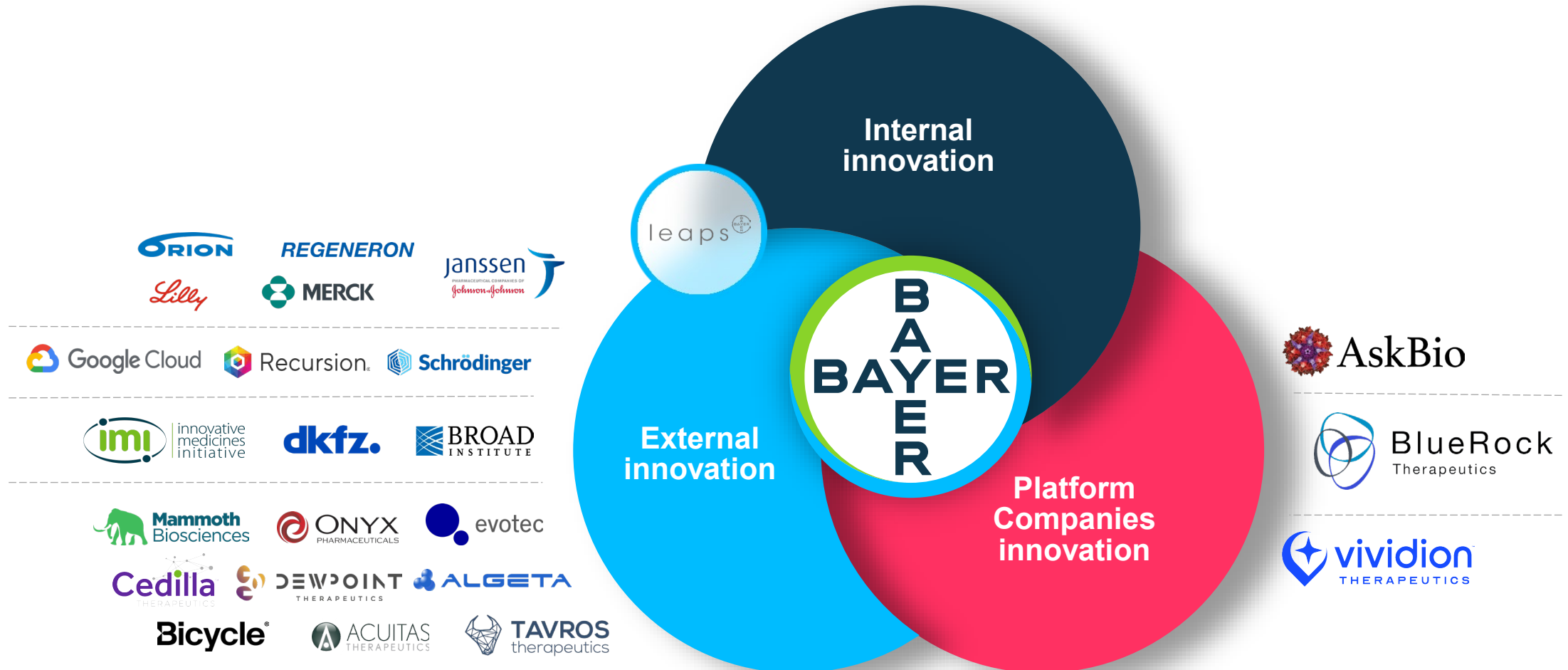
Clear Strategic Mandates Guiding Decision Making and Resource Allocation



<sup>1</sup> including Precision Cardiovascular, Nephrology & Acute Care

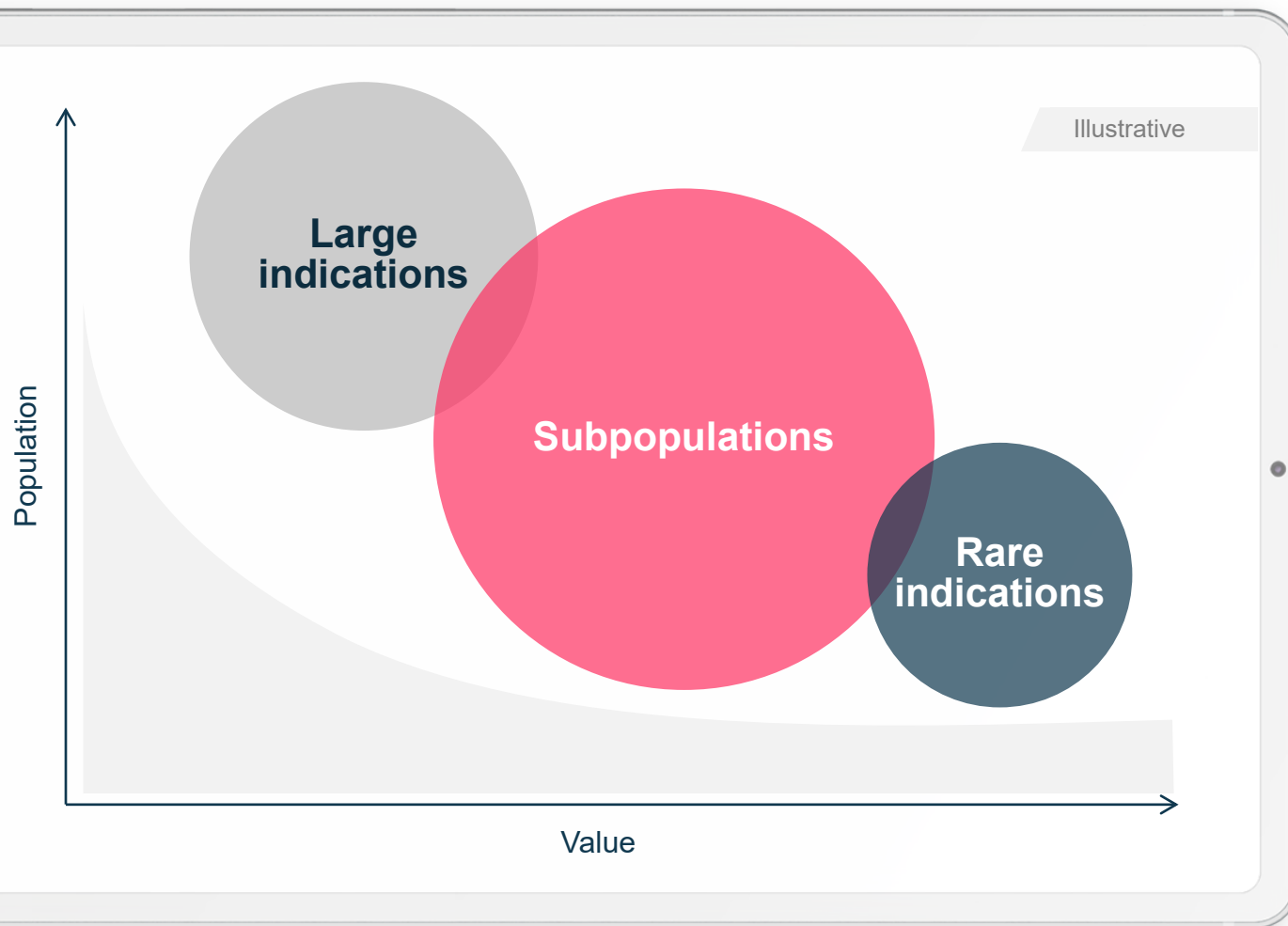
# A Multi Faceted Innovation Engine to Unlock Value for Patients

Addressing Need for Breakthrough Science with Diverse Research Capabilities, Technologies and Talents



# Targeting the Sweet Spot of Precision Medicine Across our Focus Areas

Through Disease Understanding and Value Potential Assessment



- > Address individual patients' needs to **achieve improved and sustainable health by delivering transformative medicines:** the right treatment, to the right patient, at the right time
- > **Optimized outcomes** by focusing on highest unmet needs, value potential, differentiation and risk mitigation
- > Open for **disruption in large indications**

# Moving to Higher, Sustainable Level of R&D Productivity

Supported by Key Levers



## Increase in pts

Moving toward precision medicine

Improved validation of targets and translation to patient - target disease link

Strategic investments in new biomarker approaches

Improved patient profiling and selection using advanced Data Science/AI approaches



## Reduction of costs

Digitization of clinical trials

Lean, innovative, adaptive clinical trial design in stratified population, as well as platform studies

Reduction of in-vivo/wet lab work by applying prediction tools

New ways of working leveraging organizational synergies



## Decrease in cycle times

Improved governance and decision making (fail / accelerate fast)

Accelerate development from IND to launch through tailored development approaches

Unlock the potential of Real-World Data with AI and Machine learning. Automation and digitization enabling decentralized trials



# A Diverse and Innovative Modality Toolkit to Deliver our Ambition

Delivering Innovative and Competitive Medicines in our Focus Therapeutic Areas

			Oncology	Cardiovascular+ <sup>1</sup>	Neurology & Rare Diseases	Immunology
<b>Small Molecules</b>	Small Molecules (SMOL) RNA targeting Protein degraders Peptides Conjugates					
<b>Protein Therapeutics</b>	Antibody Conjugates Multispecific antibodies Monoclonal antibodies					
<b>Radiotherapy</b>	Targeted Radiotherapy Antibody   SMOL   peptide					
<b>Chemoproteomics</b>	Covalent binders Heterobifunctional degraders Molecular glues					
<b>Cell Therapy</b>	Pluripotent Stem Cells (PSCs)					
<b>Genetic Medicine</b>	Adeno-Associated Virus (AAV) based gene therapy					
	CRISPR-based gene editing					
	Non-viral gene delivery	 Combined with Bayer in-house innovation capabilities				

<sup>1</sup> including Precision Cardiovascular, Nephrology & Acute Care



Bayer innovation capabilities

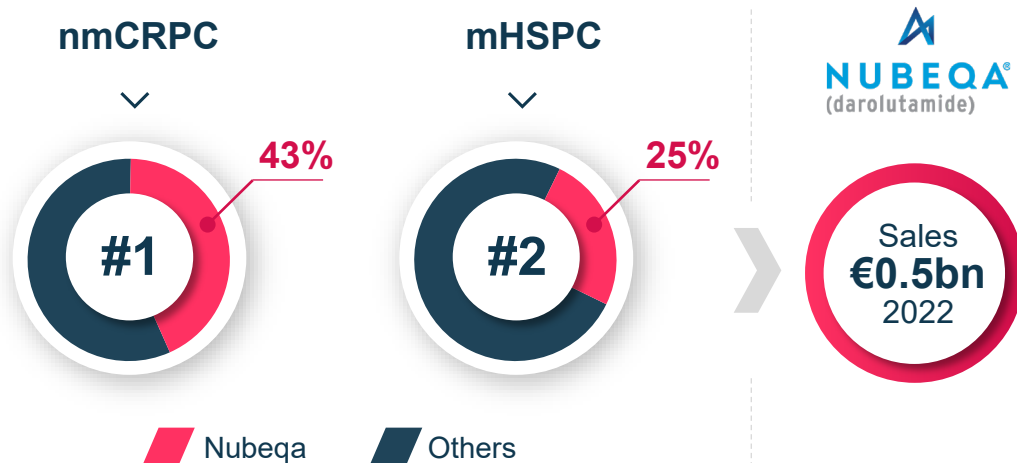


Innovation capabilities added since 2019

# Nubeqa Has The Potential to Become The New Standard of Care in Prostate Cancer Across Indications

## Launch performance

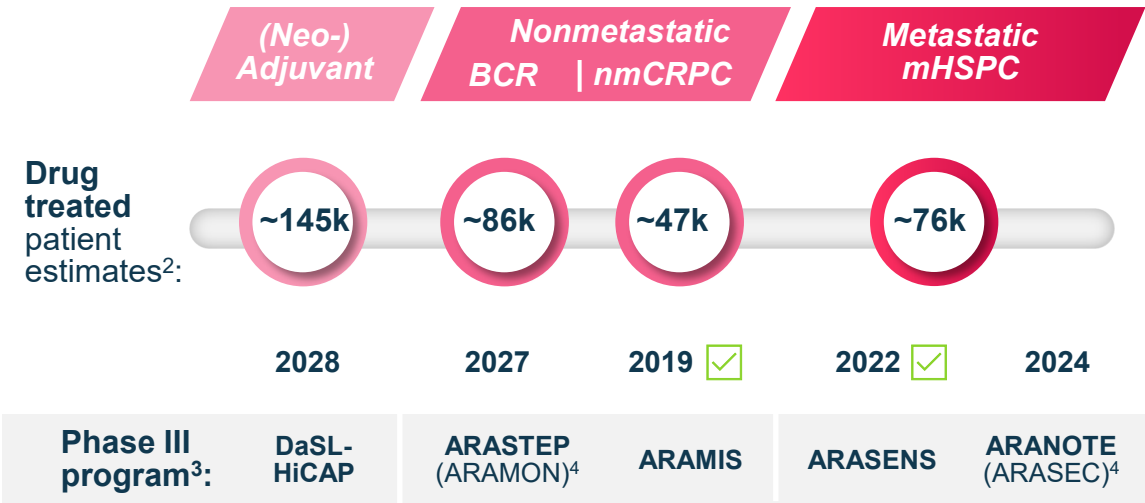
### // US Market Share<sup>1</sup>



// Ex-US, additional approvals will drive further growth

## Expanding to earlier prostate cancer settings

### Patient progression in prostate cancer



// Committed to make Nubeqa available to a broad spectrum of prostate cancer patients

<sup>1</sup> Source: IQVIA January 2023 3-month rolling market share, adjusted to reflect nmCRPC and mHSPC only <sup>2</sup> 2030 Treated Estimates G7: US, EU5, J <sup>3</sup> Stated timelines of the Phase III program refer to either launch dates of Nubeqa in this indication (ARAMIS, ARASENS) or estimated primary completion date of the respective study <sup>4</sup> Not label generating; supports ARASTEP/ARANOTE submission <sup>5</sup> Peak Sales Potential

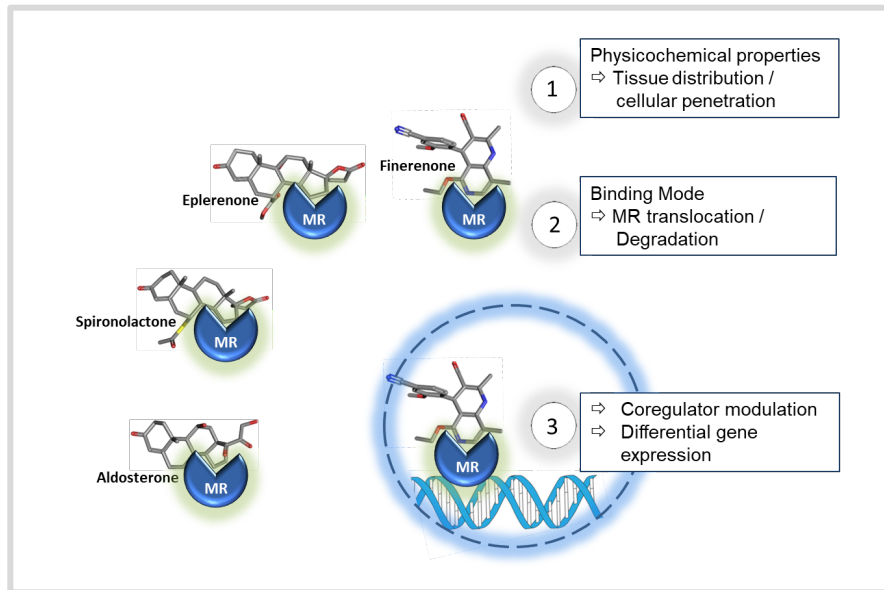


>€3bn Peak<sup>5</sup>

# Finerenone is a Potent, Highly Selective Non-Steroidal Mineralocorticoid Receptor Antagonist (MRA) with Differentiated Profile



## Different binding modes between steroidal MRAs and non-steroidal Finerenone<sup>1</sup>



// Finerenone and steroidal MRAs differ in their molecular receptor binding mode resulting in **distinct effects on gene expression**



## Preclinical data: receptor profile, drug metabolism & tissue distribution of Finerenone<sup>2</sup>

	Spironolactone	Eplerenone	Finerenone
<b>MRA Class</b>	Steroidal	Steroidal	Non-steroidal
<b>Potency</b>	High	Low	High
<b>Selectivity</b>	Low	Medium	High
<b>Metabolites</b>	Multiple, active	No active	No active
<b>Tissue distribution<sup>3</sup></b>	Kidney>>heart (>6-fold)	Kidney>heart (~3-fold)	Balanced (1:1)

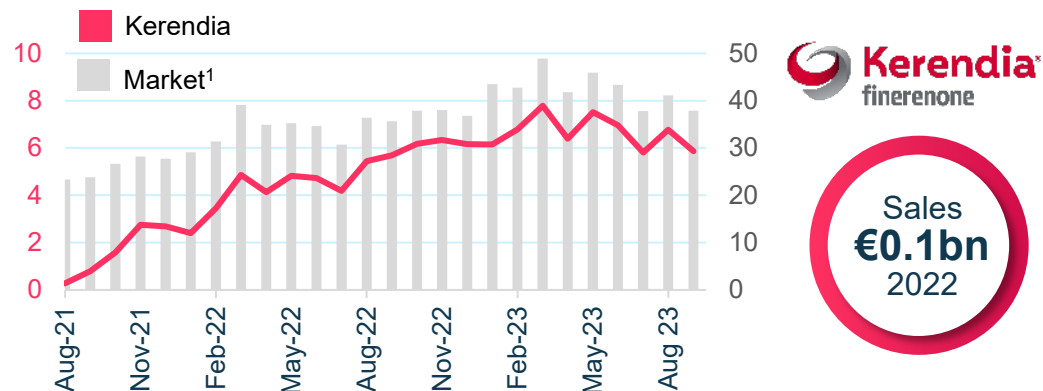
- > No **sexual side effects** including gynecomastia
- > **Balanced kidney safety**
- > Low incidence of **hyperkalaemia-related adverse events** with clinical impact and permanent treatment discontinuation<sup>4</sup>

Source: <sup>1</sup>Kolkhof P, Nowack C, Eitner F. Curr Opin Nephrol Hypertens. 2015;24:417-424. <sup>2</sup>Modified from: Kolkhof B, Borden SA. Mol Cell Endocrinol. 2012;350:310-317. <sup>3</sup>Determined in rodents. <sup>4</sup>Agarwal R, Filippatos G, Pitt B, Anker SD, Rossing P, Joseph A, Kolkhof P, Nowack C, Gebel M, Ruilope LM, Bakris GL; FIDELIO-DKD and FIGARO-DKD investigators. Cardiovascular and kidney outcomes with finerenone in patients with type 2 diabetes and chronic kidney disease: the FIDELITY pooled analysis. Eur Heart J. 2022 Feb 10; 43(6):474-484. doi: 10.1093/eurheartj/ehab777. Erratum in: Eur Heart J. 2022 May 21;43(20):1989.

# Kerendia With Strong Launch Dynamics And The Option to Broaden The Use in CKD And to Expand into HF

## Launch Performance

US launch performance (monthly NBRx, in Thousands)<sup>1</sup>



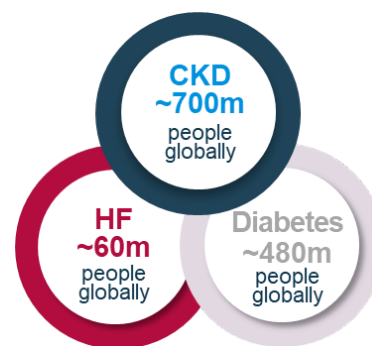
Continued **US market uptake** with broad utility and relevance across GPs and specialists

**Two additional 1A Guideline recommendations** in ESC Guidelines

China: NRDL Listing starting **March 2023**; granted Extended Indication in China in mid-May, including CV outcomes from FIGARO-DKD

## Expanding to additional indications

### Global Patient Population<sup>2</sup>



// Growing **recognition of strong interlink** between CKD and HF

### Phase III program<sup>3</sup>:

#### Chronic Kidney Disease

T2D	T1D	Non-diabetic
FIGARO-DKD <input checked="" type="checkbox"/>	FINE-ONE	FIND-CKD
FIDELIO-DKD <input checked="" type="checkbox"/>	2025	2026

#### Heart Failure

HFmr/pEF <sup>4</sup>	HFrEF <sup>5</sup>
FINEARTS-HF	FINALITY-HF
2024	2026
REDEFINE-HF	
2026	
Combination therapy with SGLT2i	
CONFIRMATION-HF	
2025	

<sup>1</sup> Source: IQVIA, National NBRx, Sep 29, 2023; US Market includes NBRx linked to T2D and CKD <sup>2</sup> Source: Vijay et al, 2021 <sup>3</sup> Timelines of the Phase III program refer to estimated primary completion dates of the respective study

<sup>4</sup> LVEF ≥40% <sup>5</sup> LVEF <40% <sup>6</sup> Peak Sales Potential



>€3bn Peak<sup>6</sup>



# Existing Phase III data support potential expansion into Heart Failure



## Unmet medical need

- > HF is the **fastest-growing global CV disease** with approximately ~60m HF patients worldwide
- > About 50% of HF patients have HF with LVEF  $\geq 40\%$ . They suffer from a high **CV mortality rate** (42% within 5y of diagnosis) despite SoC
- > Renal dysfunction and HFmrEF/pEF frequently coexist, due to **shared comorbidities and factors impacting macrovascular and microvascular circulation**



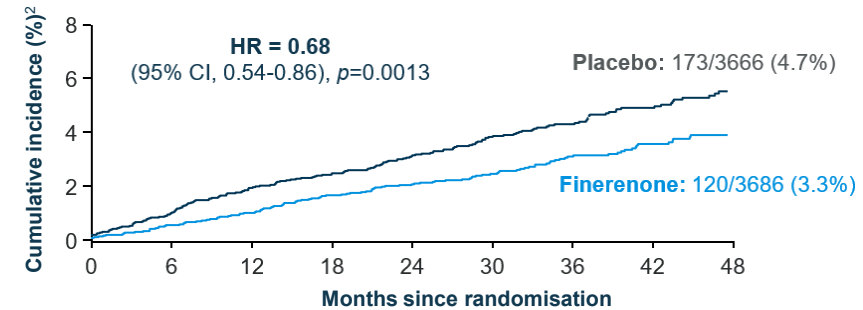
## Upcoming development milestones

- > FINEARTS-HF Phase III data **expected in 2024**

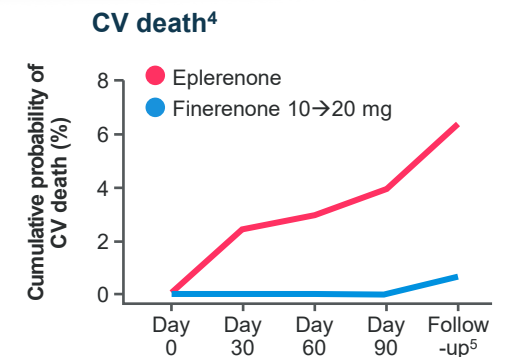
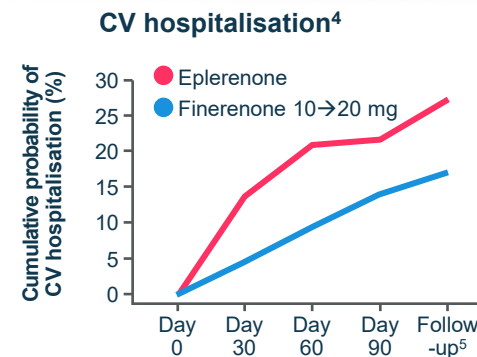


## Clinical data suggest benefit of Finerenone in Heart Failure

**Phase III FIGARO-DKD:**  
Reduced risk of HF-related death or first HHF<sup>1</sup>



**Phase III ARTS-HF<sup>3</sup>:**  
Reduced risk of CV hospitalization and CV death vs eplerenone



<sup>1</sup> First hospitalisation for HF defined as first event after randomisation; <sup>2</sup> Source: cumulative incidence calculated by Aalen-Johansen estimator using deaths due to other causes as competing risk. Filippatos G, et al. *Circulation* 2022;145:437-447

<sup>3</sup> Both phase 2a study ARTS and phase 2b study ARTS-HF were in HFrEF, <sup>4</sup> Source: Kolkhof P, et al. *Handb Exp Pharmacol* 2017;243:271-305; 2. Filippatos G, et al. *Eur Heart J* 2016;37:2105-2114; <sup>5</sup> 30-day period after cessation of study drug

# Elinzanetant as Investigational Non-hormonal Treatment Option in The Menopause Market With Peak Sales Potential of >€1bn

## > Market Characteristics

**80%** of women will experience vasomotor symptoms, with over half reporting moderate or severe symptoms

**~60%**<sup>1</sup> of women with menopausal symptoms are not treated

**1.2 billion women** menopausal or postmenopausal **by 2030**



## Elinzanetant

- // **First, non-hormonal**, once-daily, oral neurokinin-1,3 receptor antagonist
- // Differentiated, **double mode of action**
- // **Phase II indicated significant and rapid improvement** in VMS and positive safety profile

## Current Status

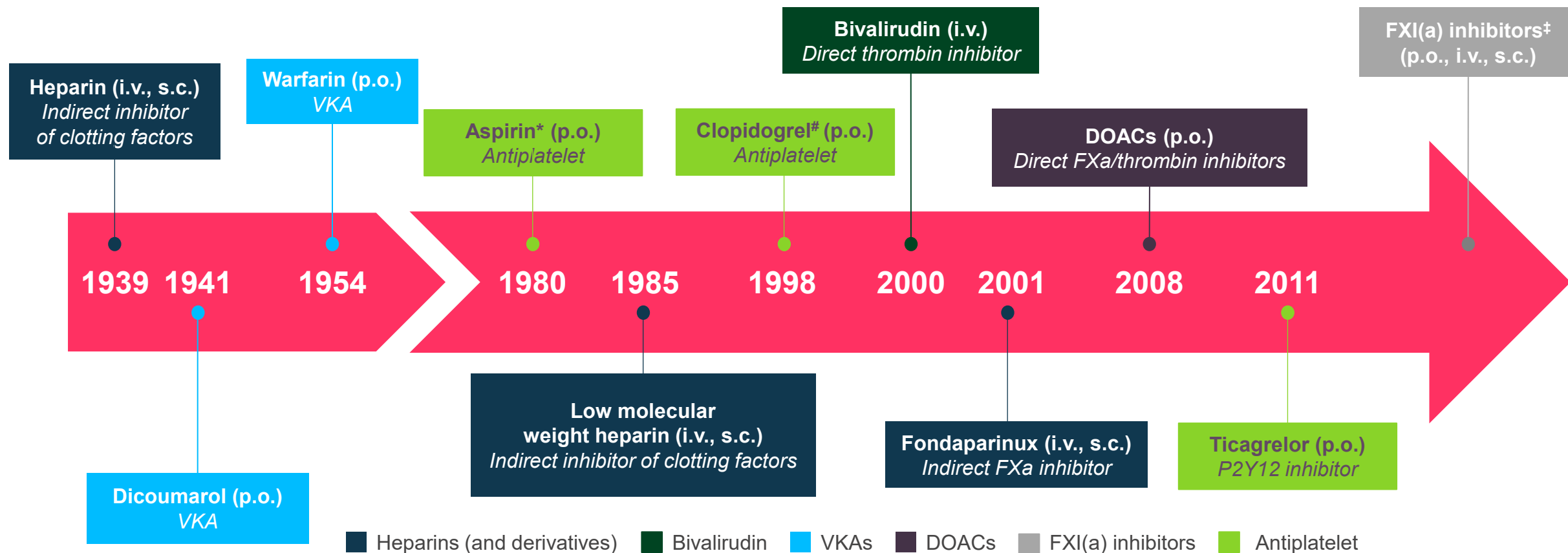
- // **Four Phase III studies** (OASIS-1 – OASIS-4)
- // **First Phase III data** expected in H2 2023
- // **Potential launch: 2025**



**>€1bn**  
Peak<sup>2</sup>

<sup>1</sup> Source: Market Research - IPSOS - Global VMS Women Segmentation <sup>2</sup> Peak Sales Potential

# Antithrombotic Therapy Timeline<sup>1-9</sup>



\*Year aspirin approved for stroke prevention. #EU approval in 1998, FDA approval in 1997. ‡FXI(a) inhibitors are a class of antithrombotics that are currently being investigated in clinical trials; they are not approved for use in any country.

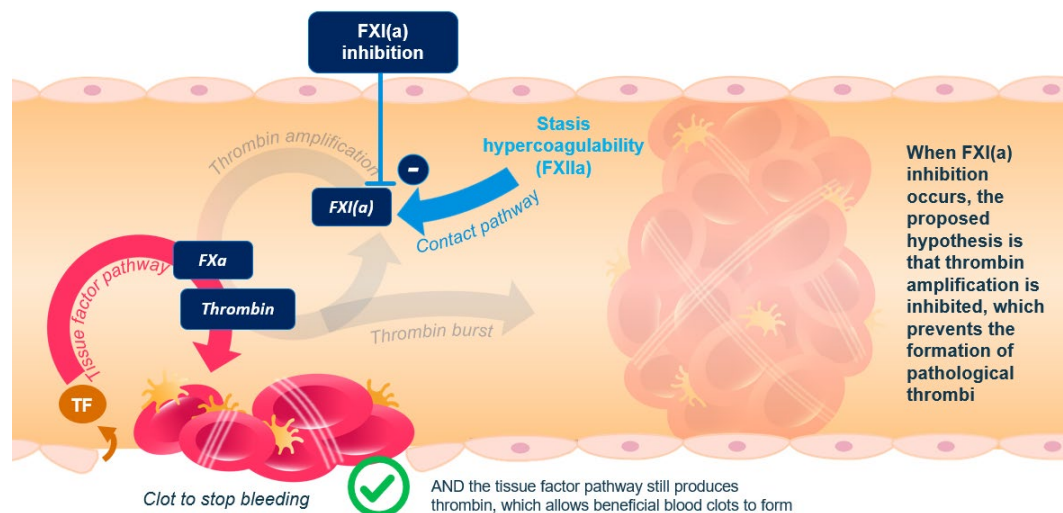
DOAC, direct oral anticoagulant; FDA, US Food and Drug Administration; FXa, activated factor X; FXI(a), activated Factor XI; i.v., intravenous; p.o., oral; s.c., subcutaneous; VKA, vitamin K antagonist.

1. Weitz JI, Fredenburgh JC. Arterioscler Thromb Vasc Biol 2018;38:304–310. 2. Franchini M et al. Blood Transfus 2016;14:175–184. 3. Heestermans M et al. Cells 2022;11:3214. 4. Campello E et al. J Clin Med 2022;11:6314. 5. Ugurlucan M et al. Recent Pat Cardiovasc Drug Discov 2012;7:71–76. 6. FDA. 1997. [https://www.accessdata.fda.gov/drugsatfda\\_docs/nda/97/020839\\_plavix\\_toc.cfm](https://www.accessdata.fda.gov/drugsatfda_docs/nda/97/020839_plavix_toc.cfm). 7. MarketScreener. 2021. <https://www.marketscreener.com/amp/quote/stock/SANOFI-4698/news/Sanofi-New-indication-for-Plavix-now-approved-in-the-European-Union-32407078/>. 8. European Pharmaceutical Review. 2010. <https://www.europeanpharmaceuticalreview.com/news/4713/european-commission-approves-brilique-ticagrelor-tablets/>. 9. Angioplasty.Org. 2011. [http://www.ptca.org/news/2011/0720\\_TICAGRELOR.html](http://www.ptca.org/news/2011/0720_TICAGRELOR.html).

# FXI(a) Inhibitors Are a Promising And Distinct New Class of Drugs For Thrombosis Prevention

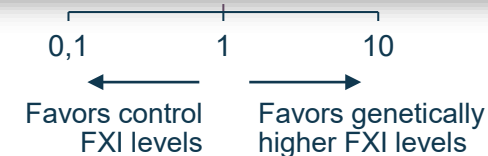
Separating Thrombosis Protection from Haemostasis via Selective Modulation of the Coagulation System

## Mode of Action<sup>1-3</sup>



Patients with genetically higher FXI levels show increased risk of ischemic stroke<sup>4</sup>

Ischemic stroke subtype <sup>x</sup>	Cases (N)	Controls (N)	OR 95% CI	p-value
Cardioembolism	3,071	28,722		0.0003
Large artery atherosclerosis	2,454	28,880		0.02
Small vessel occlusion	2,736	27,588		0.69
Undetermined cause	4,755	25,292		0.0002



> **Paradigm shift** in thrombosis prevention, with the potential to uncouple efficacy from bleeding risk

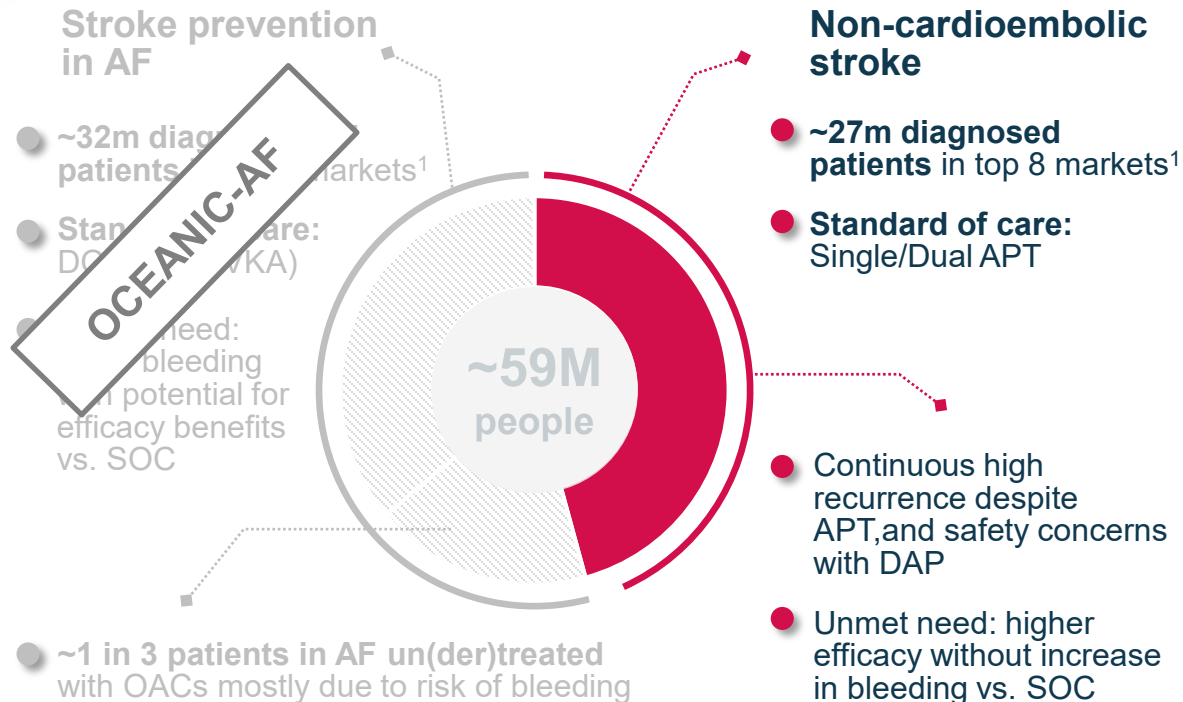
FXa, activated Factor X; FXI(a), activated Factor XI; FXII(a), activated Factor XII; TF, tissue factor.

Source: <sup>1</sup> Piccini JP et al. Lancet 2022;399:1383–1390. <sup>2</sup> Fredenburgh JC, Weitz JI. Hamostaseologie 2021;41:104–110. <sup>3</sup> Gailani D et al. J Thromb Haemost 2015;13:1383–1395. <sup>4</sup> Gill D et al. Stroke 2018;49:2761–2763



# Currently Un(der)treated Patients May Provide Asundexian a Strong Entry Point Into The Anticoagulation Market

## > Market Characteristics



## Asundexian

- // **Innovative**, once-daily, oral small molecule FXIa inhibitor
- // **Paradigm shift in thrombosis prevention**, with the potential to uncouple efficacy from bleeding risk
- // **Broad Phase II study program PACIFIC** confirmed consistent safety and near maximum FXIa inhibition

## Current Status

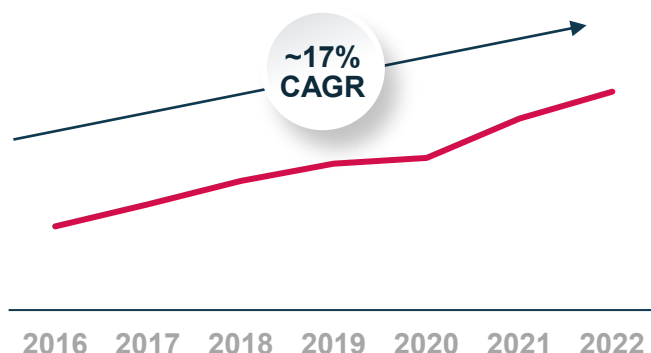
- // **Phase III study OCANIC-STROKE** ongoing
- // **U.S. FDA Fast Track Designation** granted
- // **Data expected** in H2 2025

<sup>1</sup> Top 8 markets: US, CN, JP, EU5  
Peak Sales Potential of asundexian currently under evaluation following the early stop of OCEANIC-AF due to lack of efficacy

# Strong Aflibercept 8mg Data Reinforce Leading Clinical Profile of Eylea Franchise

## Leading medicine in wAMD and DME treatment

### Eylea Volume Development (vials + prefilled syringes)



Share in  
ex-US markets  
**~60%**

- // Gold standard in efficacy and safety
- // High competitive hurdle: >10 million of treated years for patients and physicians
- // First biosimilar launches expected in 2024 (CA, JP)

## Unparalleled clinical data further raising the bar

### Aflibercept 8mg

Aflibercept 8mg Injection	Share of patients maintaining on dosing interval <sup>(1)</sup>	
	Photon (DME)	PULSAR (wAMD)
every 12 weeks	91%	79%
every 16 weeks	89%	77%

<sup>1)</sup> after 48 weeks; comparator arms: Eylea every 8 weeks

- // Significant prolongation of injection intervals without compromising efficacy and safety
- // Set to become new standard of care despite increasing competitive dynamics
- // Submissions in major markets in 2023, launch by 2024

**Commercial potential substantially strengthened**

DME: diabetic macular edema; wAMD: wet age-related macular degeneration

# Oncology will Remain a Major Segment of the Pharma Market and we have a Strong Foundation to Build on

## Oncology Opportunity

### MARKET ATTRACTIVENESS

#### High unmet need

- // Growing health burden, with cancer being the second leading cause of death at present
- // 30M new cases annually expected by 2040

#### One of the largest and fastest growing segments

- // 2021-28 CAGR of 12%, expected to reach >€300bn by 2028

#### Disruptive innovation in Oncology

- // Access to “undruggable” targets, new biomarker approaches & diagnostic tools create numerous opportunities for new precision therapeutics



### BAYER'S KEY STRENGTHS

#### Scientific and clinical expertise

- // SMOL chemistry and peptide therapeutics
- // Vividion as leaders in chemoproteomics
- // Targeted Radiotherapy (TRT)
- // GI, GU (notably prostate) and other high unmet need cancers

#### Commercial capabilities

- // Successfully launched several assets



5

Approved  
medicines

€1.8bn

2022 Oncology  
Revenue

Source: EvaluatePharma (July 2022), Pharmaprojects (Oct 2021); IQVIA Pharma Deals (January 2021); McKinsey analysis

## Scientific focus: PRECISION DRUG DEVELOPMENT

## (Projected) Unmet need



Targeted  
Radionuclide  
Therapies (TRT)



Precision  
Molecular  
Oncology (PMO)



Next Generation  
Immuno Oncology  
(IO)



**Genitourinary (GU)**  
Prostate, Bladder,  
Renal cancers



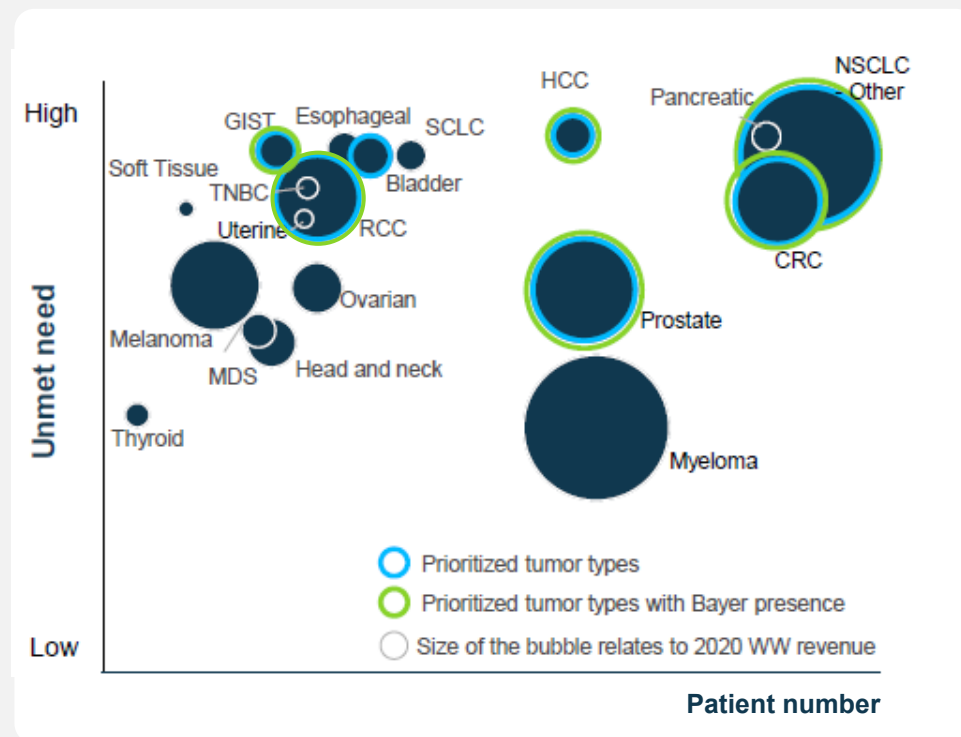
**Gastrointestinal (GI)**  
Colorectal, Liver,  
Gastric cancers



**Lung Cancer  
(NSCLC)**



**Other Tumors**  
with high  
unmet need





## MARKET ATTRACTIVENESS

### High unmet medical needs

- // Leading cause of death
- // Increasing disease burden and rising comorbidities
- // Huge impact on healthcare systems and workforce

### Emerging trends

- // Novel drug modalities offer new opportunities
- // Advanced tools like multi-omics enable precision medicine
- // Digital solutions enable early diagnosis and targeted treatment

### Attractive growth market

- // Worldwide market value of €65bn (2022) continuing to grow at a steady pace
- // Pharma industry underinvests in CV R&D in relation to disease burden
- // Huge opportunity in precision CV due to scientific progress

## BAYER'S KEY STRENGTHS

### Record of success

- // Industry leader in cardiovascular
- // Expertise along the entire value chain
- // Established global commercial footprint

### Exciting recent and near-term launches

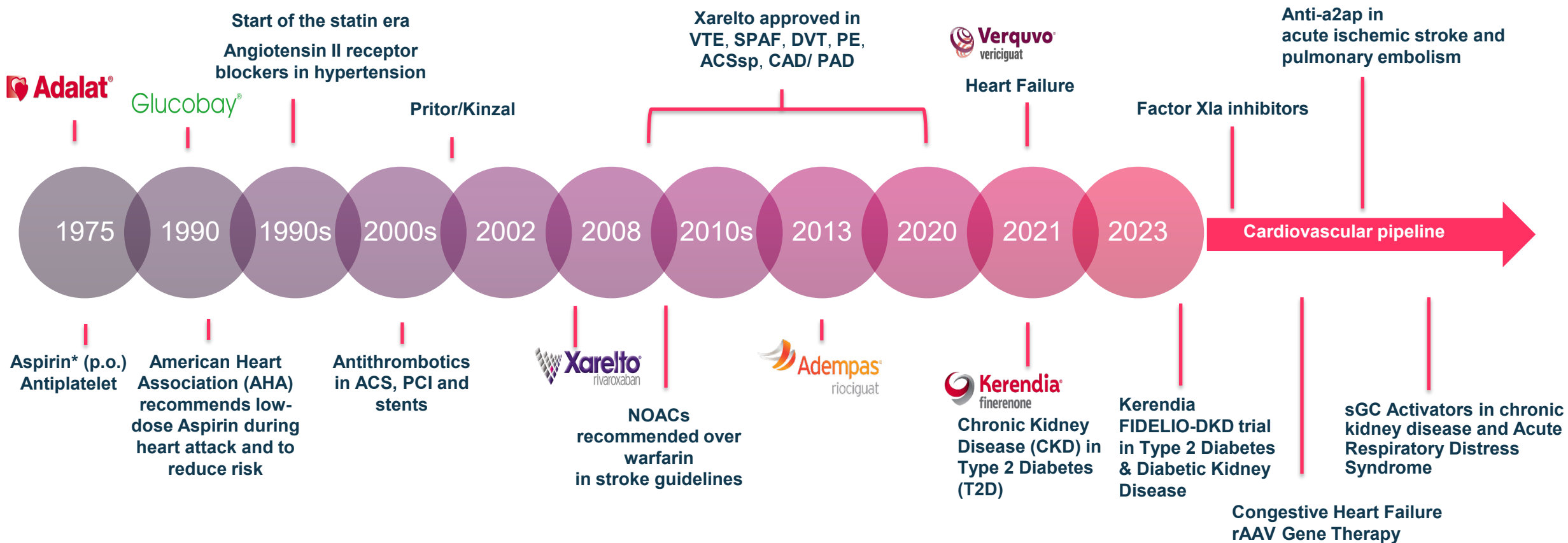
- // Late-stage pipeline asset asundexian: Innovative, once-daily, oral small molecule FXIa inhibitor
- // Successful launch of Kerendia with LCM potential

### Strategic focus on precision CV

- // Expertise available to address and internalize scientific progress
- // External collaborations & platform companies further enhance our transition into precision CV

**CARDIOVASCULAR<sup>+1</sup>**

<sup>1</sup> including Precision Cardiovascular, Nephrology & Acute Care



\*Year aspirin approved for stroke prevention.

Acute coronary syndrome (ACS), acute coronary syndrome secondary prevention (ACSsp), coronary artery disease (CAD), deep vein thrombosis (DVT), novel oral anticoagulants (NOACs), peripheral artery disease (PAD), percutaneous coronary intervention (PCI), pulmonary embolism (PE), stroke prevention in atrial fibrillation (SPAF), venous thromboembolism pharmacoprophylaxis (VTEp),

# We Focus on Three Value Pools to Build on our Leadership in CV

Gradual Shift from Large Indications to High Value Subpopulations and Rare Indications



## Patient focus

## Disease areas

## Selected indications *(indicative)*



Addressing the **highest unmet medical need** for patients with rare diseases



Catering to subpopulations of **larger indications with high unmet medical need**



Opportunistic **focus on real disruption** in large indications with highest standard of care



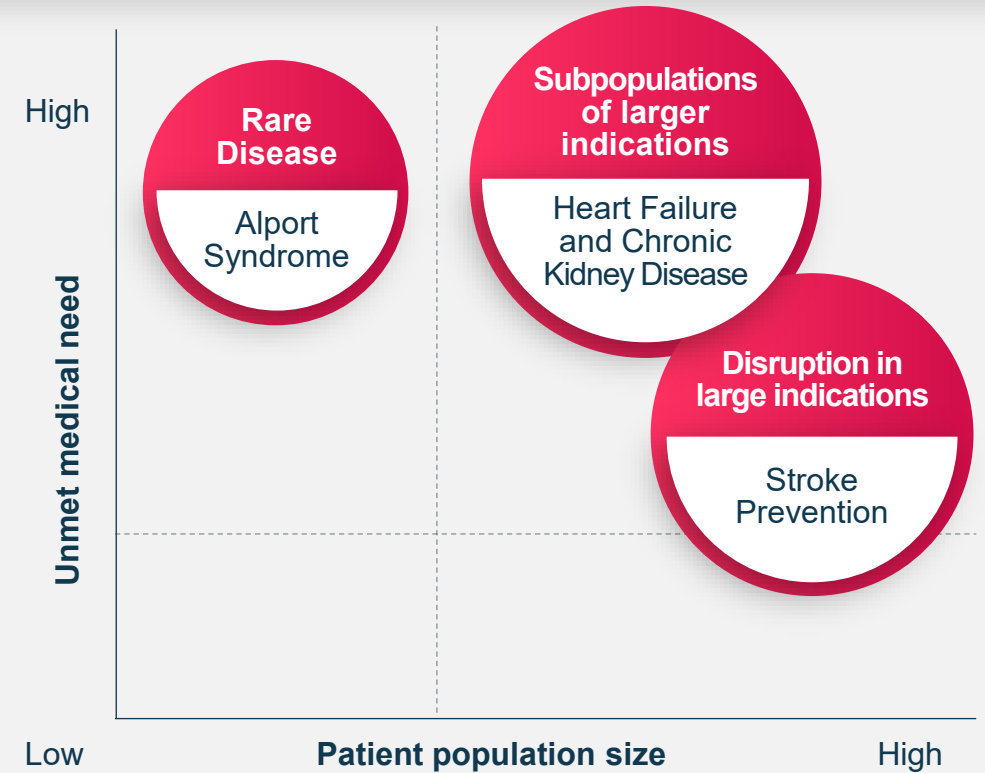
**Cardiovascular**



**Nephrology**



**Acute Care**



## MARKET ATTRACTIVENESS

### High unmet medical needs

- // Many underserved or previously intractable diseases with high unmet need

### Paradigm shift in patient treatments

- // Transition from symptomatic treatment to transformative therapies addressing disease root causes with long-lasting clinical benefit

### Attractive growth market

- // Exciting scientific breakthroughs in Neurology and rapid advances in new modalities including CGT
- // ~7,000 known rare disease, 80% of which are genetic in origin

## BAYER'S KEY STRENGTHS

### Enabled by our existing capabilities

- // State-of-the-art technology platforms for cell and gene therapy
- // Bundling capabilities of strong in-house teams, platforms and partnerships in key technologies such as gene editing and lipid nanoparticles
- // Bayer know-how and experience across the value chain
- // Infrastructure and upscaling know-how

### Synergies with other therapeutic areas

- // Opportunity to address unmet needs at the intersection of cardiovascular and ophthalmology to leverage synergies

**NEUROLOGY  
& RARE DISEASES**



# Bayer Entering Immunology

Significant Unmet Medical Need Despite Rapid Scientific Advances



04

## MARKET ATTRACTIVENESS

### High unmet medical needs

- // Many underserved diseases
- // Globally increasing incidence & prevalence

### Robust research innovation

- // Advancing disease understanding, biomarker research to drive future precision therapies

### Potential for long-lasting remission

- // Novel precision targets empowered by new technology (incl. Machine Learning & AI) for better disease understanding

### Attractive growth market

- // Among top-growing pharma markets
- // Efficient clinical trials and attractive PTS

## BAYER'S KEY STRENGTHS

### Enabled by our existing capabilities

- // Access to highly differentiated Vividion's chemoproteomics platform
- // Highly differentiated small molecules library
- // Covalent and non-covalent small molecules, direct functional modulators, degraders
- // Rapidly accelerating assets in preclinical and clinical development

### Synergies with other therapeutic areas

- // Relevant expertise enabling Bayer's other strategic focus areas



**IMMUNOLOGY**

# AskBio is a Pioneer in AAV-based Gene Therapy with Unparalleled Pipeline, Talent and Manufacturing Capabilities

> Founded in 2001 by **R. Jude Samulski, Sheila Mikhael and Xiao Xiao** who pioneered the AAV gene therapy field

> Dedicated to developing life-saving medicines **that can potentially cure genetic diseases**

// ~7,000 rare diseases are known to date;  
~80% of rare diseases are genetic in origin

## FIRST



to clone AAV  
for **therapeutic**  
purposes



to deliver  
AAV  
intrathecally



to treat **DMD**  
and **Pompe**  
patients



to deliver  
AAV to  
the brain

## PILLAR I

### Technology

Renowned toolbox  
(capsids, regulatory  
elements, gene editing)



## PILLAR II

### Manufacturing

Distinguished  
manufacturing capabilities  
(cell line/infrastructure)



## PILLAR III

### Clinical development

Strong translational  
expertise, combined  
with academic network



## TRANSLATE INTO

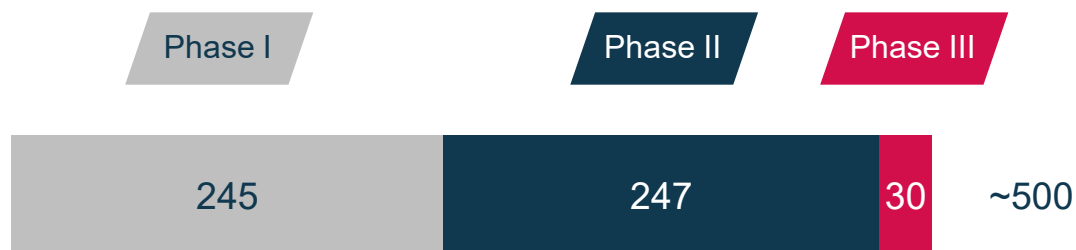
Promising  
therapeutic pipeline

# The Gene Therapy Market is Expected to Reach €17bn in 2028

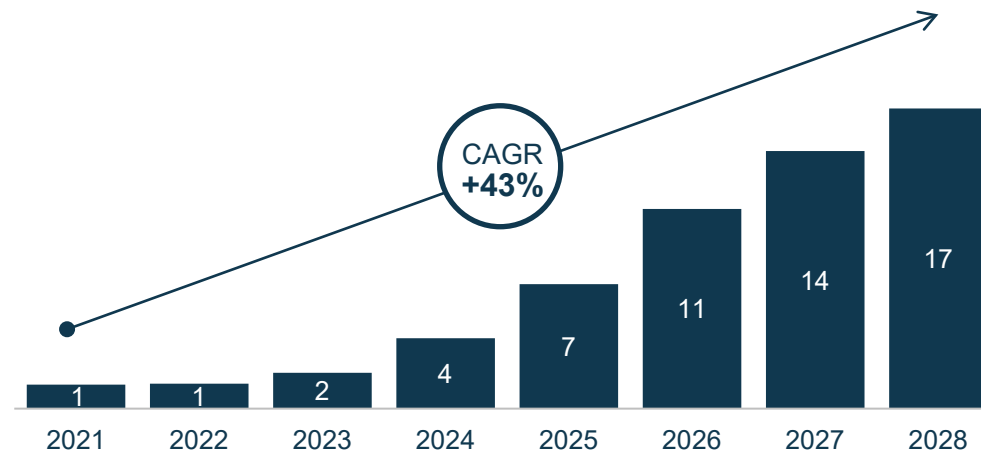


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## Gene therapies in clinical development <sup>1</sup>



## Gene Therapy projected sales (€bn) <sup>2</sup>



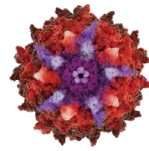
> Majority of approved gene therapies are based on AAV vector technology

> First AAV gene therapy approval in 2017; number of gene therapy approvals is expected to increase significantly until 2030, resulting in strong anticipated sales growth

> Shaping of access models, policies and payer environment are crucial to sustainable success

Source: <sup>1</sup> ASGCT Q1/2023 report; <sup>2</sup> Evaluate Pharma Feb 2023, Fx rate based on central financial 1.01US\$ = 1€

# AskBio's Balanced Portfolio is Addressing Monogenic and Pathway Disorders



**AskBio**  
MAKING HISTORY

## *Monogenic disorders*

---

- // Mutation occurs in the **DNA sequence of a single gene**
- // **Most monogenic disorders are rare diseases** such as Pompe disease, Huntington's disease, hemophilia and cystic fibrosis.
- // Historically the first to be targeted by **gene therapy**
- // **Smaller** patient populations

## *Pathway disorders*

---

- // **Caused by mutations in several genes** and can be compounded by environmental factors such as smoking or diet
- // Common examples **include heart disease, cancer and type 2 diabetes**
- // Require **more complex therapeutic approaches** than monogenic disease-targeting therapies, which are mainly gene addition (or augmentative) gene therapies
- // **Larger** patient populations



# BlueRock Therapeutics is a Leader in PSC Biology, Bringing Therapies From Bench to the Clinic

**MISSION:** To discover and develop new cell therapies that change the way disease is treated and improve patients' lives



## Cell Replacement

**REPLACE**  
Cells

**RESTORE**  
Function

**REVERSE**  
Disease

### Founding science



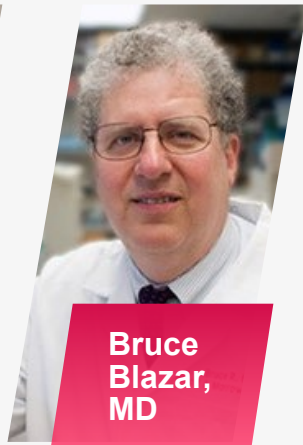
**Lorenz  
Studer,  
MD**

// MSK  
Cancer Center



**Gordon  
Keller,  
PhD**

// University  
Health Network



**Bruce  
Blazar,  
MD**

// University  
of Minnesota



## Engineered Cells

**ENGINEER**  
Cells

**DELIVER**  
Payload

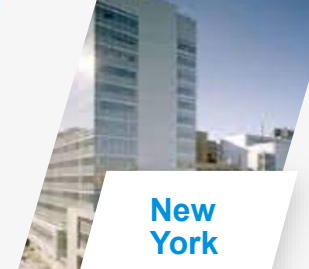
**TREAT**  
Rare & Common

### FOUR SITES ACROSS USA, Canada and Germany



**Cambridge  
(HQ)**

// Immunology Research  
// Clinical & Regulatory  
// Pilot cGMP facility  
// Genome Biology



**New  
York**

// Neurology Research  
// Platform Technology



**Toronto**

// Cardiac Research  
// Device  
and Formulations  
// Pilot cGMP Facility



**Berlin**

// Support for  
clinical programs  
and coordination  
of regulatory  
processes in Europe

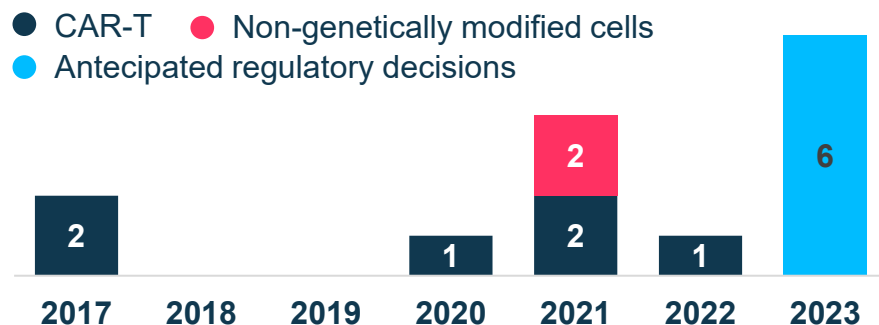
**Focus on four disease areas (Neurology, Cardiology, Immunology, Ophthalmology)**

# The Cell Therapy Market Is Expected to Reach >USD25bn by 2026



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## History of FDA cell therapy approvals<sup>1</sup>

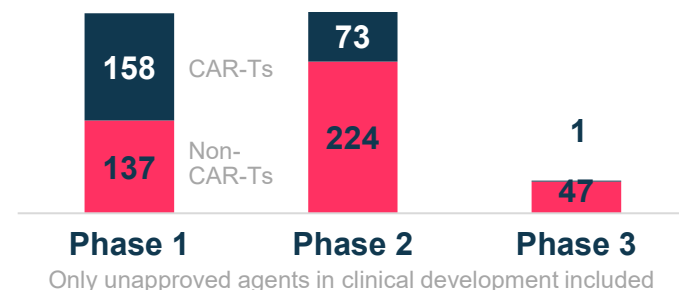


FDA Approved Cellular and Gene Therapy Products

- // First cell therapy approved in 2017, majority of currently approved cell therapies still CAR-T based for hematological malignancies
- // Cell therapies expected to remain one of the fastest growing therapeutic options in the pharmaceutical sector
- // Key considerations for successful commercialization:
  - // streamlining supply chain and administration logistics
  - // patient and caregiver support
  - // innovative payment solutions

## Number of cell therapies in clinical development today<sup>2</sup>

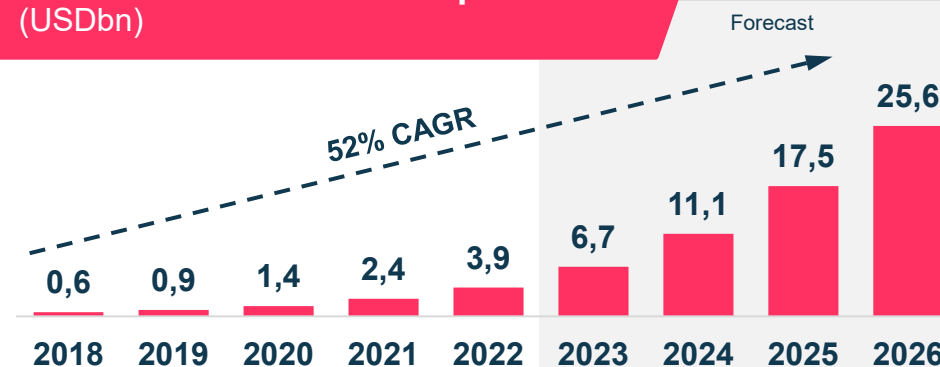
Informa, June 2023



// ~640 cell therapies in clinical development across TAs

// Multiple ongoing phase 3 trials for approved CAR-T (e.g., label expansion)

## Global sales of cell therapies<sup>3</sup> (USDbn)

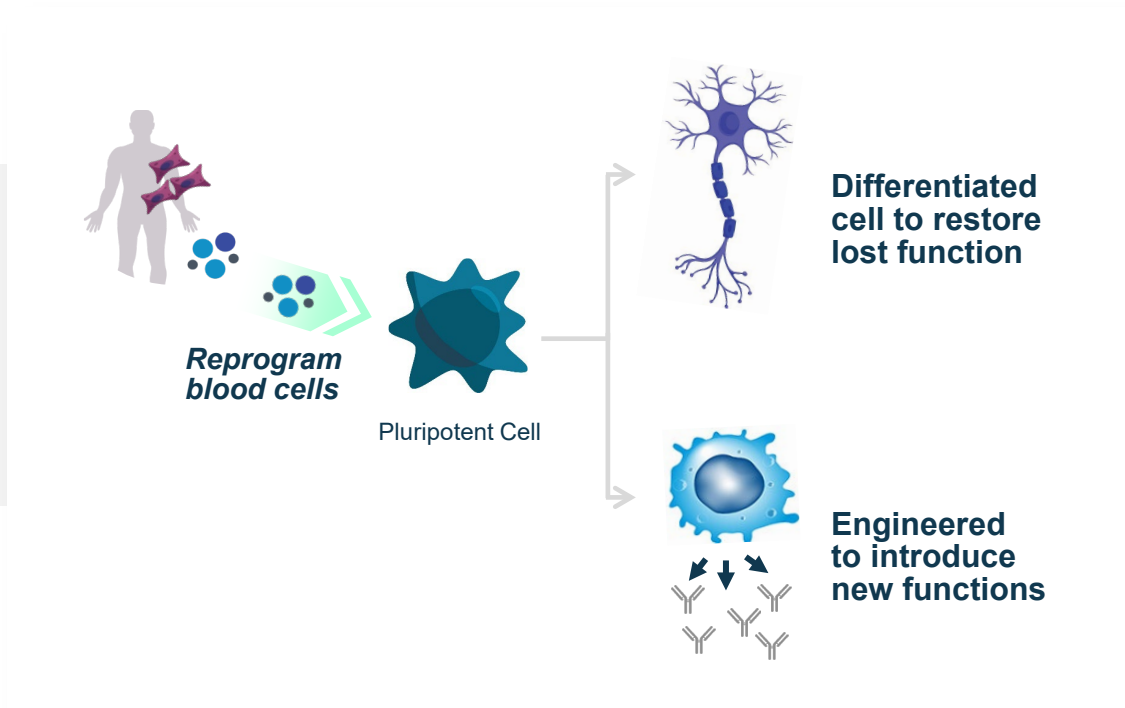


Cord Blood approvals not included in approved therapies

Sources: <sup>1</sup> FDA Approved Cellular and Gene Therapy Products <sup>2</sup> Pharma Intelligence, Informa <sup>3</sup> EvaluatePharma, Oct. 2022 for pipeline and sales/ forecast

# Pluripotent Stem Cells (PSCs): Potential to Restore Lost Cellular Function and Introduce New Functions to Address Multiple Diseases

## Therapeutic potential of PSCs



## Examples of target disease areas

// Parkinson's Disease  
 // Heart Failure  
 // Retinitis Pigmentosa  
 // Geographic Atrophy (AMD)

// Oncology  
 // Alzheimer's Disease  
 // Metabolic Diseases  
 // Autoimmune Diseases

# Parkinson's Disease is a Progressive, Neurodegenerative Condition Defined by Dopaminergic Neuron Loss and Motor Impairment

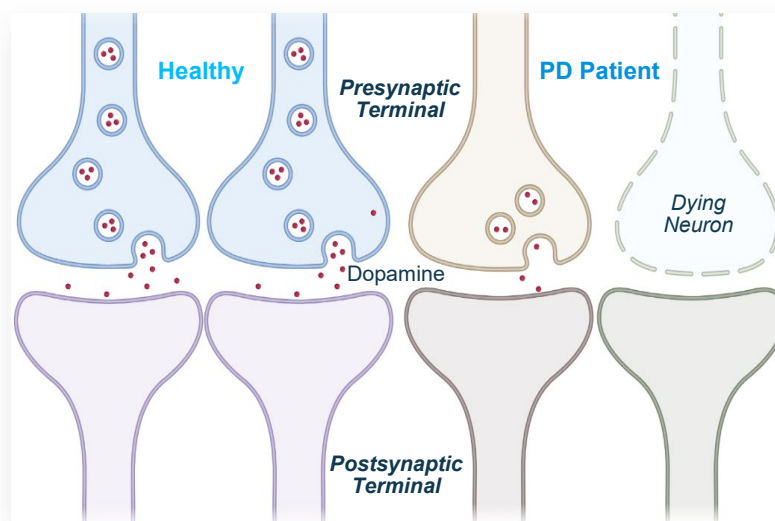


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## PD motor symptoms caused by loss of DA neurons

// **Healthy dopamine neurons (DA)** in the brain make the **neurotransmitter dopamine** critical for **several brain functions**, including movement

// **Loss of DA cells** results in less dopamine and leads to **Parkinson's Disease**



## Current treatments and unmet need

- // **PD** is the **second most common neurodegenerative disorder** in the US
- // Limited **treatment options** available as **patients progress**
- // **Medications**, effective at early stages, become less and **less effective with disease progression**
- // Significant unmet need for **longer-lasting therapies** that will alter the **disease trajectory**

> **Bemdaneprocel** is being developed as a **one-time cell therapy** that will **provide dopaminergic neurons** to the brain to **restore lost dopaminergic function**

> The goal is to **alter disease progression** and **reverse symptoms** over time, so patients remain independent and live a life that is **not defined by their diagnosis**

Source: Song 2016. Frontiers in aging neuroscience, 8, p.65.; Kalia 2015. The Lancet. 386(9996), 896-912.; Bridi 2018. Frontiers in neuroscience, 12, p.80



# Bemdaneprocel is the First PSC-derived Dopaminergic Cell Therapy with Positive Data in Parkinson's Disease

## Topline Phase I results

- // The study met the primary endpoint; bemdaneprocel was well tolerated with no major safety issues by all twelve patients in both the low and high dose cohorts through one year
- // Feasibility of transplantation, and evidence of transplanted cell survival and engraftment in both cohorts was demonstrated through one year
- // Detailed phase 1 trial data from primary and secondary endpoints presented at the 2023 International Congress of Parkinson's Disease and Movement Disorders (MDS) taking place in Copenhagen from Aug. 27 – 31, 2023

## Phase I study endpoints

### Primary Endpoint:

- // Safety and tolerability at 1-year post-transplant

### Secondary Endpoints (1- and 2-year post transplant):

- // Evidence of cell survival – F-DOPA PET
- // Changes in motor function – Changes in MDS-UPDRS III
- // Changes in waking hours in “OFF” state
- // Continued safety and tolerability



## Addressable patient population

### Indication

Parkinson's Disease

### Patients

US ~1 million



## Asset potential

### Indication

Parkinson's Disease

### Asset Potential



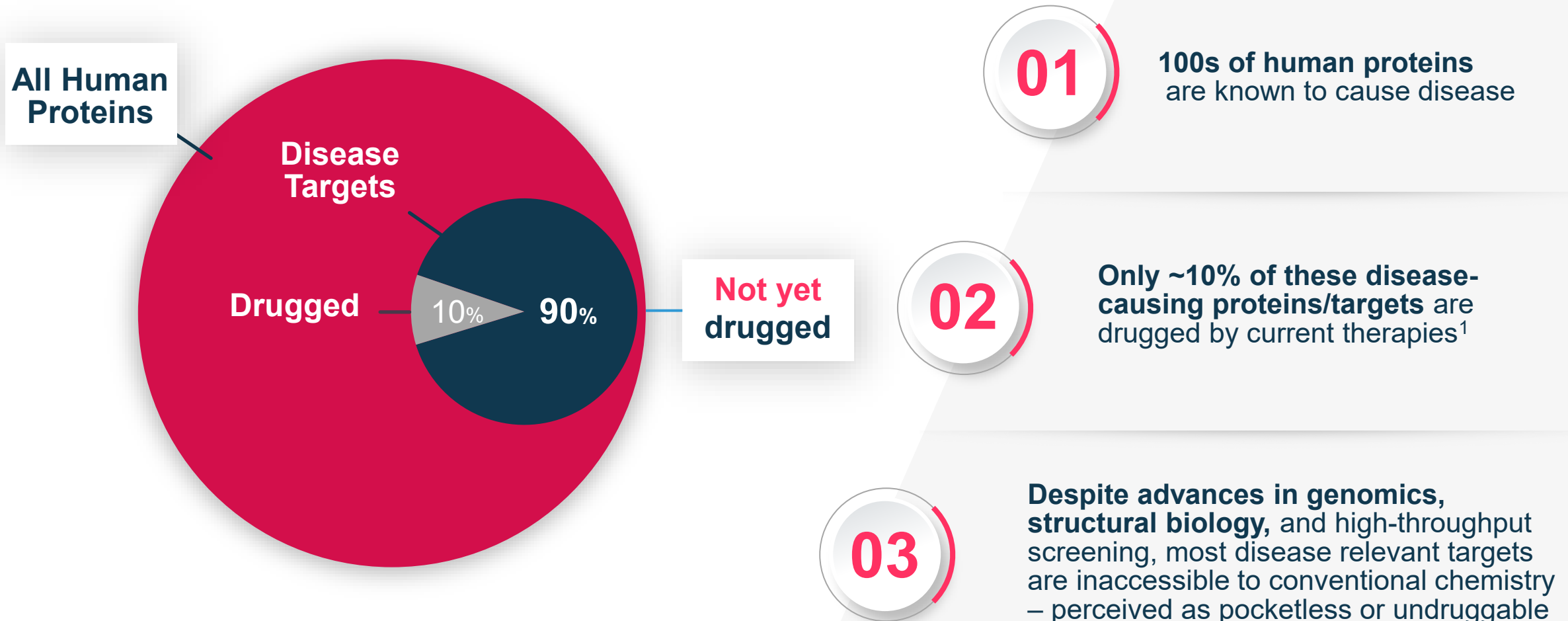
## Status and upcoming development milestones

- // Phase I data in patients with Parkinson's disease presented
- // Phase 2 clinical study expected to begin enrolling patients in H1 2024

# Vividion Addresses Limitations of Conventional Small Molecule Drug Discovery



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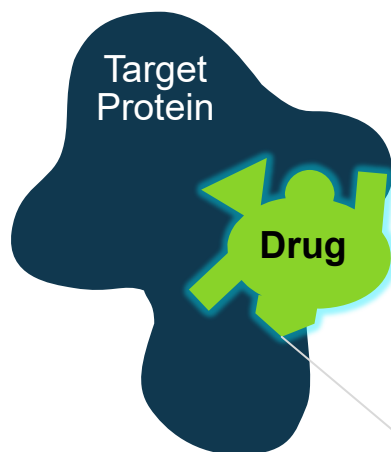
<sup>1</sup> Source: Oprea et al., Nature Reviews Drug Discovery, 17: 317-332, 2018.

## Reversible drug

### Drug-like potency and selectivity requires

- > Large contact surface between drug and protein
- > Multiple specific types (polar) of interactions
- > Deep pockets

Drugs for targets **within druggable classes** (e.g., enzymes, receptors)



Protein-small molecule interaction surface

## VIVIDION "covalent first" drug

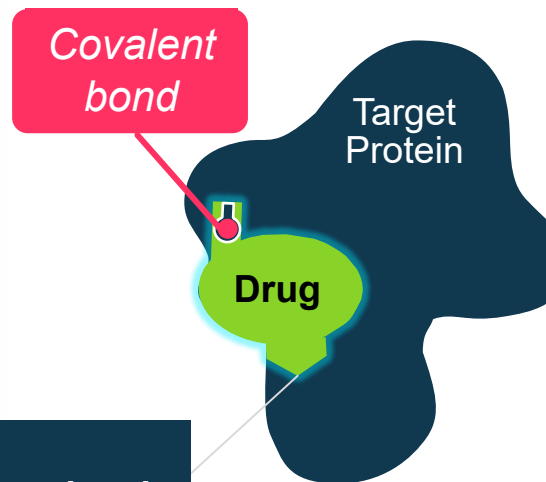
### Drug-like potency and selectivity requires

Small contact surface and minimal polar interactions that guide covalent bond formation

Reactive amino acid (cysteine)

Shallow pockets

Allows for druggability of **all/any disease relevant targets** (e.g., enzymes, receptors, transcription factors, ubiquitin ligases)



<sup>1</sup> Source: Market Research - IPSOS - Global VMS Women Segmentation

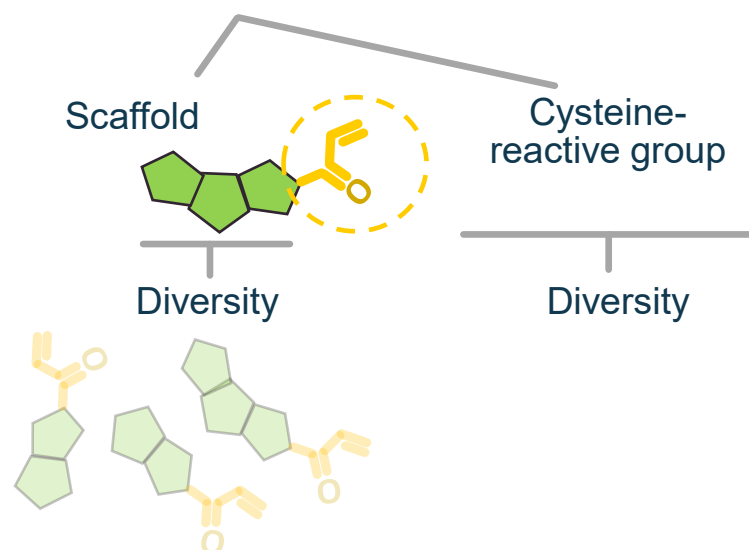
<sup>2</sup> Peak Sales Potential

## 01

### The chemistry

#### Unique Covalent Small Molecule Library

VVD compounds are comprised of 2 distinct structural elements:

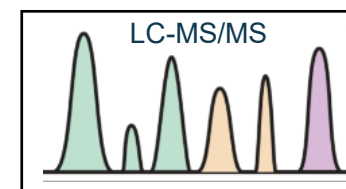


## 02

### The platform (assay)

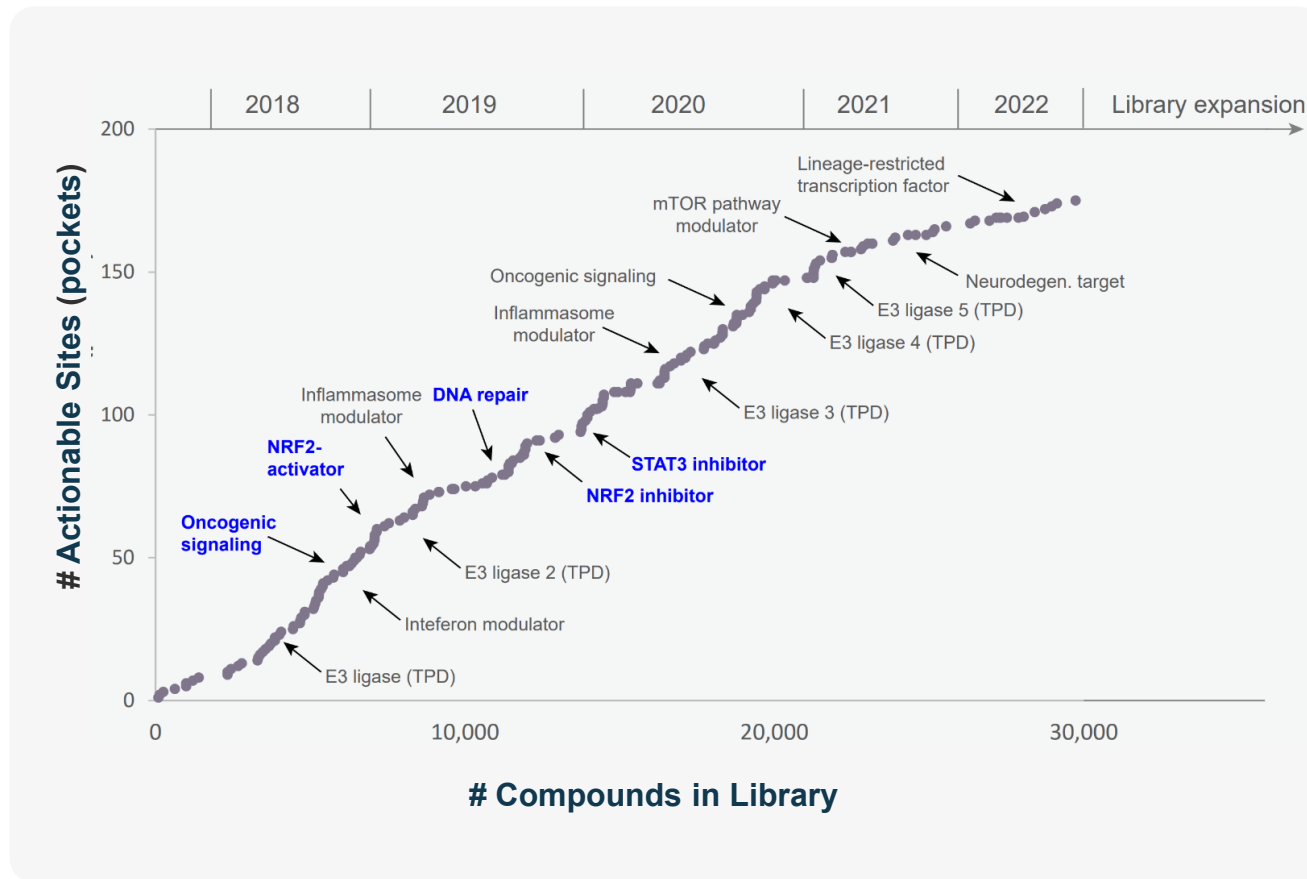
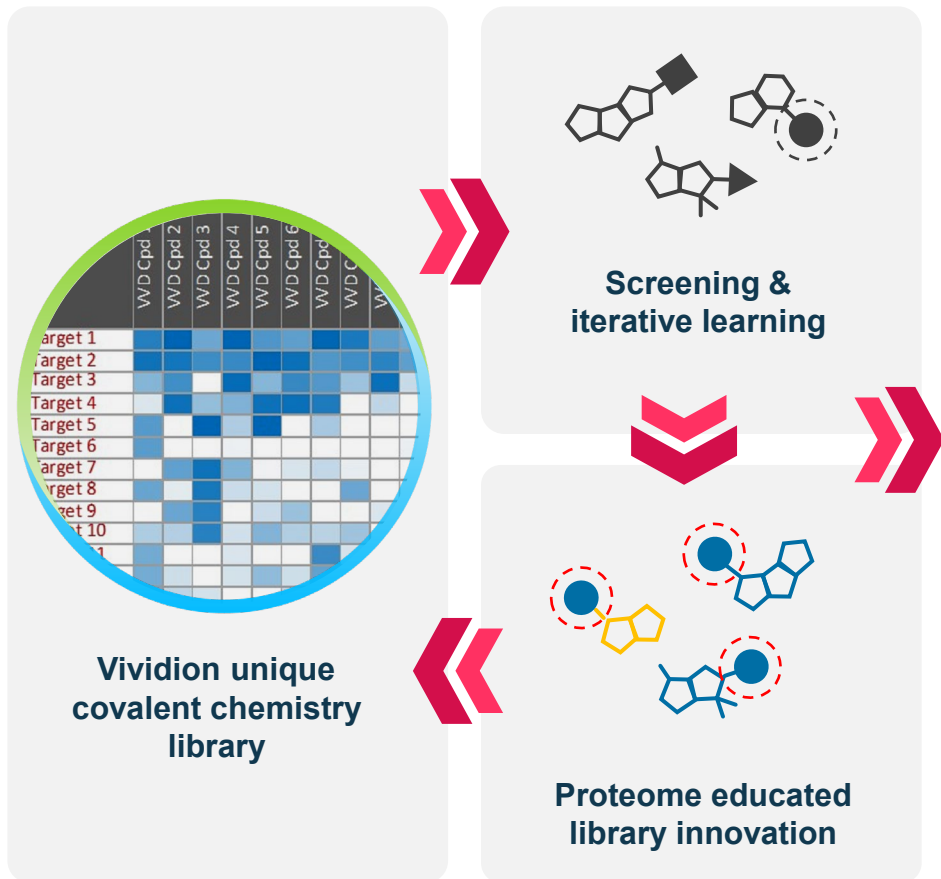
#### Proteome-wide Footprinting of Small Molecule-Target Interactions in Native Systems

CELLS / LYSATES / TISSUE





# Vividion's Continuous Library Expansion Allows for Pipeline Growth and Durable Competitive Advantage



# Pharmaceuticals – Pipeline Overview<sup>1</sup> (as of Nov 6, 2023)



04

Phase 0 <sup>2</sup>	Phase I	Phase II	Phase III
<b>PSMA SMOL TAC</b> (BAY 3563254)  ● <b>VVD STAT3 Inh</b> (BAY 3630914)  ● <b>Next Generation Liver MRI</b> (BAY 3393081)  ●	<b>AhR Inhibitor</b> (BAY 2416964)  ● <b>mEGFR Inhibitor</b> (BAY 2927088)  ● <b>DGKzeta Inhibitor</b> (BAY 2965501)  ● <b>CCR8 Ab</b> (BAY 3375968)  ● <b>VVD KEAP1 Act</b> (VVD-13307 aka NRF2 Inh, BAY 3605349)  ● <b>DGKalpha Inh</b> (BAY 2862789)  ● <b>PSMA TAC</b> (BAY 3546828)  ● <b>Congestive Heart Failure rAAV Gene Therapy</b> (AB-1002 aka NAN-101)  ● <b>sGC Activator Oral</b> (BAY 3283142)  ● <b>Anti-a2AP</b> (BAY 3018250)  ● <b>SEMA 3a</b> (BAY 3401016)  ● <b>Anti-coagulant</b> (BAY 3389934)  ● <b>Bemdaneprocel</b> (Parkinson's Disease Cell Therapy) (BRT-DA01)  ● <b>Parkinson's Disease rAAV Gene Therapy</b> (AB-1005 aka AAV2-GDNF-PD)  ● <b>Multiple System Atrophy rAAV Gene Therapy</b> (AB-1005 aka AAV2-GDNF-MSA)  ● <b>Pompe Disease rAAV Gene Therapy</b> (ACTUS-101)  ● <b>Huntington's Disease rAAV Gene Therapy</b> (AB-1001 aka BV-101)  ● <b>LGMD2I/R9 rAAV Gene Therapy</b> (AB-1003 aka LION-101)  ● <b>GPR84 Antagonist</b> (BAY 3178275)  ● <b>IgG-ANP</b> (BAY 2701250)  ●	<b>Regorafenib</b> (combi Nivolumab) (BAY 734506)  ○ // Solid tumors (recurrent or metastatic) <b>Asundexian (FXIa Inhibitor)</b> (BAY 2433334)  ● // Major Adverse Cardiac Events Prevention (PACIFIC-AMI) <b>Zabedoseritib</b> (IRAK4 Inh.) (BAY 1834845)  ● // Atopic Dermatitis (DAMASK) <b>Runcaciguat</b> (sGC Activator) (BAY 1101042)  ● // Non-prolif. Diabetic Retinopathy (NPDR) (NEON-NPDR)	<b>Darolutamide</b> (AR Inhibitor)  ○ // Prostate Cancer (mHSPC) (ARANOTE) // Adjuvant Prostate Cancer (DASL-HiCaP) // Prostate Cancer with Biochemical Recurrence after Curative Radiotherapy (ARASTEP) <b>Finerenone</b> (MR Antagonist)  ○ // Heart Failure (HFmr/pEF) (FINEARTS-HF) // Non-diabetic CKD (FIND-CKD) <b>Vericiguat</b> (sGC Stimulator)  ○ // Heart Failure (HFrEF) (VICTOR <sup>3</sup> ) <b>Asundexian</b> (FXIa Inhibitor)  ● // Stroke Prevention in Atrial Fibrillation (OCEANIC-AF) // 2 <sup>o</sup> Stroke Prevention (OCEANIC-STROKE) <b>Elinzanetant</b> (Neurokinin-1,3 Rec Antagonist)  ● // Vasomotor Symptoms (OASIS) <b>Aflibercept 8mg</b> (VEGF Inhibitor)  ○ // Retinal Vein Occlusion (QUASAR) <b>Gadoquatrane</b> (High Relaxivity Contrast Agent)  ● // Magnetic Resonance Imaging (QUANTI-CNS, QUANTI-OBRI)
<div> <div>Oncology</div> <div>Cardiovascular+<sup>4</sup></div> <div>Neurology &amp; Rare Diseases</div> <div>Immunology</div> <div>Others</div> </div> <div> <div>● New molecular entity</div> <div>○ Life cycle management</div> </div>			
<div> <div>Submissions</div> <div> <b>Aflibercept 8mg</b> (VEGF-Inhibitor)  ○            // EU, JP: Diabetic Macular Edema (DME)            // EU, JP, CN: Neovasc. Age-rel. Macular Degen. (nAMD)         </div> </div>			

Full pipeline package available for download under:  
<https://www.bayer.com/en/pharma/development-pipeline>

<sup>1</sup> Bayer and partner sponsored + 3rd party label enabling studies with first patient first visit

<sup>2</sup> Pre-clinical selected assets on path to IND <sup>3</sup> Conducted by Merck & Co <sup>4</sup> Including Precision Cardiovascular, Nephrology & Acute Care



Science for a Better Life

# Driving Sustainable Outperformance in Consumer Health



## 03



**Investment Case**  
December 2023 /  
Bayer AG





# Driving Sustainable Outperformance in Consumer Health



**01**



**Market & Position**

**02**



**Strategy**

**03**



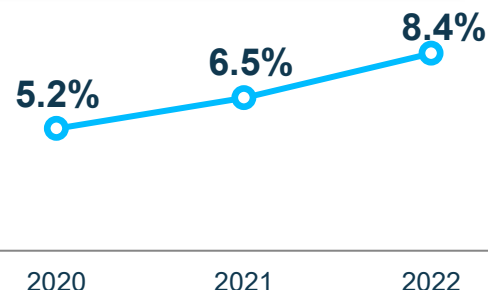
**Sustainability**

# Consumer Health: A Leading Global OTC Player

## FINANCIALS

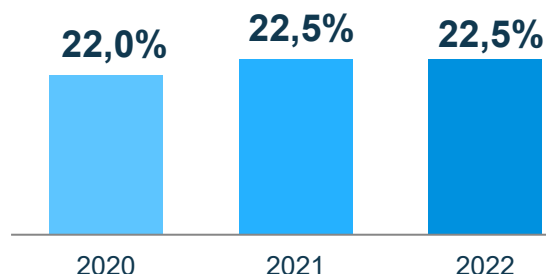
### Sales development

% yoy cpa



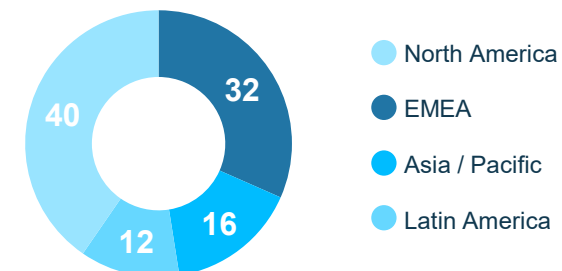
### EBITDA margin development

In %, before special items



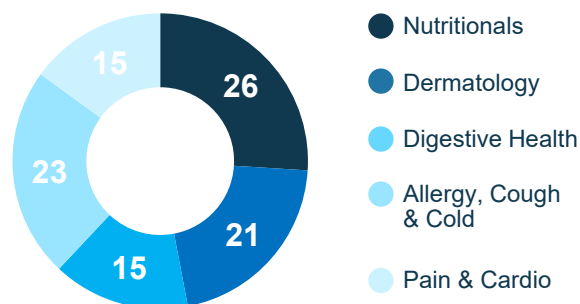
### Sales by region: €5.3bn

In %, in 2022

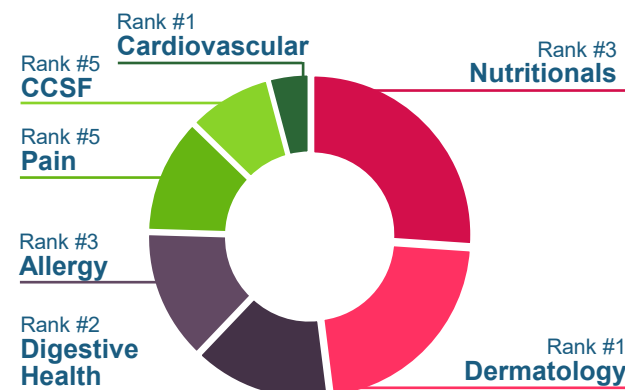


### Sales by categories: €6.1bn

In %, in 2022



### Market positions by category<sup>1</sup>



### Key Products

#### Pain & Cardio



#### Dermatology



#### Digestive Health



#### Allergy & Cold



#### Nutritionals



## PRODUCTS

<sup>1</sup>Source: November MAT 2022 Consumer Health proprietary data base



# A Clear Game Plan to Sustain Outperformance

## **AMBITION**



**Grow ahead of the market** and increase margins

## **WHERE TO PLAY**



Winning **Portfolio** focused on where Bayer can win

## **HOW TO WIN**



Driving  
Growth-focused  
Innovation

Modernizing  
Marketing & Sales

Optimizing  
Costs & Cash

## **OUR ACCELERATORS**



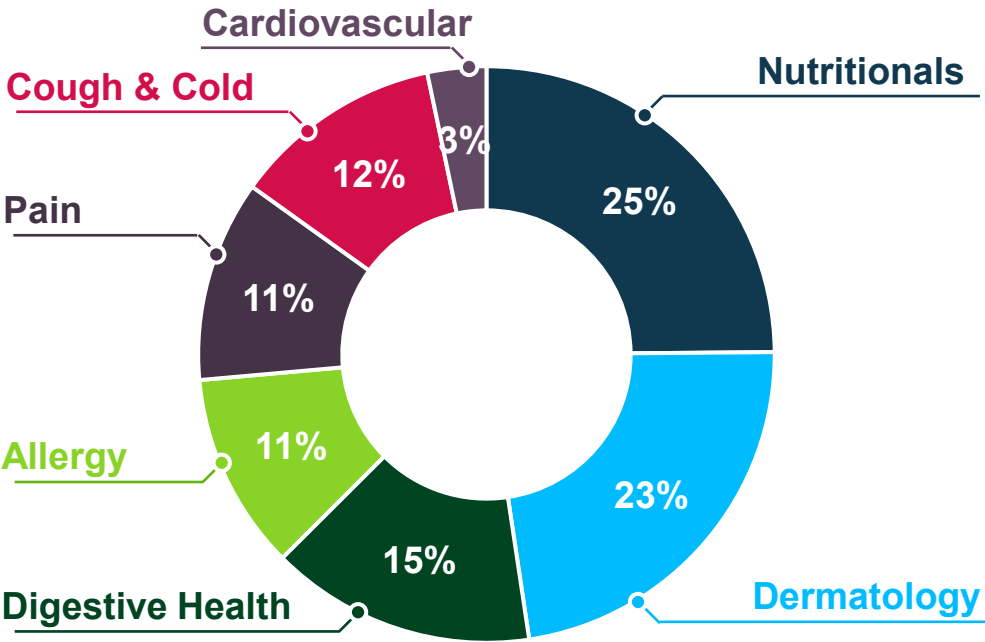
**Digital Transformation**



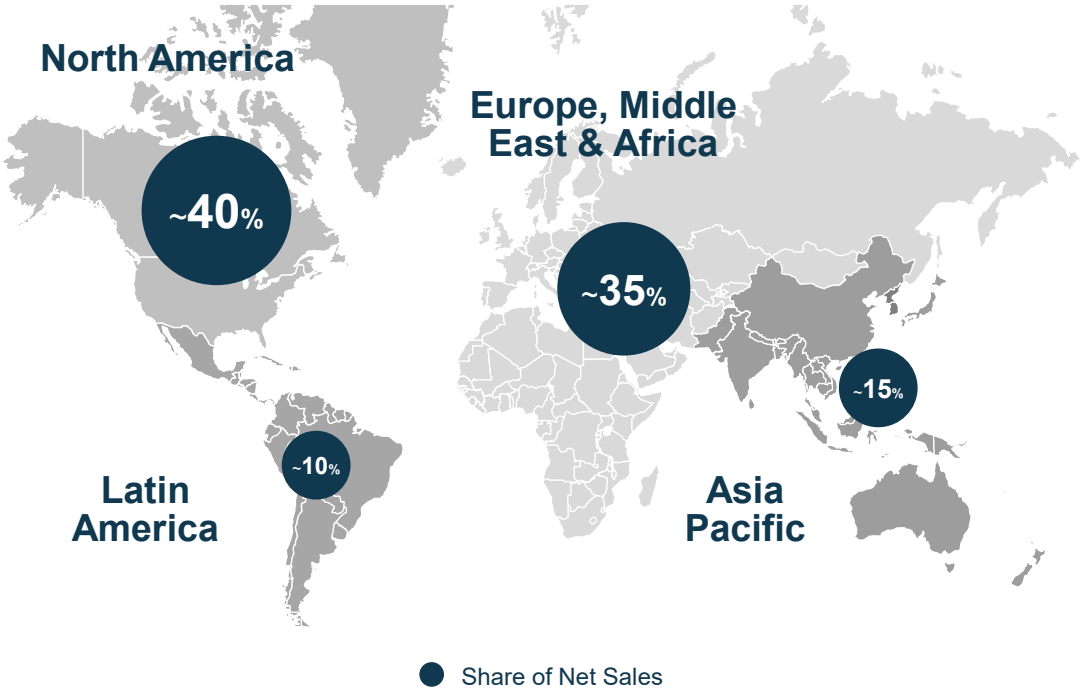
**Sustainability**

# A leading Consumer Health Player with a Well-Balanced Portfolio

## Category Portfolio



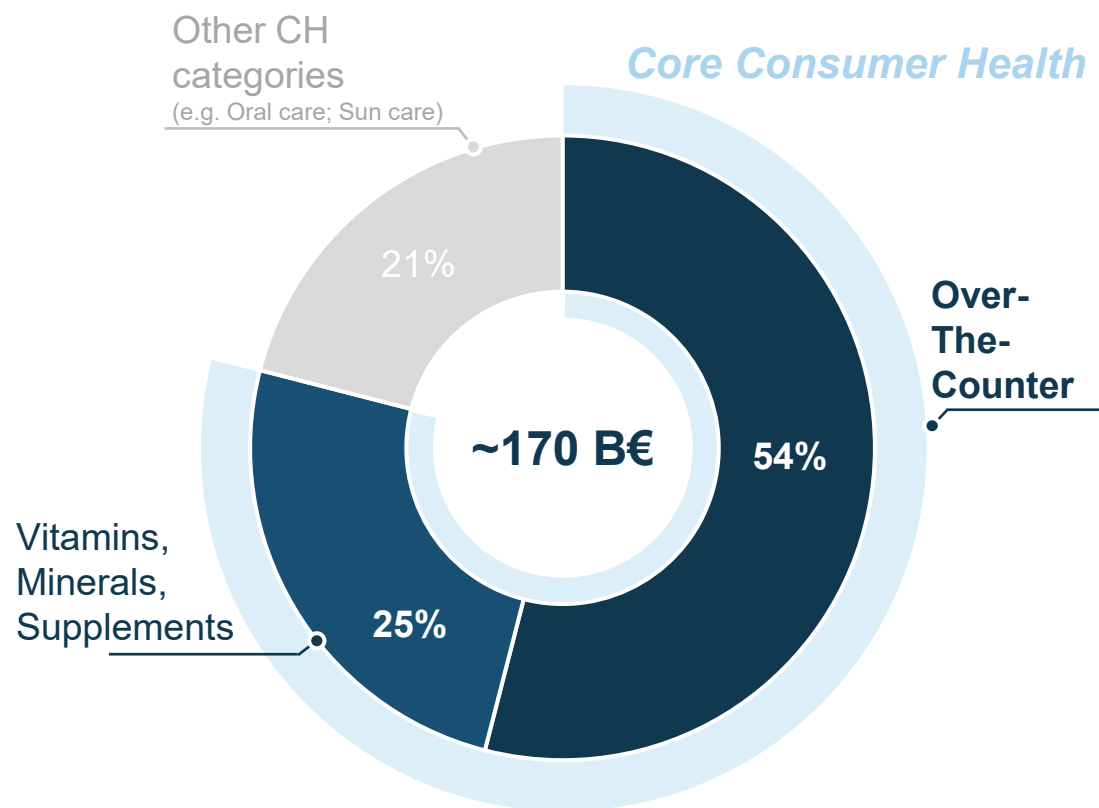
## Geographic Footprint



Sources: Bayer CH Portfolio – Company BD, IQVIA, IRI, & Nielsen, May MAT 2022; Bayer Geographic Footprint – Net Sales 2021

# Focused portfolio on Core Consumer Health Where We Can Win

## Clear Focus on Core CH Market



## Key Portfolio Moves Executed

### Divestitures



Derma Rx  
Jul 2019



Sun care  
Sep 2019



Foot care  
Nov 2019

### Acquisitions / Licenses



Personalized  
Nutritionals  
Nov 2020



Nutritionals eCom  
Pure-players  
Oct 2021 & Jun 2022\*



Astepro (Rx-to-OTC Switch)  
Jun 2022 (Launch)

\* Strategic minority stake in Natsana

Sources: OTC, VMS - Nicholas Hall DB, Global CHC Sales 2021; Others – Euromonitor Retail Value MSP, 2021

# Accelerating Growth from Innovation

Iconic Global and Local Brands Built Over Decades



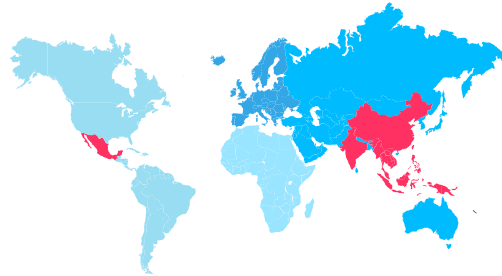
# Key levers to sustain above-market growth

## Attractive Demand Spaces



- // Premium Nutritionals
- // Healthy Aging
- // Stress and Sleep
- // Medicated Skin

## High-growth Markets



- // China
- // India
- // Mexico
- // ASEAN

## Rx-to-OTC Switches



- // Astepro
- // Switch #2
- // Switch #3

## Digital Commerce & Health Platforms



- // eCommerce
- // Digital Diagnostics
- // Digital Therapeutics



# Modernizing Our Brand Building and Sales Capabilities

Brands with Purpose



From Mass to Precision Marketing



% Precision marketing<sup>1</sup>



2018



2021



2024 - Ambition

Accelerating E-commerce



% Net Sales<sup>2</sup>



2019



2022



2024 - Ambition

<sup>1</sup> Percentage of digital media which is data-driven precision marketing  
<sup>2</sup> Percentage of net sales which is through e-commerce channels

# Accelerating Use of Data to Personalize Consumer Engagement

## Data & Digital First

## Leading in Digital Platforms

## Contextual Engagement

2019 - 2022

Share of Digital Media<sup>1</sup>

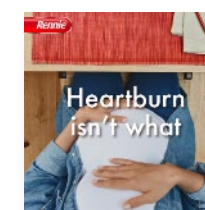
2X



Take Away Lover



Foodies



Share of Data-driven Marketing Investments<sup>1</sup>

3X

alexa



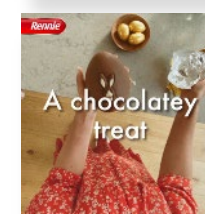
YouTube



Seasonality



Pregnancy



Share of Personalized Creatives<sup>1</sup>

5X



<sup>1</sup> Bayer internal data

# Doubling Down on e-Commerce and Growth Platforms

## Winning in Key eCom Platforms



## Strategic Portfolio Moves



## Digital Engagement Mechanisms



<sup>1</sup> Bayer internal sales data \* Strategic minority stake in Natsana

# Pricing and Trade Excellence to Drive Value Creation with Customers



02

## Innovations Playing Across Different Value Tiers

### Premium



### Value Offerings



Premium consumer solutions

Innovation



Low-income consumer solutions



# Consumer Health as a Force for Good



03

## Expand Access to Everyday Health



**59** Million people with improved access to self-care in underserved communities

- // Investing in accessible and more sustainable products
- // Reached 4+ Million underserved women and babies through the Nutrient Gap Initiative

## Path to Climate Neutrality



**35%** CO<sub>2</sub> emissions reduction achieved across our operations

- // Investing in energy efficiency projects and increasing green energy across our sites
- // Advancing sustainable packaging

Note: 2021 Health access and environmental footprint achievements vs 2019 baseline





# Driving Sustainable Outperformance in Consumer Health

- > **A leading Consumer Health player with a well-balanced portfolio**
- > **World-class science, consumer and HCP capabilities**
- > **Clear strategy to sustain outperformance**
- > **Track record of execution excellence**
- > **Attractive growth profile and cash flow generation**





Science for a Better Life

# Sustainability

# 04



**Investment Case**  
December 2023 /  
Bayer AG







# Sustainability @Bayer



**01**



**Strategy**

**02**



**Targets**

**03**



**Governance**

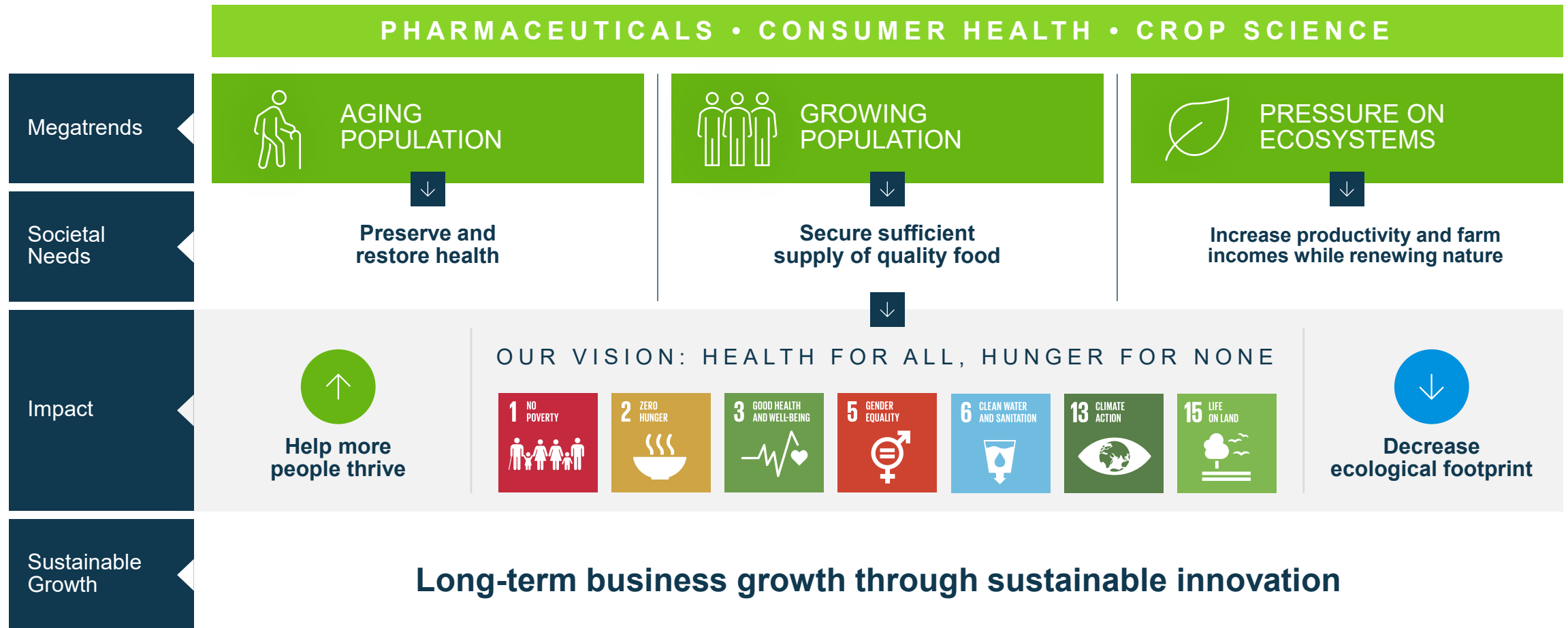
**04**



**Ratings**

# Sustainability is Integral to Our Values, Strategy and Operations

We Intend to Create Bold Impact and Generate Sustainable Business Opportunities



# Ambitious Measurable Targets for Sustainable Development

Our 2030 Targets positively contribute to today's pressing challenges

## Decrease *ECOLOGICAL* footprint



**Climate neutrality at own sites**  
+ **reduced emissions**  
**in our supply chain**

- > 42% reduction target<sup>1</sup> for Scope 1 & 2  
500m € CapEx for emission reduction  
50m-200m € OpEx for offsetting projects
- > 12.3% reduction target<sup>2</sup> for Scope 3



**Net Zero emission target until 2050** in line with Paris Agreement (Scope 1, 2 & 3)



**Water strategy** addressing our own operations and up-/downstream activities

**CS: -30% greenhouse gas emissions** in key agricultural crops in main regions;  
**-30% environmental impact** of our crop protection products

**CH: Transition all Consumer Health products to 100% recyclable or reusable packaging**



## Help more *PEOPLE* thrive



Support **100m smallholder farmers** in LMICs<sup>3</sup>



Fulfill the need of **100m women** in LMICs<sup>3</sup> for **modern contraception**



Support **100m people** in underserved<sup>4</sup> communities with **self care**



Achieve **gender parity** at each individual managerial level

**PH: Increase availability and affordability** of our innovative pharma products in LMICs<sup>3</sup>

<sup>1</sup> By 2029 from a 2019 base year is in line with limiting global warming to 1.5 C°

<sup>2</sup> By 2029 from a 2019 base year is in line with limiting global warming to below 2 C°

<sup>3</sup> LMIC: low and middle income countries - all countries included in the World Bank list as per 1 July 2019

<sup>4</sup> Underserved: economically or medically

For more info here: <https://www.bayer.com/en/sustainability/targets>



# We Are on Track in Our Decarbonization Journey – Need to Work Harder with Our Supply Chain



## Scope 1&2

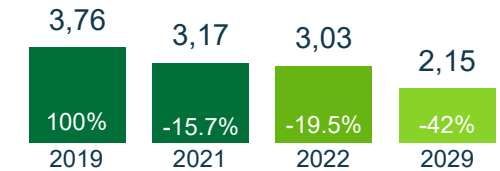


**42% less CO<sub>2</sub>**  
in our own operations  
by 2029 & **Net Zero** by  
2050

**Reduced emissions by 4.5%** or around 140,000 metric tons  
compared to 2021 (-19.5% compared to base year)

Reduction mainly due to a greater share of **electricity** being  
purchased from **renewable energy sources**

Additionally, offsetting of 450,000 metric tons of greenhouse  
gas emissions<sup>1</sup>



in mio metric tons of CO<sub>2</sub> equivalent; % change vs. base year 2019

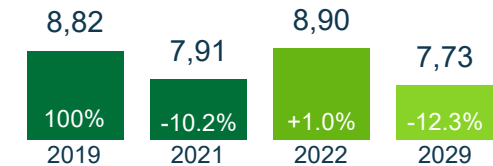
## Scope 3



**12.3% less CO<sub>2</sub>**  
in the value chain  
by 2029

Emissions increased by 12.5% or 990,000 tons vs. prior year

Increase was largely attributable to business growth,  
replenishment of inventories and an increase in air  
freight and business travel



in mio metric tons of CO<sub>2</sub> equivalent; % change vs. base year 2019

## On the Field

**30% less greenhouse  
gas emissions**  
by 2030<sup>2</sup>

Continued efforts in **Carbon Initiative Program** supported by our digital application **Climate FieldView™**

Digital platform was used on >220m acres of farmland in 23 countries in 2022

Carbon Program was further expanded in 10 countries in 2022

Launched “For Ground” in the U.S.

<sup>1</sup>Find our offsetting approach here and more info here: <https://www.bayer.com/en/sustainability/climate-protection>

<sup>2</sup>30% less in our farming customers' in-field GHG emissions per kg of crop yield in the most emitting cropping systems in the regions we serve; baseline calculated based on 2020 data

# Ambitious water strategy aiming at transformational impact beyond own operations

Contribution to climate resilience and a more sustainable water usage



02

01

## Valuation of water

**We plan to develop a method to value water**

We aim to start to **incorporate in 2024** water quality and quantity **into business decisions and investment**

02

## Own operations

We are committed to provide **safe drinking water, sanitation and hygiene to all our employees**

We **apply safe discharges limits** for active ingredients into wastewater at all sites where they are produced

By 2025 we aim to set context-relevant water targets for own operations to be achieved by 2030

03

## Upstream activities

We updated our Supplier Code of Conduct with **strengthened and dedicated topics addressing water and wastewater**

We **evaluate the sustainability performance of all Key and of selected high-sustainability-risk suppliers**, using a classification that includes water-risks with a priority-weighting

We aim to **continuously raise suppliers' sustainability awareness** by leveraging sustainability initiatives TfS and PSCI.

We aim to continue to **drive improvements in water use efficiency with growers** across the **seed production footprint**

04

## Downstream

We strive for driving positive change in water productivity in water scarce regional cropping systems – starting with **rice** where we aim to **improve water use per kg of crop by 25%** in 2030 by transforming rice cropping system for our smallholder customers in the relevant regions where Bayer operates.

By 2030, we target to reduce the environmental impact of our crop protection portfolio by 30%, which contributes to water quality.



# Support 100m Smallholder Farmers

Accessing Smallholders Improves Lives and Creates Business Opportunities



## Challenges



**~550M**  
Smallholder  
farmers  
worldwide



// **Lack of access to new technologies**



// **Limited access to knowledge**



// **Limited productivity of their crops**



// **Climate Change**



Feed **>50%**  
of population  
in developing countries



// Exposed to the  
markets; **price volatility**  
and fluctuations



// **Lack of access to markets and capital**



// **Hunger & malnutrition**



// Additional challenges  
caused by **Covid-19**



## How to get there

// **Commercial operations:**  
Regional commercial strategies  
focused on smallholders' needs

// **Digital Solutions:**  
Digital Incubator &  
Innovation Hub in APAC

// **License-to-Operate & Biotech Approvals:**  
Large regulatory  
approval pipeline in  
Africa and APAC to  
enter new markets

// **Value-Chain-Partnerships:**  
Better Life Farming centers  
and integration into other  
value chain ecosystems

// **Portfolio Differentiation:**  
Better & affordable crop  
protection products, tailored  
to local farmer needs



## Progress

Commercial Forecast  
& Initiatives



# Access for 100m Women to Family Planning

Catalyst for Important Societal and Economic Impact



## Challenges

// **>200 million women in developing regions** who want to avoid pregnancy are not using safe and effective family planning methods, central to **women's empowerment**

// Reducing poverty, protecting maternal and child health, driving economic development, and achieving sustainable development

// **Gender inequality is still high**, teenage pregnancy and maternal death are serious health concerns, especially in LMICs

// The need to provide reproductive supplies and services will further increase

// By 2030, an additional 130 million women in LMICs will have entered reproductive age



## How to get there

// **Capacity building<sup>1</sup>**, e.g. cooperation with urban health project 'The Challenge Initiative' (TCI)

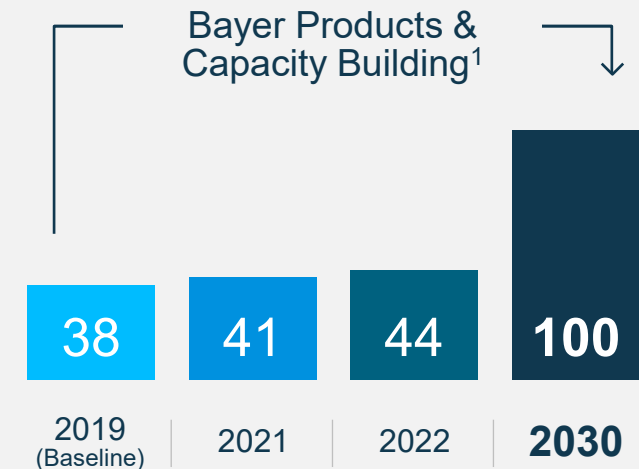
// Route to women in rural areas and humanitarian settings in **cooperation with partners** (e.g. UNFPA)

// Long-term: **Innovation**, e.g. non-hormonal contraceptive technologies

// **Additional supply capacity**, most importantly for long-acting contraceptives: >400m€ investment into Costa Rica and Finland facilities



## Progress



<sup>1</sup> Capacity building refers to the development of knowledge, skills, commitment, structures, systems and leadership to enable and strengthen self-reliance and resilience of the local health systems and of the key players towards family planning and sexual reproductive health. We aim to do leverage partnerships to create impact at scale.

# Access to Self-Care for 100m People in Underserved Communities

Everyday Health as the First and Last Line of Care



## Challenges

// **Ageing population**, a rise in **lifestyle related diseases** and a constantly increasing level of healthcare costs

// Expanding access to self-care solutions helps with **early intervention** and **lowers healthcare costs** for society

// Consumers are **4-6 times more likely** to purchase, protect, champion or trust **brands with a strong purpose**



## How to get there

// **Appropriate Portfolio**: adapting our science-based portfolio to design everyday health solutions with the underserved in mind, from formula to pricing

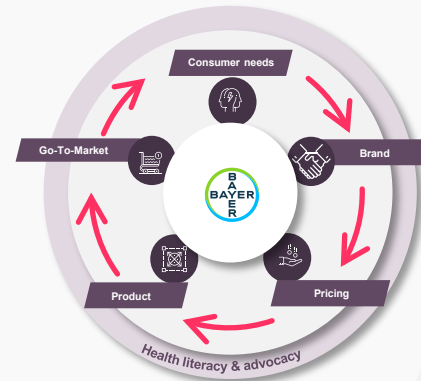
// **Deeper Penetration**: meeting low-income consumers where they shop to bridge the physical gap

// **Partnerships and Initiatives**, e.g. the Nutrient Gap Initiative

// Activating our trusted **OTC brands** and **end-to-end value chain**

// Focus on **high impact markets**: US, LATAM, ASEAN, METAP

// **Self-Care Education** initiatives form the basis for shaping behavioral change to empower consumers to manage their own health better



## Progress



<sup>1</sup> We successfully integrated the consumer business in India, which was previously managed by a third party. India is reported separately and will be included in 2024. We reached 21 million people in India in 2022 in addition.



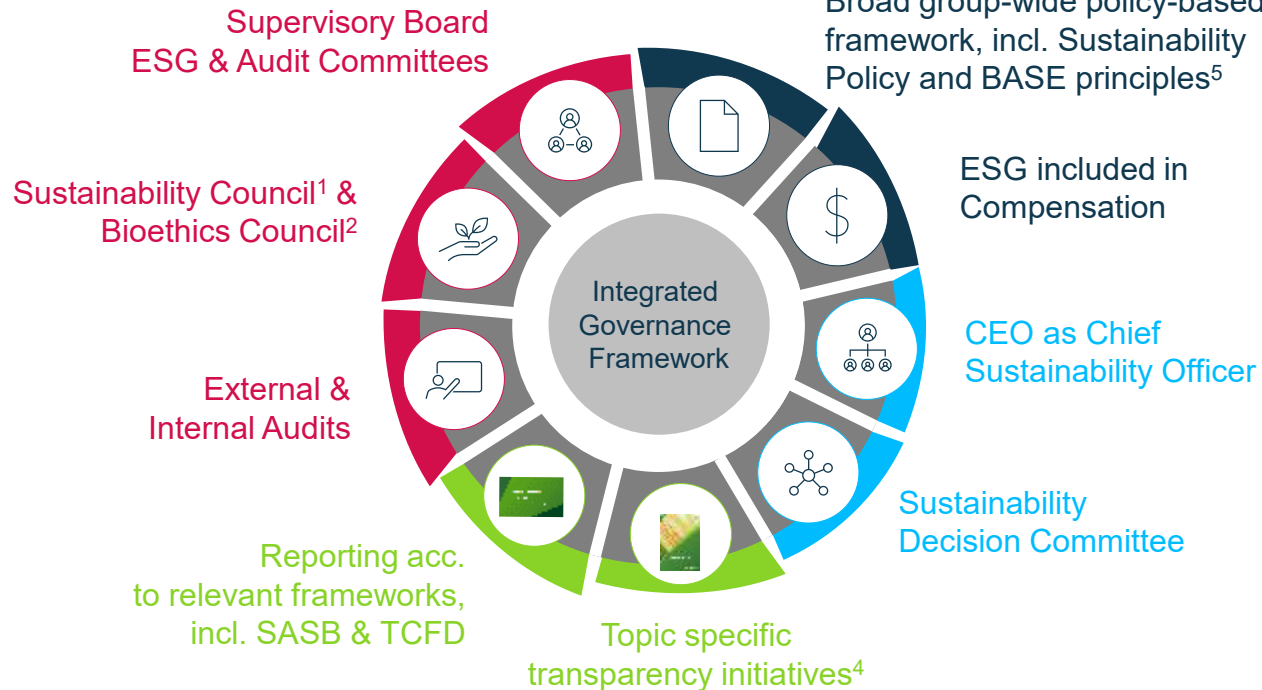
# Bayer's Sustainability Governance framework

Holistic approach ensuring sustainable execution and advancement

## Independent Oversight

## Regulations & Processes

## Latest updates (selected):



- // Reports on [GMOs](#), [UNGC adherence](#), and [Crop Science Sustainability Progress](#)
- // New [Bioethics Council](#) established
- // Extension of [Bayer Science Collaboration Explorer](#) with US launch
- // [OpenLabs 360°](#) launched
- // Progress on climate sphere (e.g., publication of [offsetting approach](#), [updated supplier code of conduct](#), and [industry association climate review](#))

## Reporting & Transparency<sup>3</sup>

## Organizational Setup

<sup>1</sup> <https://www.bayer.com/en/sustainability/sustainability-council>  
<sup>2</sup> <https://www.bayer.com/en/sustainability/the-bayer-bioethics-council>  
<sup>3</sup> <https://www.bayer.com/en/sustainability/transparency>  
<sup>4</sup> <https://www.bayer.com/en/sustainability/initiatives>  
<sup>5</sup> <https://www.bayer.com/en/sustainability/base>

# Bayer with strong results in ESG ratings and assessments

## Removal of Red Flags at MSCI and ISS ESG Norm-Based Research in 2021/2022

	Agency	Score Type	Latest Score	Year*	△	Explanatory information
Major ESG Ratings	<b>MSCI</b>	ESG Score Controversy level**	A (industry average) severe (GMO)	2022	▲ ▲	Improvement of rating from BB to A ■ (GMO) removed
	<b>ISS ESG</b>	ESG Score Norm-Based Research	C+ (1 <sup>st</sup> decile of industry) ■ (Neonics)	2022	▲	■ (Neonics) removed New assessment in progress
	<b>SUSTAINALYTICS</b>	Risk Score Controversy level**	27.4 (medium) 5 (severe)	2023	▲ ▶	Overall high exposure & above subindustry average Impacted by Glyphosate litigation, outlook positive
	<b>MOODY'S</b> ANALYTICS	ESG Score	55 / 100	2023	▲	Above industry average and sector average performance
Other focus assessments	<b>ACCESS TO</b> <b>MEDICINE</b> FOUNDATION	Index of pharmaceutical companies worldwide	3.36 / 5 (Rank 1: 4.06) #9 out of 20	2022	▲	Bayer entered the top 10 of the 2022 ATM ranking
	<b>ecovadis</b> Business Sustainability Ratings	Supply Chain Sustainability Assessment	76 / 100	2023	▲	Top 2% of all evaluated companies Strong improvements in environmental score
	<b>CDP</b> DISCLOSURE INSIGHT ACTION	Climate Change Forests Water Security	A B A-	2022	▶	Score maintained on high level New assessment in progress

\* year of latest rating/scoring publication

\*\* evaluation of controversial issues related to the company within the last 3 to 5 years through media and press releases



*Thank  
You*

