



Effectively  
Navigating  
Global PH-EMEX

# Engineering Innovation for Operational Excellence

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# Engineering Innovation for Operational Excellence

## AGENDA

- I. Our Bayer operating model driving innovation through transformation*
- II. Set-up of our global product-centric Engineering organization*
- III. Strengthening collaboration across the network*
- IV. Facilities of the Future: Innovative and sustainable engineering in facilities*



***“If you don’t do something different,  
you won’t get a different outcome”***

We empower patient-centric teams to merge Bayer’s global scale with start-up speed and entrepreneurial agility — delivering innovation

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# Bayer at a glance

Group key data



**3** divisions

- # Crop Science
- # Pharmaceuticals
- # Consumer Health

Represented by  
272 consolidated  
companies in

**80**  
countries

**88.1k**

employees worldwide  
in 2025\*

**5.8bn €**

investment in R&D  
in 2025

**45.6bn €**

sales  
in FY2025



Tackling two of the most  
pressing challenges of our time:  
**health & nutrition**



Diverse, international focus  
with cross-border and cross-  
division **people development**

*Health for all,  
Hunger for none*

\* As of December 31, 2025; employees in full-time equivalents



# Pharmaceuticals



We aspire to be one of the leading pharmaceutical companies with a focus on breakthrough technologies to transform patient health. “

**Stefan Oelrich**  
President, Pharmaceuticals



\* As of December 31, 2025, employees in full-time equivalents



# Bayer Pharmaceuticals: We aim to Build a Highly Differentiated Pipeline *Focusing on patients with High Unmet Need*

Research focus in four areas based on  
// Value & differentiation  
// Feasibility & risk  
// Leading capabilities



Oncology



Cardiovascular



Neurology &  
Rare Diseases



Immunology



**Streamlined Portfolio:**  
Pruned pipeline by more than 40% to focus on the most valuable assets



Shift to **breakthrough innovation:** NMEs with FIC / BIC potential focusing on high unmet need



**Acquired platforms creating significant impact:** ~40% of current Phase I assets coming from platform technologies



**Broadened range of modalities:** Currently 60% of Phase I assets are new modalities vs <20% two years ago<sup>2</sup>



# We're overhauling our operating model to benefit the communities and stakeholders we serve

## *Introducing Dynamic Shared Ownership (DSO)*

### What we focus on



Critical outcomes that foster our mission

### How we organize & relate



Empowered teams in a network – collaboration & accountability go hand-in-hand

### How we create value



Customers and products are front and center, supported by fluid flow of capabilities & resources

### How we get the work done



Faster, 90-day work cycles with continuous learning & improvement

### How we show up



Respect differences, embrace inclusion & show up as our best selves

***Underpinned by a new approach for leadership***

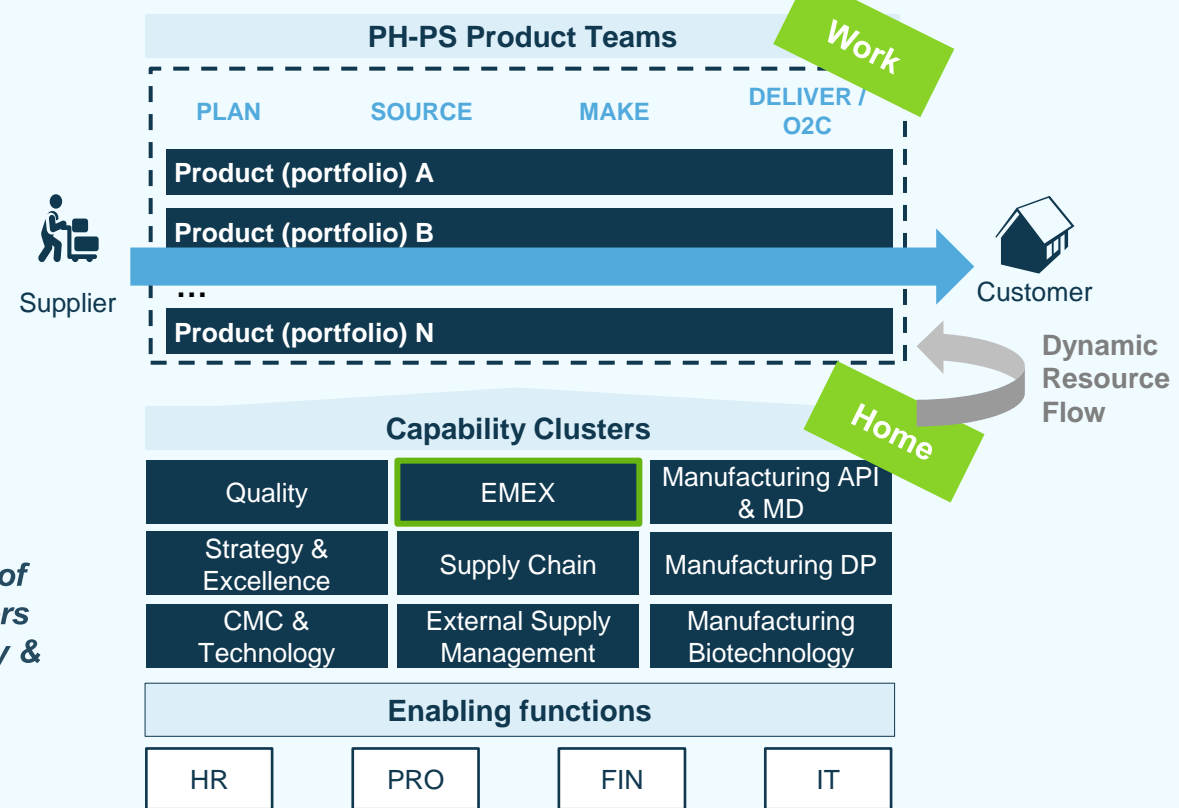
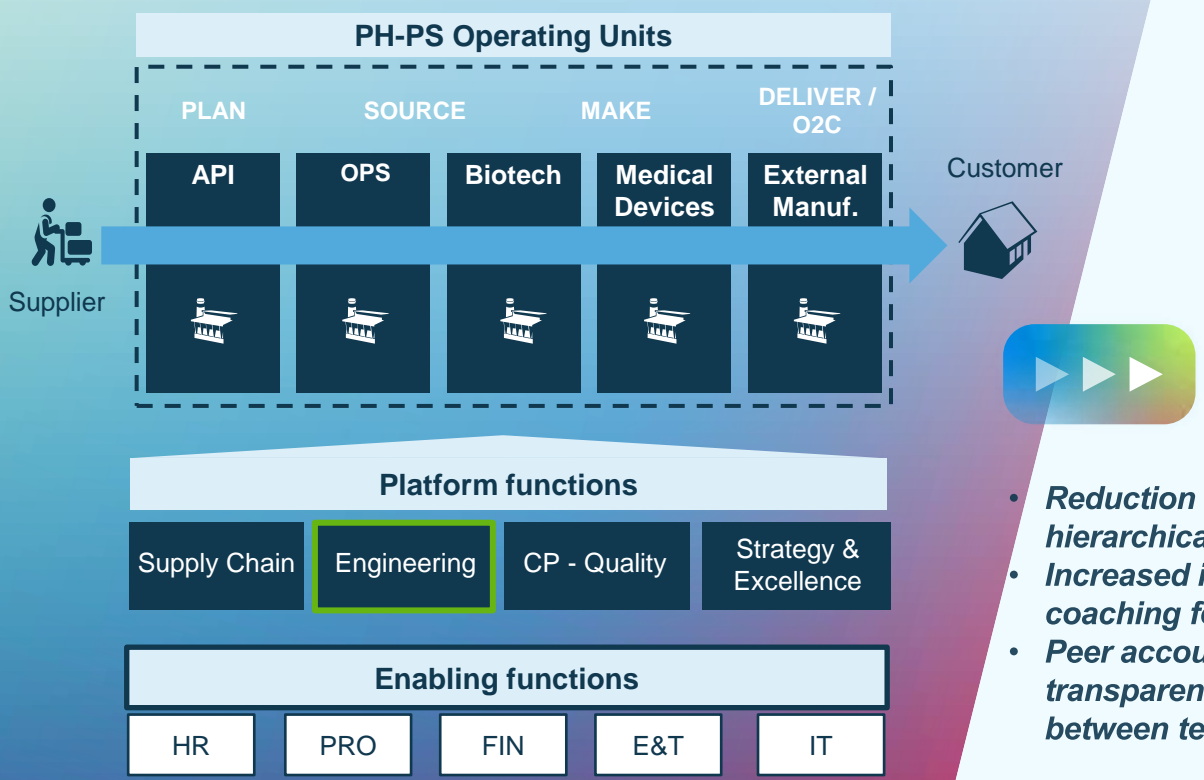


# Transforming organizational structures invites to extend traditional management into thriving leadership

*From* Traditional hierarchy of individuals



*To* Empowering teams to find ownership in their work



- Reduction of hierarchical layers
- Increased in span of coaching for leaders
- Peer accountability & transparency between teams



# One Home For Capabilities of Engineering & Maintenance (EMEX) Activities

## From

Capabilities spread in many functions

## To

End to End Ownership in one Organization

Engineering & Technology

PH Engineering

HSE

Product

R&D

Site Maintenance

**Site Engineering**

API, OP, MD & BT<sup>1</sup>  
Including Infrastructure Services

**Engineering & Maintenance Excellence (EMEX)**



Focus on product and customer needs



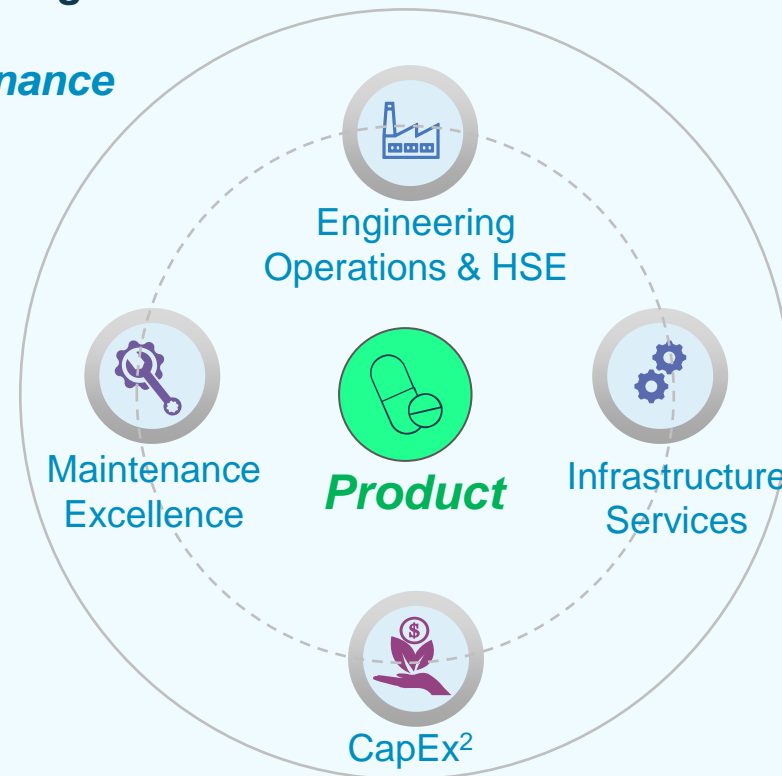
Bundling of capabilities



Development of capabilities & employees



Flexible deployment of resources



<sup>1</sup> Active Pharmaceutical Ingredients, Operations, Medical Devices, Biotech  
<sup>2</sup> Capital Expenditure



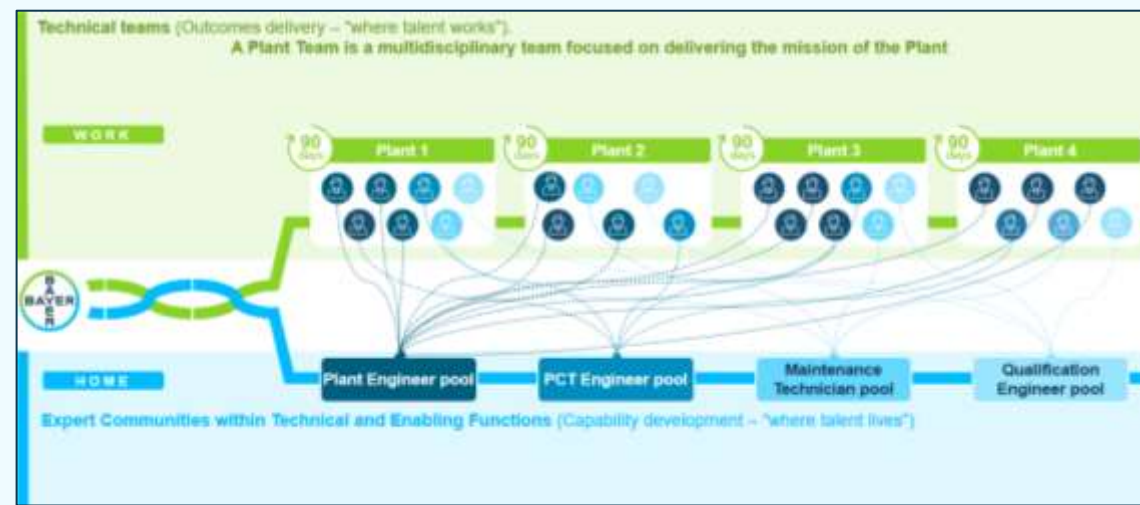
# Instead of operating in manufacturing plant silos, teams from different *Homes* flow to where they create the most value

## From

“Good” old times

## To

Revolution



### Characteristics of new agile ways of working

- # empowered cross-functional teams
- # open communication
- # shared accountability
- # quick decision-making
- # working in short cycles with defined outcomes
- # continuous learning





# Connecting the Dots to Make the Net Work

## Global Engineering Network



### Arms-Length Companies



### Change & Communications

- Change management "EMEXchanger"
- Close collaboration with Global Comms



### PH-EMEX Network

### Communities of Practice (CoP)

Project Management // Clean Media // Commissioning & Qualification // Conditioned Based & Predictive Maintenance // HSE // HVAC & Cleanroom // Let's AI // Sustainability // Automation....

### Mission Teams

CoP missions // ONE EMEX // Culture // People // Development // Cross-cluster collaboration

### DSO Champions

- DSO immersives & trainings
- Working in 90-day cycles
- Global champions community



# Drive Robotics and Automation in the Global Robotics Community

Leverage existing expertise and scale ready-to-deploy solutions



Leaflet feeding at Supply Center Weimar



Automated guided Vehicles at Supply Center Leverkusen



Component assembly robot at Supply Center Saxonburg



Semi-automatic robot filling line at Supply Center Berkeley and future Adherent Cell Therapy using Smart Robotics



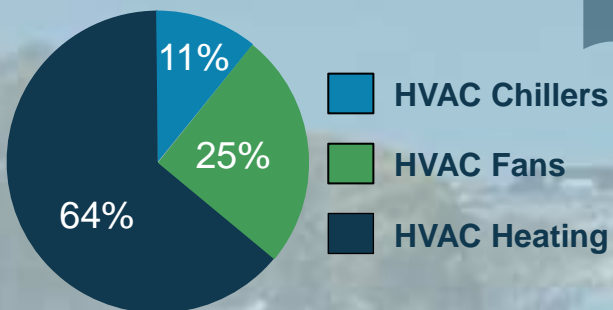
Operational Excellence powered by Robotics



# Cell Therapy Facility Berkeley – Efficient Manufacturing Building Systems

HVAC is significant portion of energy usage – 40-70% of site energy usage depending on site focus

## HVAC Energy Distribution



### Data from Berkeley CA Site

- Primary Heat Source – gas
  - Recent building heat-pump
- Primary Drivers of Consumption
  - Air Changes per Hour (ACH)
  - Percentage recirculation air
  - Reclaiming waste heat

<sup>1</sup> ISPE: International Society for Pharmaceutical Engineering

ISPE<sup>1</sup> Facility of the Year 2025 Winner  
Social Impact

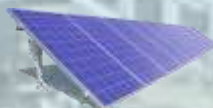


### Cell Therapy Facility Berkeley CA

- Key Optimizations
  - 100 % Electrical Building
  - Heat Source – heat-pump
  - Air Changes per Hour (Grade C & B ~ 26 ACH)
  - Localized recirculation air ~70%



Mechanical Heat Pump



Photovoltaic Cells



Electric Steam Generators

Reduction of  
**563t**  
CO<sub>2</sub> / year



### World wide Pharma Network Evaluation

- Evaluating 210,000 sqm of existing manufacturing space
- Evaluating Air Changes / Hour
- Considering ramp-down of AHUs during off hours
- Considering wider humidification set point
- Requires requalification

Efficient Building Systems can drive more than 30% reduction in energy usage over standard building design



# New Solida Launch & Supply Facility SOL-1 – Drive innovation to deliver digital plant of the future



ISPE<sup>1</sup> Facility of the Year 2026 Nominee for Operations / Innovation / Pharma 4.0

## Automation & Digitalization



**End-to-End Automation:** Achieves lights-out factory concept, increasing OEE by 20% and cutting workforce needs by 50%.

**Advanced Digital Backbone:** Automates Electronic Batch Records, reducing documentation efforts by 60% and enabling real-time data analytics.

## Modularity & Flexibility



Visualization of SOL-1 building complex with starting modules and expansion options for future production needs.

**Scalable Design:** Modular architecture allows rapid addition of production modules within 2 years to meet market demands.

**Ballroom Concept:** Open production space reduces footprint by 25%, enhancing collaboration and flexibility in operations.

## Sustainability



Pipes connecting SOLIDA-1 to geothermal energy system.

**Energy Efficiency:** Utilizes renewable energy with a heat-pump system, achieving over 90% reduction in CO<sub>2</sub> emissions.

**Sustainable Utilities:** Leverages geothermal energy and existing infrastructure for optimized energy use with minimal ecological impact.





# Talent as a Strategic Differentiator

## *Bridge between Innovation & Execution*



**Complexity of Emerging Technology:**  
Talent-driven teams adapt fast to new technologies and evolving market needs.



**Collaborative Innovation Hubs:**  
Co.Lab accelerates discovery through shared expertise and cross-functional teamwork.



**Shift from Function based Organization:**  
Product-centric teams improve agility and tighten the link between strategy & execution.



**Cross-Industry Partnerships:**  
Partnerships unlock new science, new markets, and new growth opportunities



**Continuous Learning and Development:**  
Upskilling ensures employees keep pace with advanced pharma technologies



**LEAPS:**  
Support breakthrough innovations from curing cancer to enabling sustainable agriculture



*We do something  
different, to get a  
different outcome.*



**Thank  
you!**

