



Chemical Industry in Transition – how IT can help

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Natural Resources

INTERNAL – SAP and Customers Only



What is important to chemical companies?



Profitability

Margins are challenged by volatile raw material and energy costs, as well as demand fluctuations



Sustainability

Decarbonization demanded by governments and stockholders alike



Resilience

Supply chain disruptions, rapid changes in demand, and evolving regulatory environment require flexibility



Agility

Unpredictable geopolitical and economic environment necessitate quick strategic and tactical responses



Innovation

New products, services, and business models required to grow



Operational Excellence

Managing operations to control costs and provide better customer service is crucial



Standard Processes

Standardizing and simplifying processes across business units and regions saves time and money



Compliance

From REACH to new regulations like CBAM and the Superfund Excise tax, compliance requires increased effort.



Cyber Security & Data Privacy

Cyber security and sovereign data requirements impact landscape decisions



Automation

Driving automation of low value tasks increases productivity and lowers cost to serve



Talent & Change Management

Acquiring, retaining, and training employees support corporate transformation

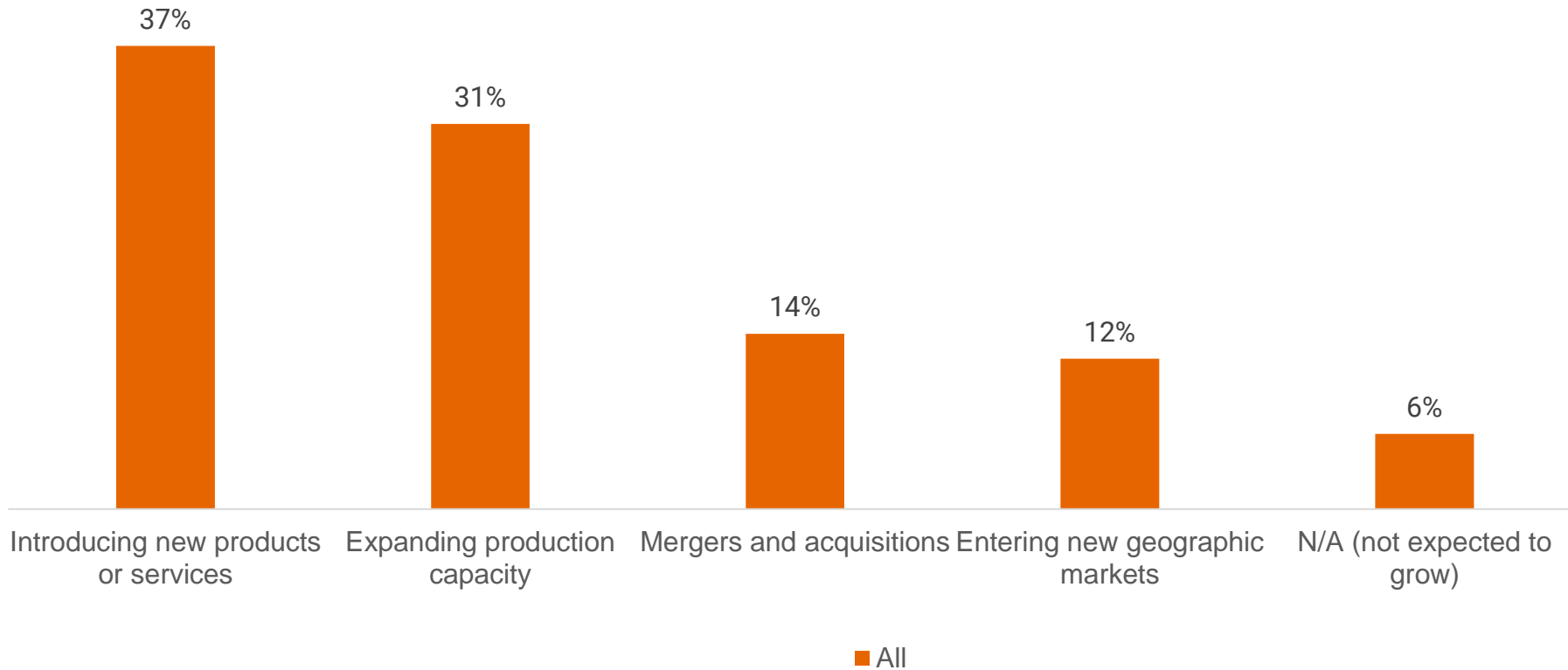


Analytics

Informed decision making requires realtime analytics and predictive capabilities

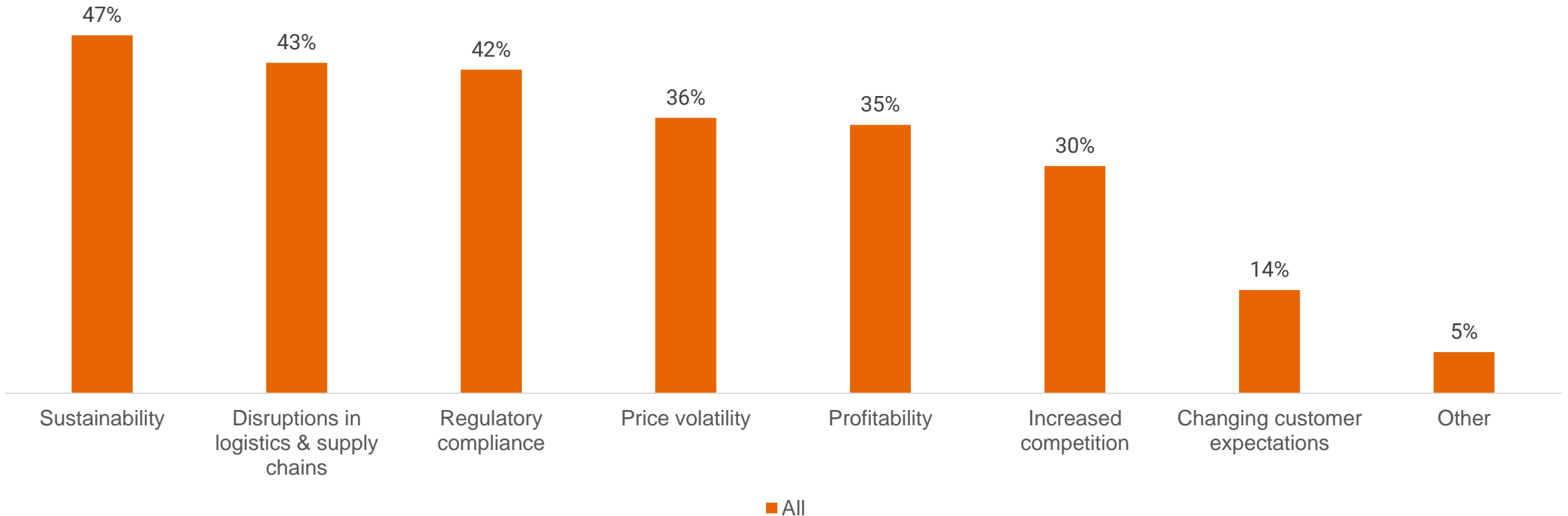
Of those who participated in the survey, 94% expect their company to grow in some capacity, just 6% do not expect growth

Expected Avenues of Growth
(% selected by respondents)



Respondents identify sustainability as one of their greatest challenges, along with disruptions to workflow and compliance

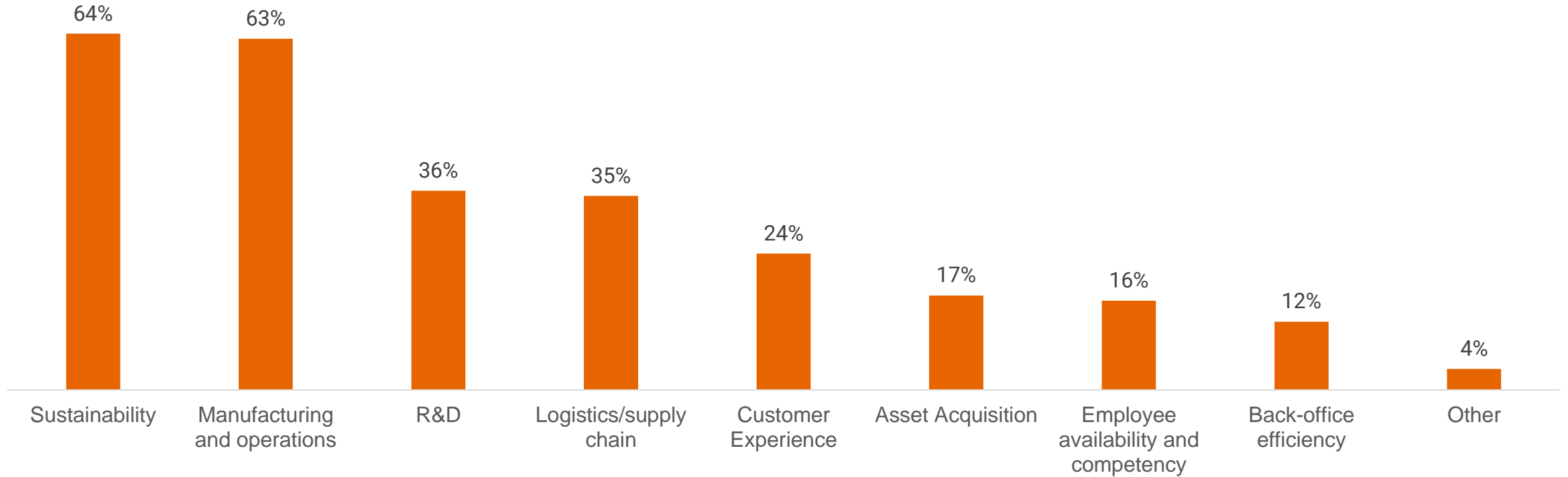
Primary Challenges
(% selected by respondents)



Sustainability is also identified as one of the leading areas for targeted improvements in the next 2 years

Areas Targeted for Improvement in Next 2 Years

(% selected by respondents)



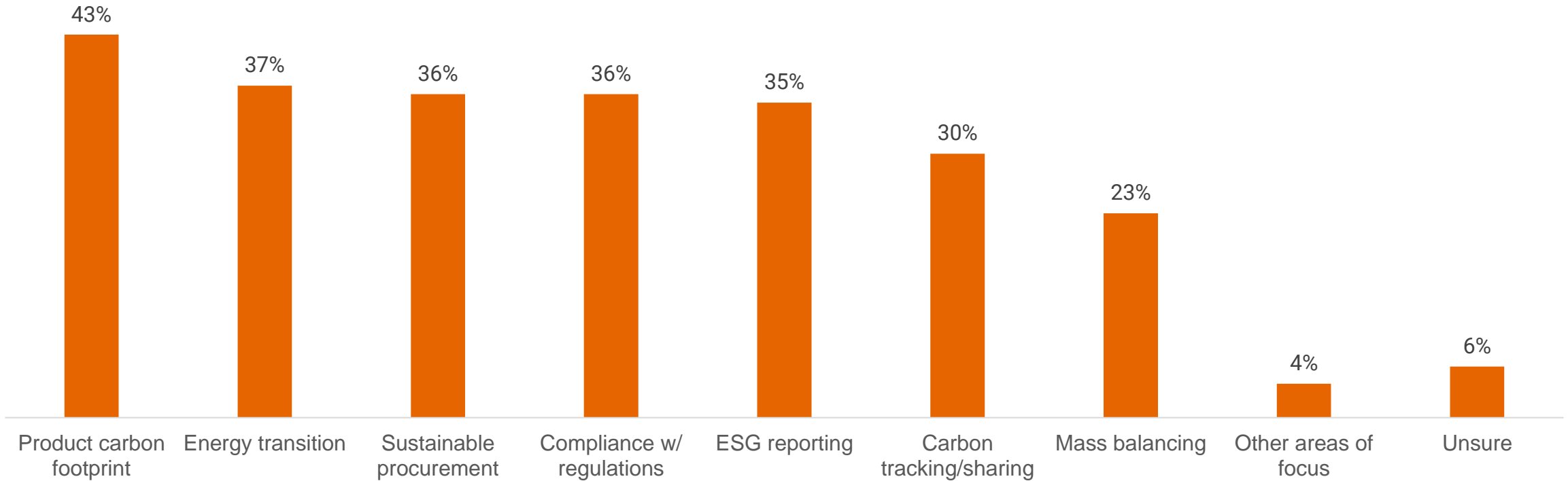
Q4. In the next 2 years, my employer is most likely to focus on improvements in: (choose up to 3)
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 All Respondents (n=107)

Note: Uppercase letters denote statistical significance at a 90% confidence level

Respondents identify their product carbon footprint as the leading priority topic to help meet their sustainability goals

Priority Topics to Meet Sustainability Goals

(% selected by respondents)

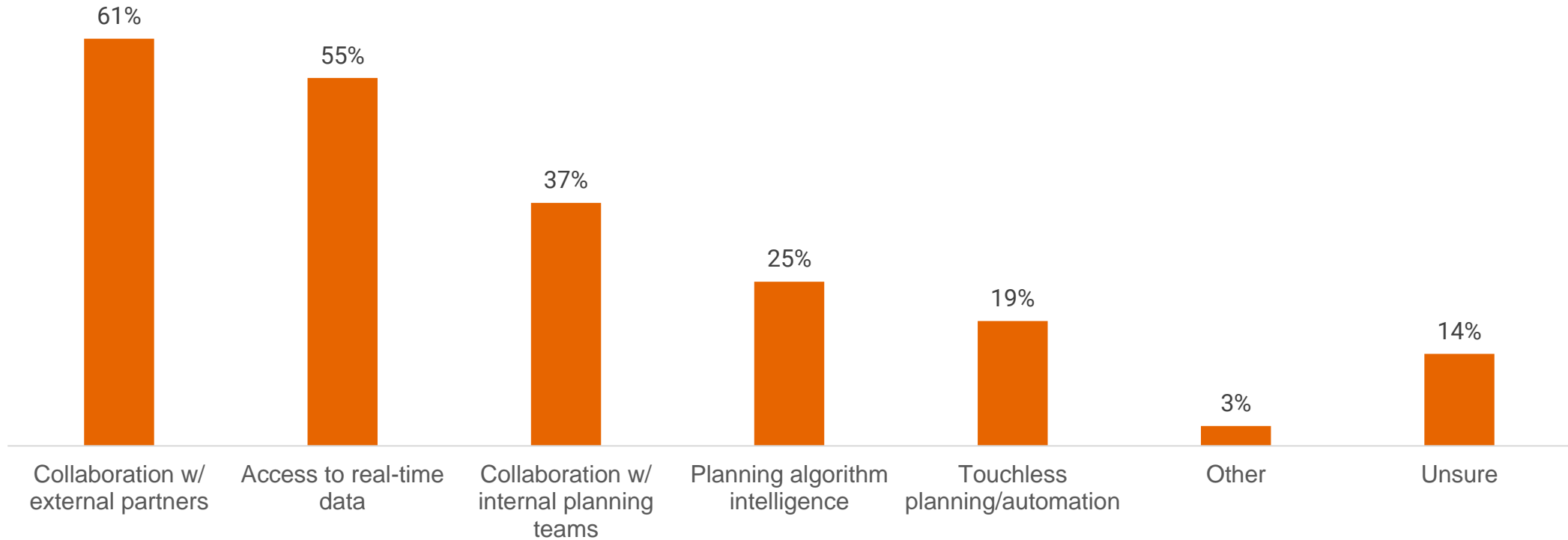


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 Q5. To meet sustainability goals in the next 2 years, my employer needs to focus on the following topics: (choose up to 3)
 All Respondents (n=105)

Note: Uppercase letters denote statistical significance at a 90% confidence level

Respondents also cite collaboration with external partners as the greatest opportunity to improve supply chain organization

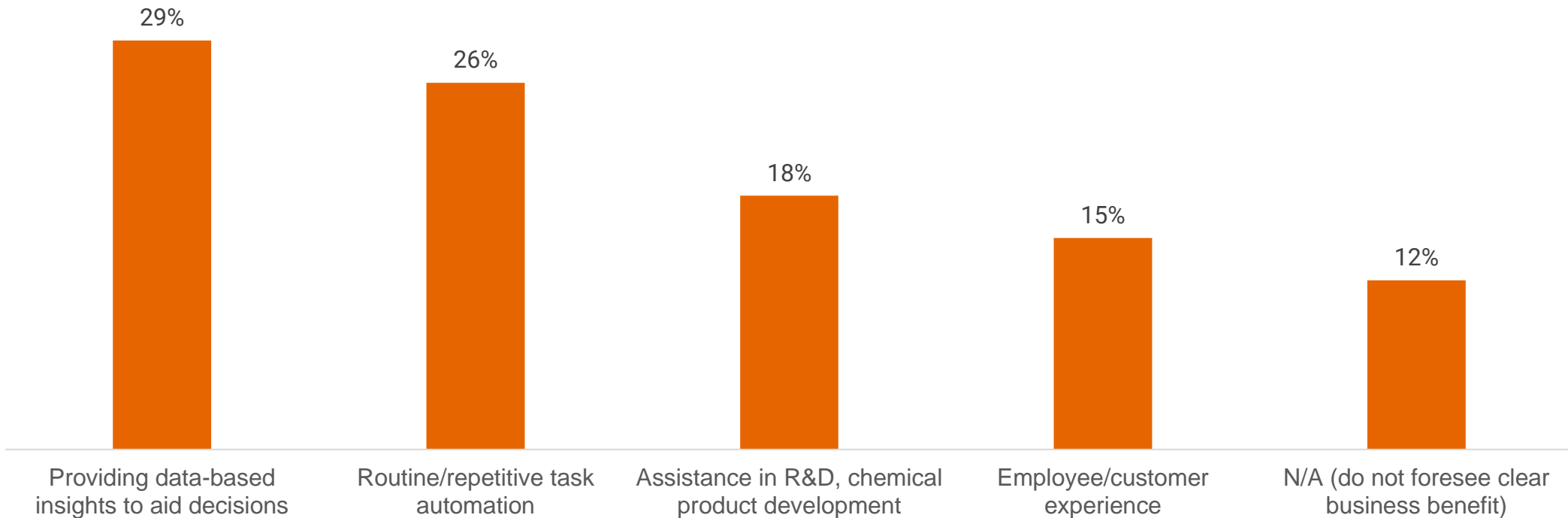
Opportunities to Improve Supply Chain Organization
 (% selected by respondents)



Respondents believe that AI will benefit the chemical industry most by providing data-based insights to aid decisions

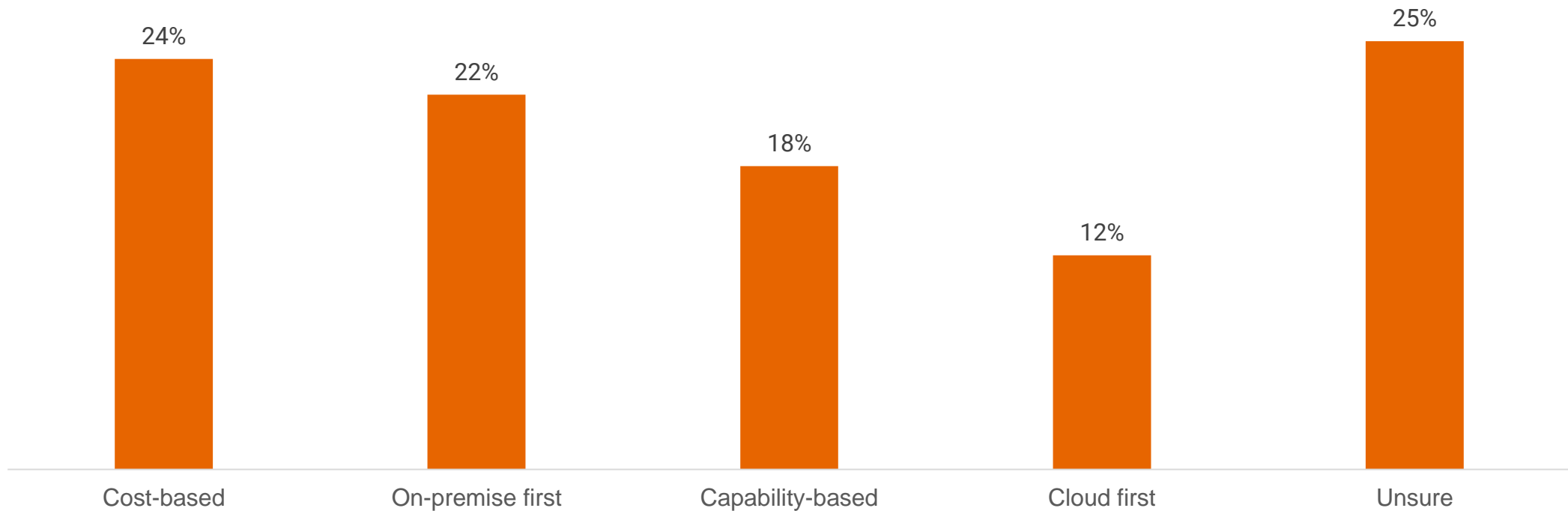
Areas Envisioned for AI to Benefit the Chemical Industry

(% selected by respondents)



Just about 1 in 4 respondents say their employer has a cost-based technology platform strategy, another 1 in 4 are unsure

Technology Platform
(% selected by respondents)



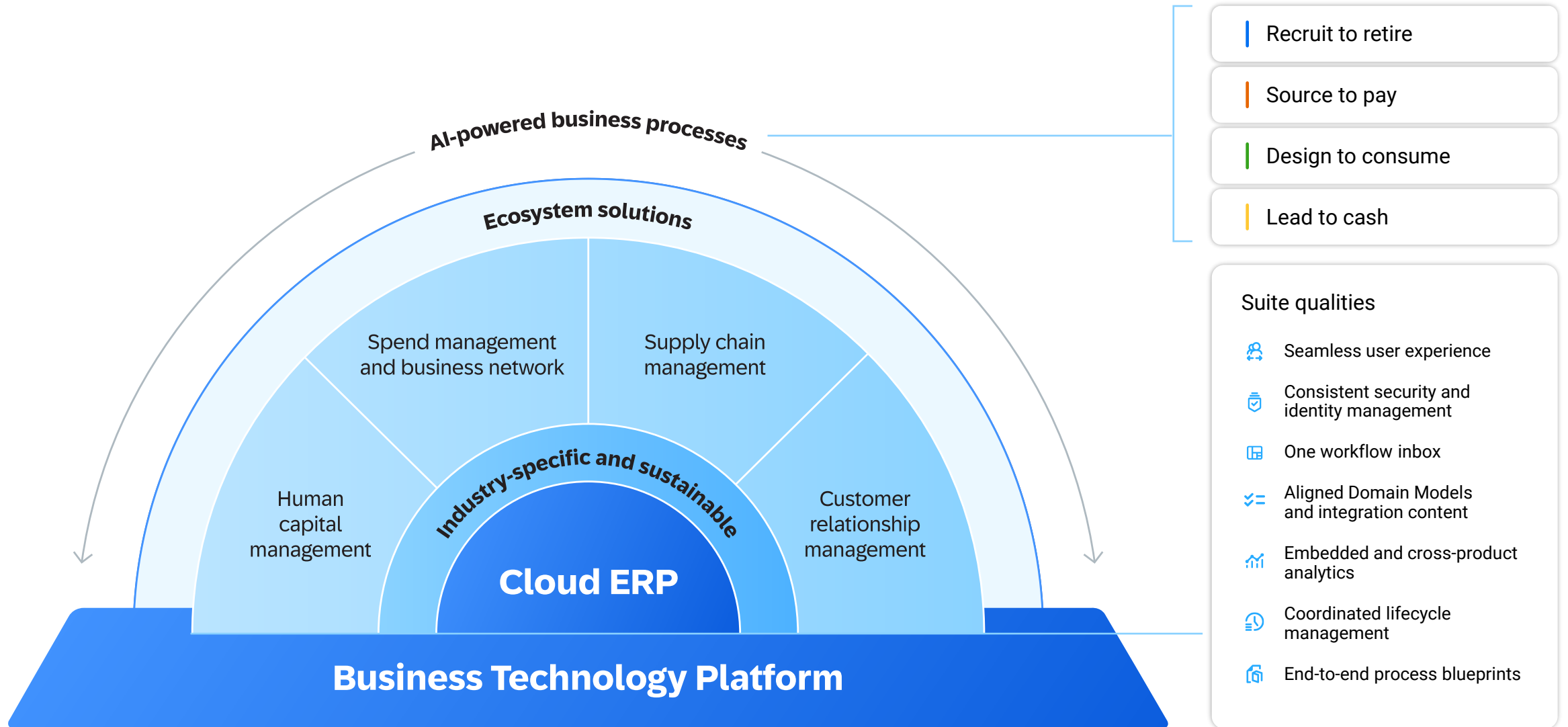
Q8. My employer's technology platform strategy could best be described as:

All Respondents (n=97)

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See Notes section for descriptions of each platform strategy

SAP Strategy | Making the Intelligent Chemical Enterprise happen



Preview of Chemicals content for RSA & RBA

The screenshot displays the SAP LeanIX interface for the Chemicals Business Capability Map. The main area shows a grid of business capabilities organized into columns. A timeline at the top indicates the years 2021 through 2030. The left sidebar contains filters for Type, Hierarchy Level, Parents, Applications, and Business Contexts. The top navigation bar includes 'Dashboards', 'Inventory', 'Reports', 'Diagrams', and 'Collaboration'. The bottom right corner features a 'Support' button.

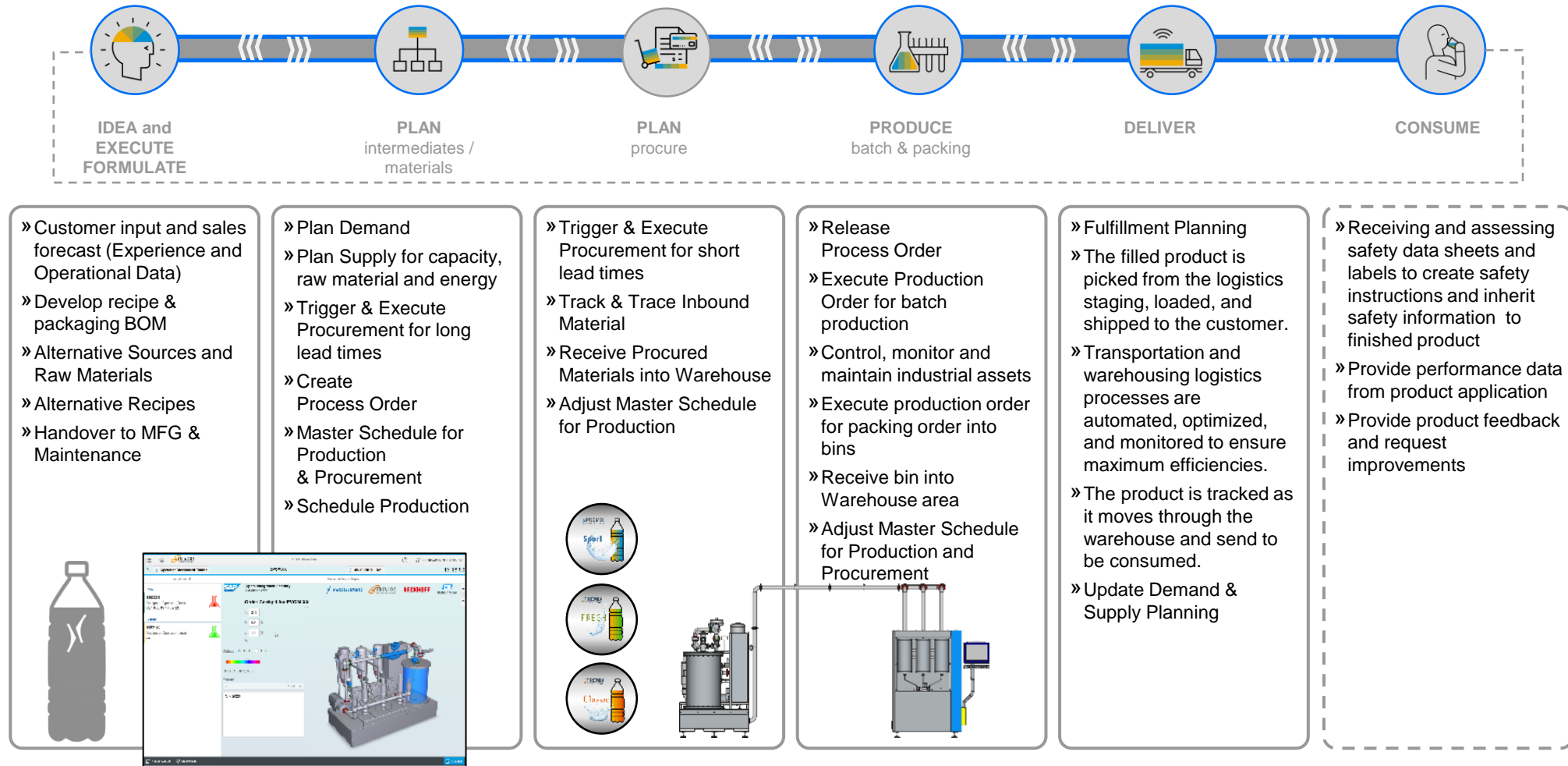
Business Capabilities:

- Asset Management:** Asset Collaboration, Asset Information Management, Asset Lifecycle Delivery, Asset Management Strategy, Asset Demand Management, Asset Investment Management, Asset Objectives Management, Asset Policy Management, Asset Strategy Management, Operations and Maintenance Execution, Strategic Asset Management Planning, Tactical Asset Management Planning.
- Corporate Services:** Legal, Purchasing, Real Estate Management, Fleet Management, Route Management.
- Customer Relationship:** After Sales Service, Claims Management, Customer Service, Opportunity, Order & Sales Management, Retention & Loyalty Programs.
- Customer Service:** Customer Service and Support, Complaints Management, Customer Claims Management, Customer Returns Management, Customer Warranty Claim Process, Inquiry Management, Omnichannel Customer Engagement, Recall Management, Self-Service Engagement, Service Knowledge Base Management, Service Level Management, Service Request Management, Customer Service Strategy, Customer Service Analytics, Customer Service Planning and Forecasting, Customer Service Strategy Management.
- Enterprise Strategy:** Business Process Management, Business Process Analytics and Monitoring, Business Process Automation, Business Process Governance, Business Process Modeling, Business Process Monitoring, Business Process Optimization, Business Process Orchestration, Corporate Operations Management, Customer Order Central Operations, Finance Central Operations, HR Central Operations, Manufacturing Central Operations, R&D Central Operations, Shared Services Enablement, Sourcing and Procurement Central Operations, Supply Chain Central Operations, Enterprise Strategy and Planning, Business Information Strategy Development, Business Model Management, Compensatory Planning, Connected Planning, Corporate Brand Strategy Management, Enterprise Architecture Management, Enterprise Goal Planning, IT Strategy Definition, Margin Analysis.
- Finance:** Accounting & Billing, Audit/Assurance, Financial Planning & Forecasting, Management Reporting, Treasury, Accounting and Financial, Asset Accounting, Financial Audit Preparation, Financial Master Data Management, Financial Multi-GAAP Posting, Fund Accounting, General Ledger Accounting, Group Financial Closing, Inventory Accounting, Joint Venture Accounting, Lease Accounting, Local Financial Closing, Non-Financial Data Recording, Revenue and Cost Recognition, Value Chain Recording, Financial Planning and Analysis, Budgetary Accounting, Financial Analytics, Financial Planning, Financial Simulation, Financial Structure Management, Margin Analysis.
- Governance, Risk and Compliance:** Cybersecurity, Data Protection, Data Privacy Management, Data Protection, Enterprise Risk and Compliance, Audit Management, Business Integrity and Controls, Business Integrity Screening, Controls Management, Regulatory Compliance Management, Risk Management, Identify and Access Governance, Access Governance, Authentication Management, Identity Management, Legal Matter Management, Contract Authoring, Contract Collaboration, Intellectual Property Management, Legal Contract Lifecycle Management, Legal Templates and Clauses Management.
- HR:** Attendance Management, Employee Lifecycle Management, Recruiting, Training & Skills Enhancement, Workforce Management.
- Human Resources:** HR Administration, Concurrent Employment Management, Employee Administration, External Worker Information Management, Global Assignment Management, Offboarding Management, HR Strategy and Planning, Culture and Change Management, Employee and Labor Relations Management, HR Analytics, HR Compliance Management, HR Strategy Planning, Strategic Workforce Planning, Learning Management, Compliance Training Management, Social and Collaborative Learning, Training Management, Organizational Management, Operational Headcount Planning, Organizational Structure Management, Position Management, Payroll and Reimbursement, Payroll Management, Reimbursement Management, Rewarding, Benefits Management.
- Information Technology:** Access Management, Collaboration, Desktop services & Help desk, Information Management, Mobile Device Management.
- Innovation:** Idea Management, Innovation Management.
- International Trade and Logistics:** Global Trade Management, Export Management and Control, Import Management and Control, Preference Management, Tax Management, Document and Reporting Compliance, Excise Tax Management, Tax Classification, Tax Control Management, Tax Determination and Calculation, Tax Operations, Tax Settlement.
- Inventory:** Distribution Management, Inventory Planning & Management, Warehouse Management.

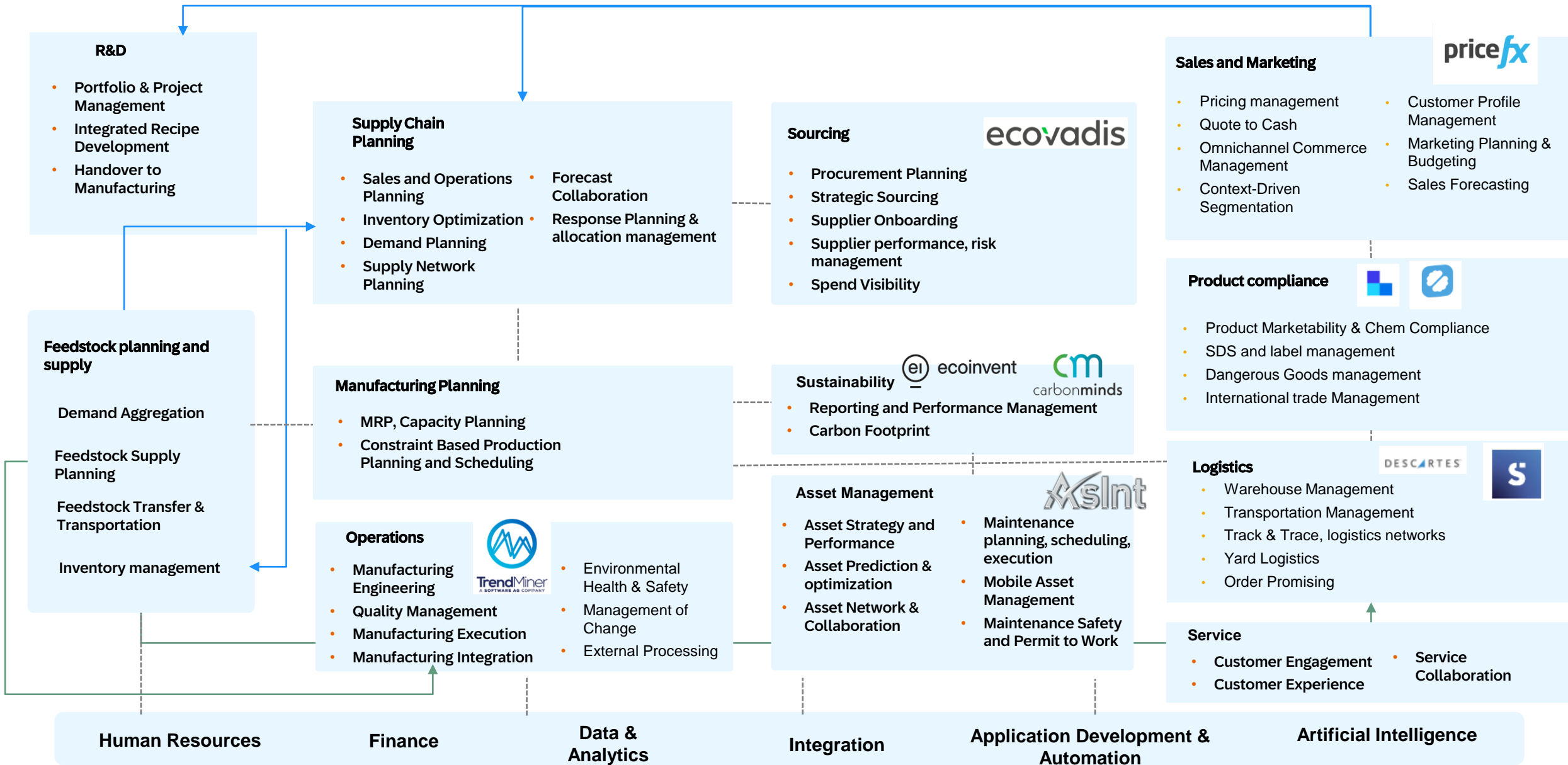
Design to Consume

Intelligent Manufacturing Enterprise for Process Industries

Develop recipe and produce batch



Capabilities | E2E Processes for the Chemical Industry



“Smart Chemicals with Research & Development– go beyond Molecules” **Moving** from delivering chemicals to optimizing chemical usage & applications

FROM

- Customer Orders product
- Chemical company manufactures product
- Chemical company delivers the product
- Chemical Company bills the customer
- Customer uses the product

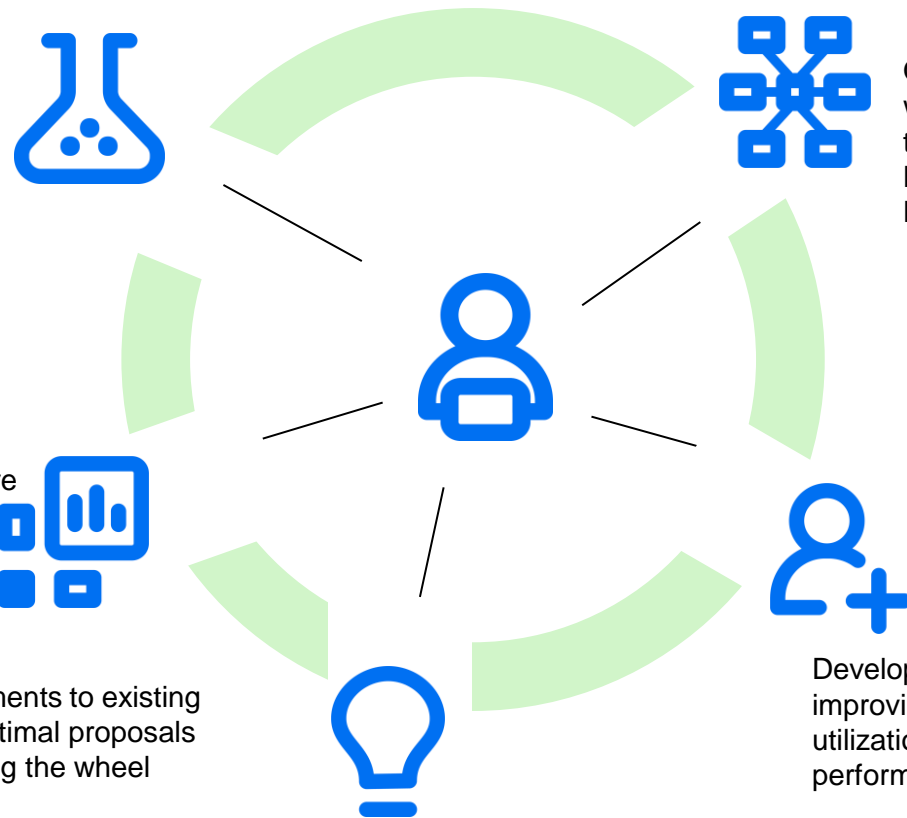


TO

Reduce lab trials through simulation and decision support

Integrate sensor data to identify how chemicals are performing

Match customer requirements to existing R&D data to generate optimal proposals quickly without reinventing the wheel



Open Innovation with intelligent technologies in Business Networks

Develop services for improving chemical utilization & performance

Machine Learning

Block-chain

IoT

Mobile Devices

Big Data

Predictive Analytics

SAP PLM for Process Industries – Offering a choice

“I need to create requirements for the product brief”



“I need to develop specifications and recipes”



“I need to create an M-BoM and Production Instructions”



“I need to manufacture and deliver the product”

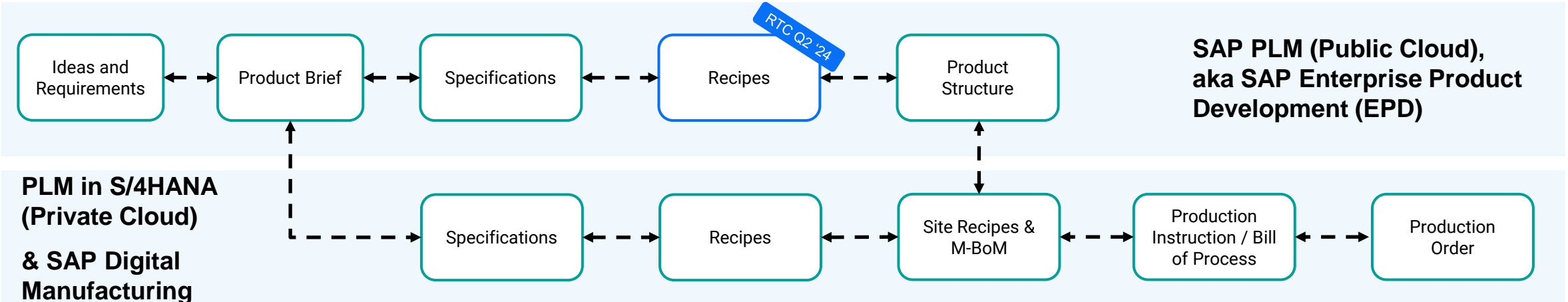


Product Management & Marketing

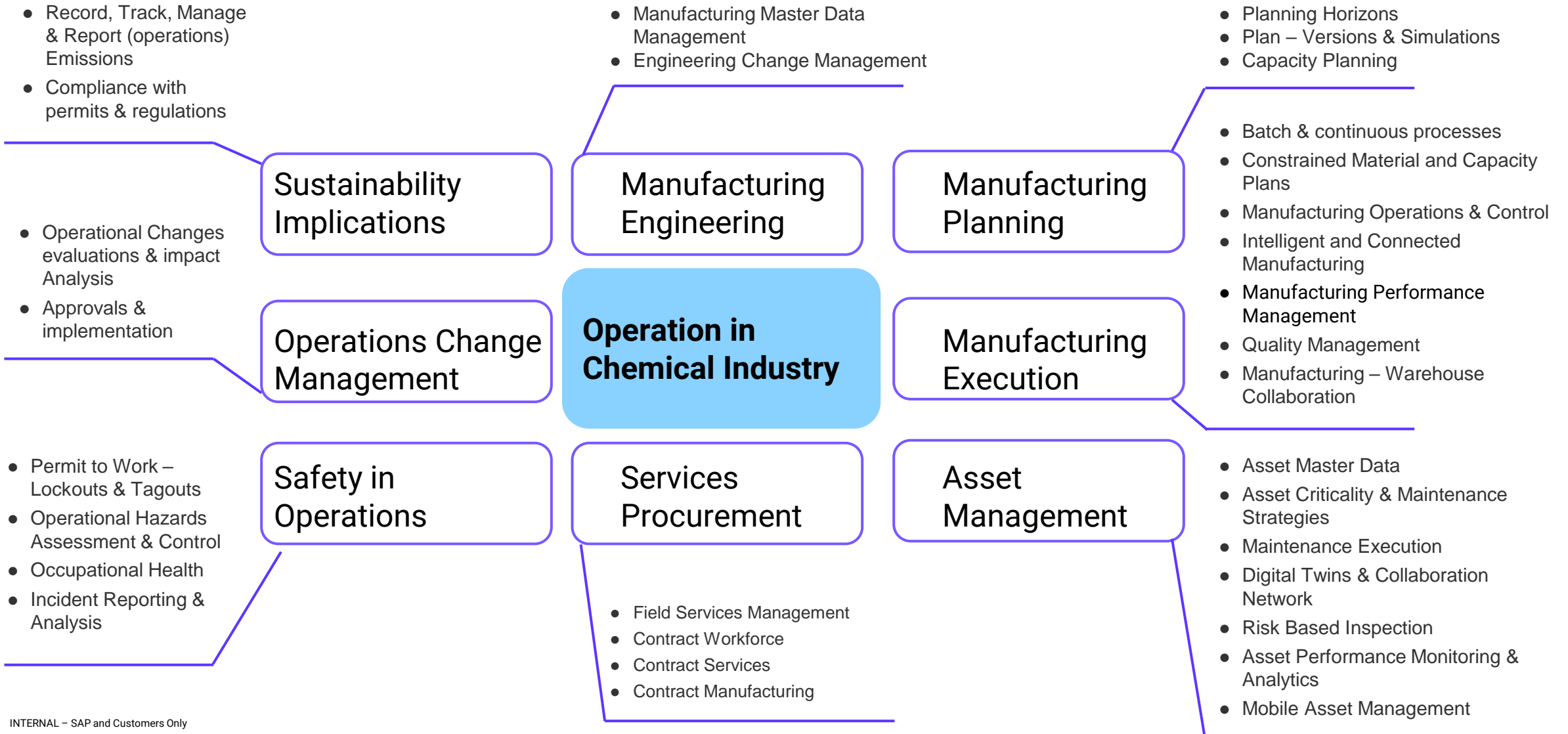
Product Development

Manufacturing Preparation

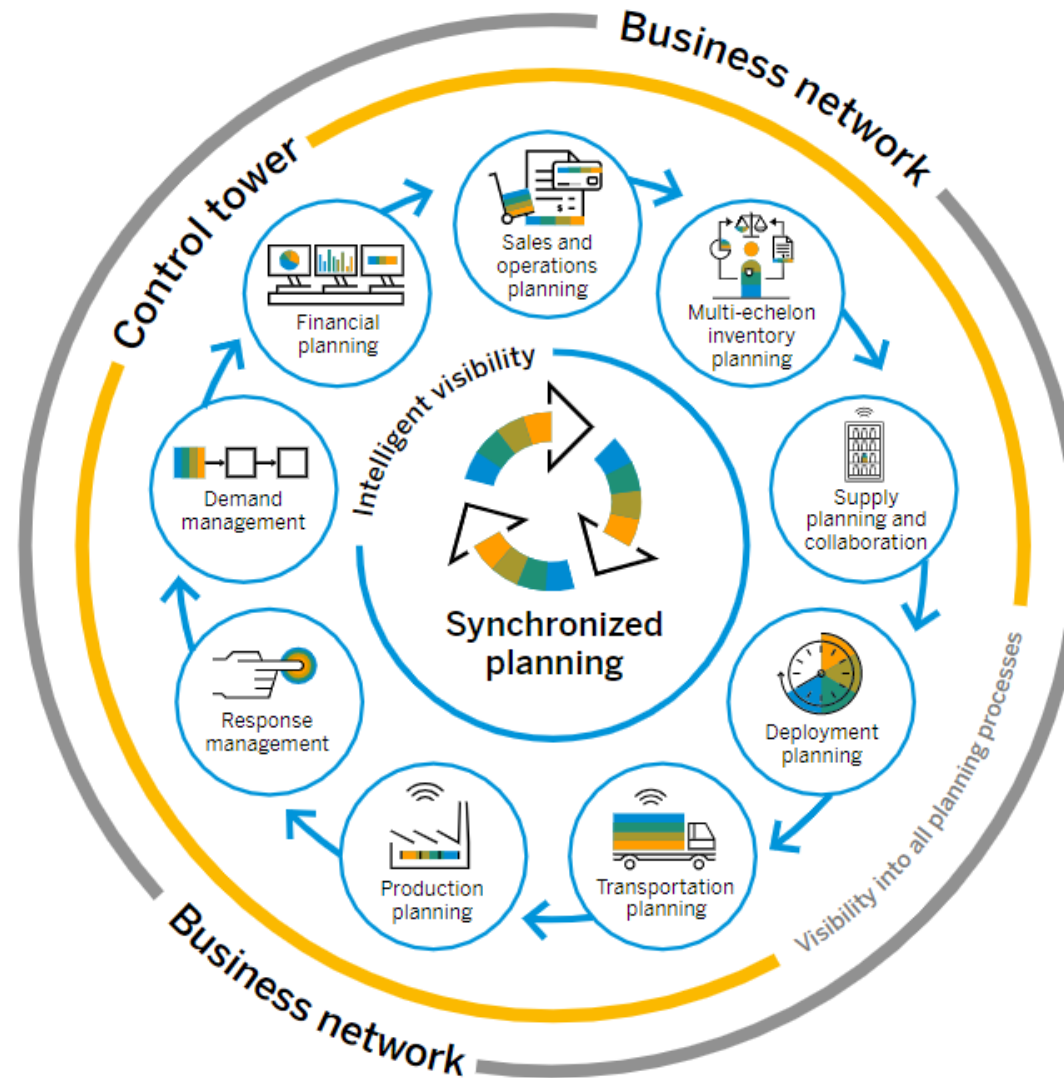
Manufacturing Execution



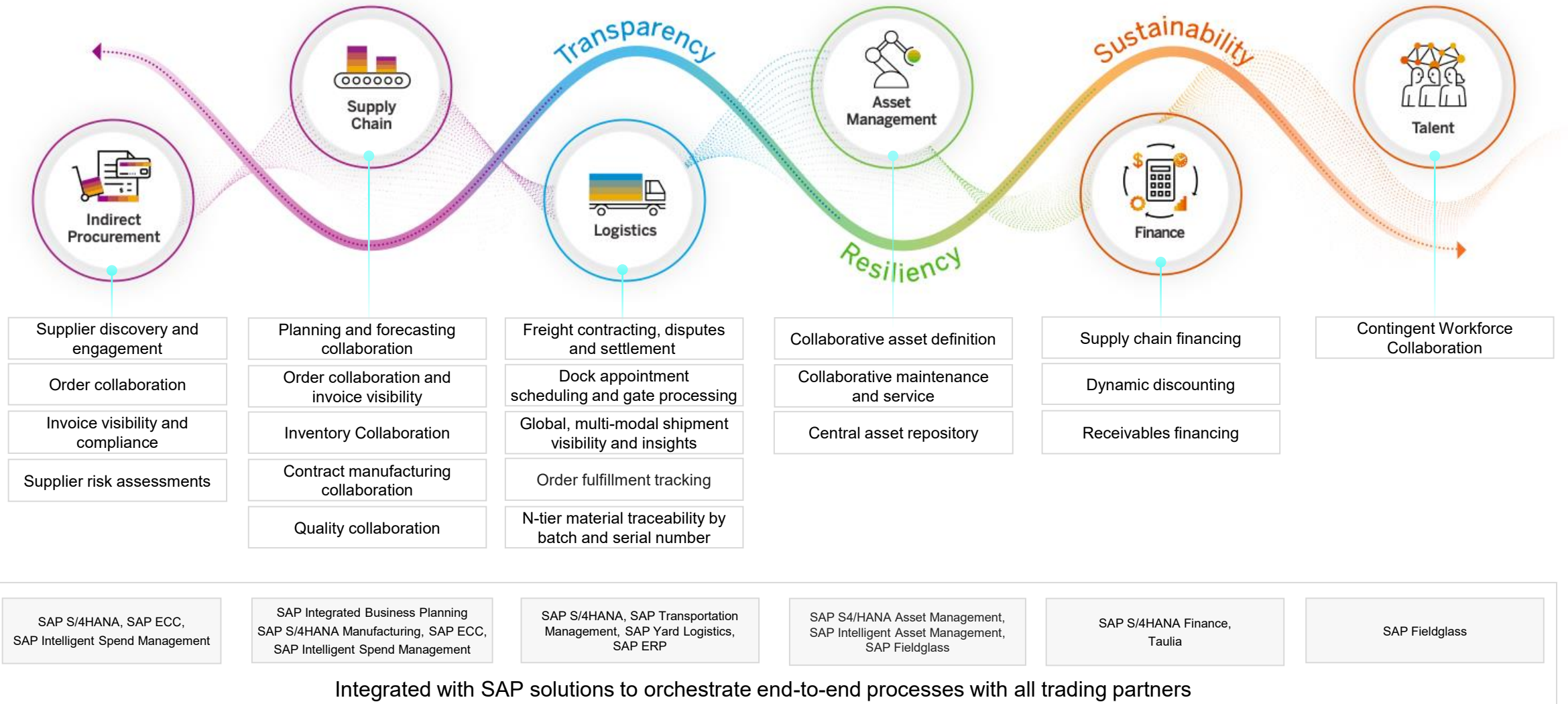
Integrated Operations Management in the Chemical Industry – Key Elements



Improving Planning



SAP Business Network collaboration coverage



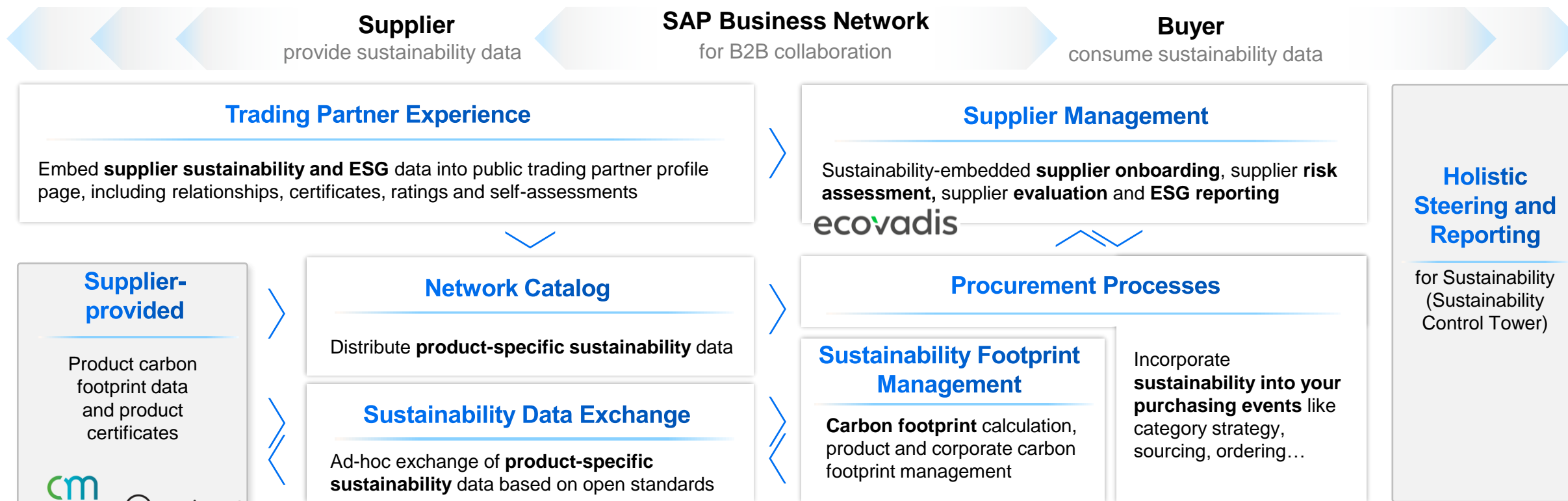
SAP Business Network capabilities may differ between ERP versions

Sustainability outcomes

Big Picture Business Network, Procurement & Sustainability



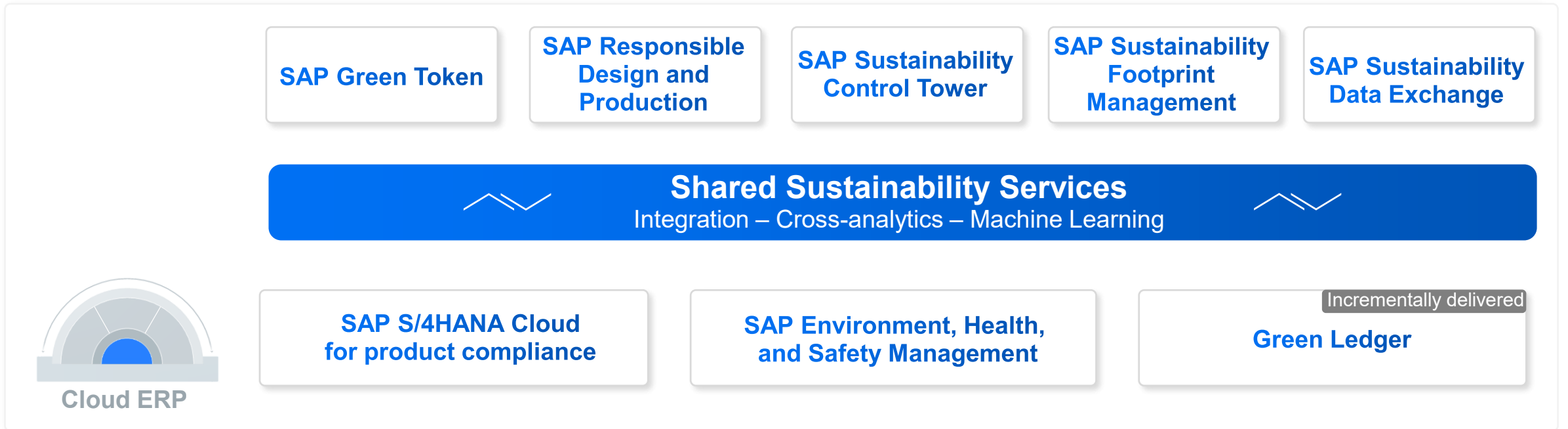
EcoVadis Business Sustainability Assessments, ESG Ratings and Carbon Scorecards by EcoVadis



This presentation, or any related document and SAP's strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice.

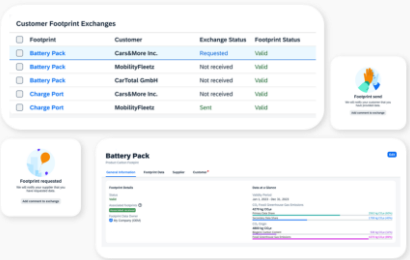
SAP Cloud for Sustainable Enterprises

Modular suite of SaaS solutions with deep integration into SAP S/4HANA Cloud



Transactional Carbon Accounting for Product Carbon Footprint Management

Modular approach



SAP Sustainability Data Exchange

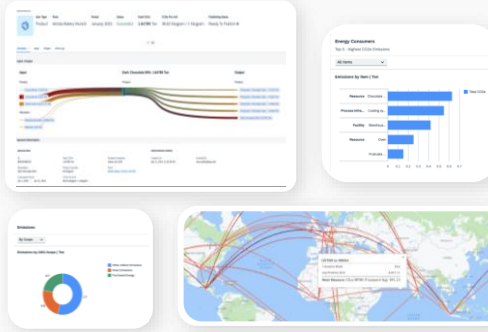
SAP Business Network

Carbon Data Sharing

Raw materials/
components
footprints



Own product
carbon
footprints



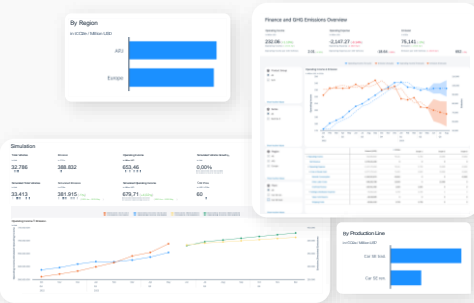
SAP Sustainability Footprint Management

Carbon Footprint Management

Material
level carbon
footprints



ERP data for
calculations



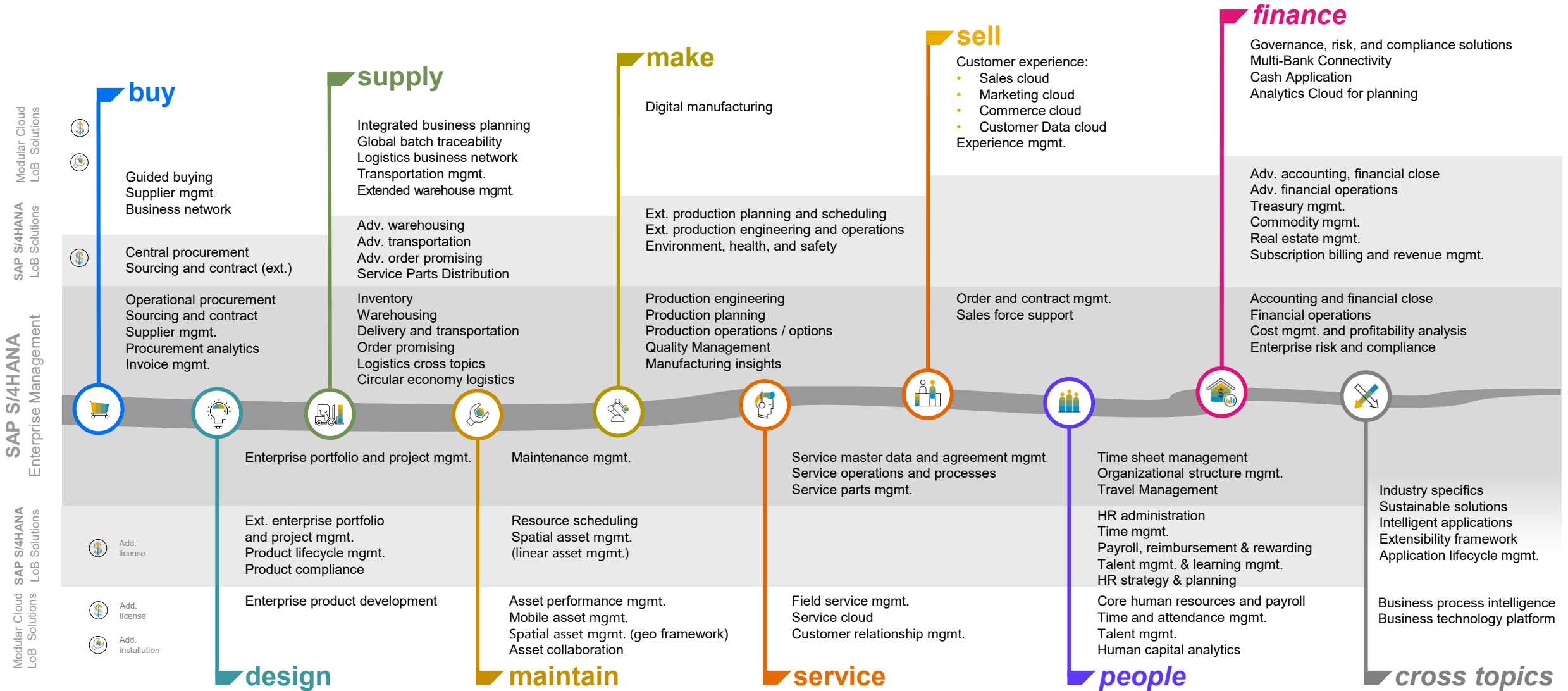
SAP S/4HANA CLOUD

GREEN LEDGER
Integrated with SAP S/4HANA Cloud and as a feature of SAP RISE and GROW

SAP EHS Environment Management

Transactional Data Foundation

SAP S/4HANA Modular Application Portfolio (MAP)

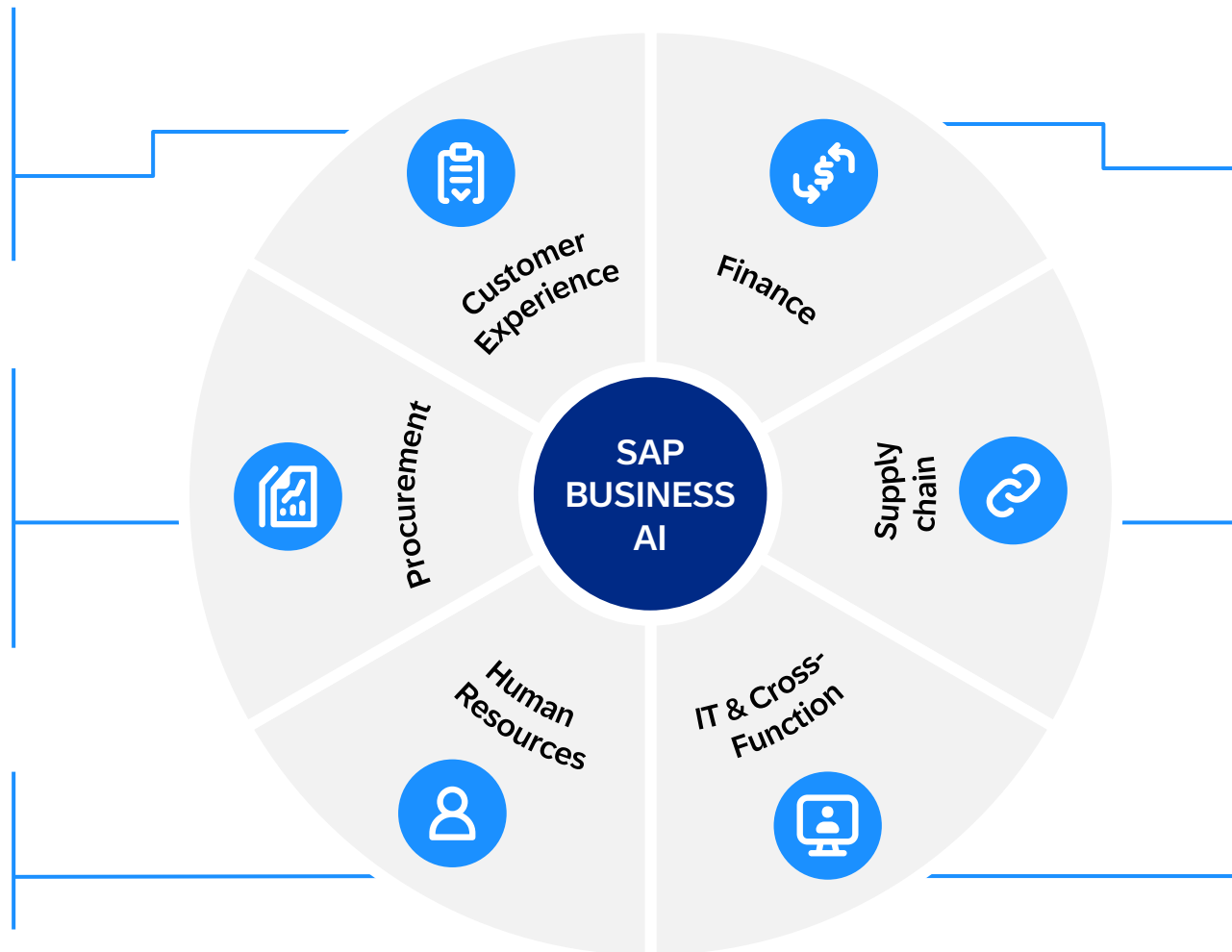


Chemical Industry | AI powered scenarios across business functions*

- Product Recommendations
- Product content and catalog management
- Mobile sales assistant
- Price Optimization

- Sourcing item & supplier prediction
- Guided Buying
- Category Recommendations
- Spend Classification
- Job description for external workforces

- Skill and career path recommendations
- Learning recommendations
- Performance & Goals Definition
- Workforce planning



- Intelligent collections
- Payment & Risk Analysis
- Co-pilot in AP & AR Apps
- Goods receipt and invoice matching
- Travel expense auditing and verification
- Business integrity screening through tax compliance screening

- Demand forecasting & sensing
- Production process optimization
- Demand-driven replenishment for maintenance parts
- Visual inspection in Asset Maintenance and Quality Management
- Co-pilot for Dangerous Goods management, Health & Safety

- Digital Assistant
- Process Automation
- Business Rule Mining
- Master Data Management
- Identity & Cybersecurity

* [Click](#) on a business function to [navigate](#) for details

Priority Use Cases following discussion with Chemical Executive Advisory Council

Master Data

Intelligent improvements for master data management:

- Duplication and outlier checks / suggestions
- Attributes validation and control
- Description fields checks and suggestions
- Quality analysis and suggestions
- Enrichment suggestions
- Business discipline

Demand Planning

Future-looking market intelligence:

- External data gathering, matching and analysis
- Unstructured data processing (reports, pics, etc)
- Considering news, social trends, stocks

Structured modifiers for “traditional” statistical demand forecasting

Self Service Assistance, Customer 360

Better service experience for customers and users:

- Natural language experience (type, oral)
- Popular request (e.g. order & shipment status, customer, compliance, products)
- All siloed data sources
- Queries, Workflows, Approvals
- All context-related data at one dynamic panel

Business Process Management

AI-supported business processes analysis:

- Continuous data gathering and detailed analysis
- Extracting insights, Identifying weak points and lagging KPIs
- Generating BP performance overview report
- Improvements suggestions

Financial Reporting

AI-assisted financial analysis and insights:

- Contribution margin analysis
- Invoices overpaid & duplicate payments prevention
- Period closing assistance
- Document extraction / Invoice processing
- Reconciliation matching / Freight settlements

Additional Use Cases

- Non-linear optimization of manufacturing process
- Product development assistance
- In-house code development and quality testing
- Fraud prevention in different areas (sales, procurement)
- Image and sound recognition for maintenance inspection and quality management
- Documents processing (contracts, HR-related docs, etc)

...Find out more scenarios on [SAP Business AI](#)



Chemicals | Industry view

Industry Trends



Energy & raw material crises



Digital technology & innovation particularly the rise of AI



Supply/demand volatility & geopolitical upheaval



Regulatory Pressure / calls for decarbonisation

Transformation Priorities

Customer Engagement & Co-Innovation to differentiate with superior products and services

Resilient Supply Chains to stay responsive

Integrated Operations Management to gain operational excellence

Sustainability and Compliance to keep your license to operate

Talent and Change Management

Focus Topics

Enterprise **Product Development** to deliver innovative solutions that meet customer expectations

Price optimization for higher **product profitability**

Gain supply chain transparency in **Industry business networks**

Optimize planning and production for higher responsiveness at reasonable cost

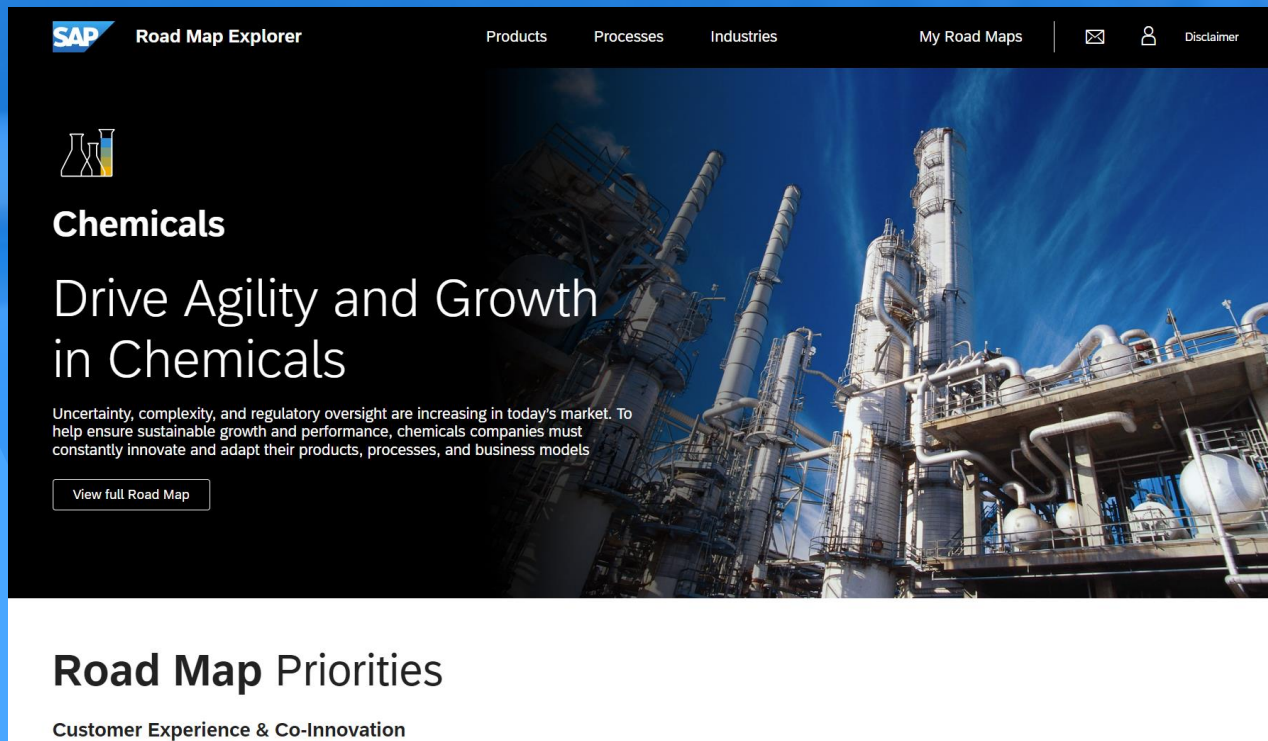
Managing the **product footprint** along supply chains

Gain strategic advantage from **ESG reporting** requirements

Digitalize **Product Compliance**

SAP is focusing on Innovations in our development roadmap.


We Innovate together with our customers



The screenshot shows the SAP Road Map Explorer interface. At the top, there is a navigation bar with the SAP logo, 'Road Map Explorer', and menu items for 'Products', 'Processes', 'Industries', 'My Road Maps', and 'Disclaimer'. Below the navigation bar is a large image of a chemical plant. On the left side of the image, there is a section titled 'Chemicals' with a sub-header 'Drive Agility and Growth in Chemicals'. Below this, there is a paragraph of text: 'Uncertainty, complexity, and regulatory oversight are increasing in today's market. To help ensure sustainable growth and performance, chemicals companies must constantly innovate and adapt their products, processes, and business models'. A button labeled 'View full Road Map' is positioned below the text. At the bottom of the screenshot, there is a section titled 'Road Map Priorities' with the sub-section 'Customer Experience & Co-Innovation'.

SAP Road Map Explorer

Products Processes Industries My Road Maps | Disclaimer

 **Chemicals**

Drive Agility and Growth in Chemicals

Uncertainty, complexity, and regulatory oversight are increasing in today's market. To help ensure sustainable growth and performance, chemicals companies must constantly innovate and adapt their products, processes, and business models

[View full Road Map](#)

Road Map Priorities

Customer Experience & Co-Innovation

[SAP Road Map Explorer](#)

Thank you.

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