

The Intelligent Chemical Enterprise

Industry Trends and SAP Strategy Chemicals

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The chemical industry is being reshaped by four major trends



- **Ongoing commoditization and margin erosion** require chemical companies to focus on portfolio optimization, co-innovation, and the selling of business value and outcomes instead of just products, with the ultimate goal to deliver entirely new customer and consumer experiences.



- **Digital is the new norm**, with technologies such as the Internet of Things (IoT), machine learning (ML), blockchain, the cloud, and analytics providing new opportunities for chemical producers to cut costs by automating the back office and running low-touch operations.



- As the playing field is being changed by **disrupters coming in from all angles**, chemical companies are looking beyond traditional value chains and starting to compete in complex ecosystems.



- In a more and more **dynamic world with mergers, acquisitions, and divestitures** as key vehicles for portfolio optimization and sustainable growth, strategic, market-driven agility has become an imperative to survive and thrive.

SAP's CHEMICAL INDUSTRY **VISION 2025**

By 2025, chemical company revenue will depend on innovative products and services that derive from new business models. These new models range from relatively simple aftersales service offerings to complex outcome-as-a-service models, and include programs to monetize corporate knowledge, intellectual property and data assets. Increasingly, these new ways of doing business will rely on **real-time data sharing and collaboration with customers on new platforms, supported by extended partner ecosystems.**

STRATEGIC INDUSTRY PRIORITIES FOR CHEMICAL COMPANIES TO TRANSFORM THEIR BUSINESS



Sell Business Outcomes Instead of Just Products

Connect to and collaborate with your customers, understand and become part of their value chains, and leverage digital technology to deliver innovative services, business outcomes, and unprecedented customer experiences, instead of just selling products.



Simplify to Shrink Cycle Times

Run simulations and predictive models, enable real-time sense and response, and use IT and operations technology integration and the IoT to reduce time to market, streamline operations, maximize asset performance, and minimize rework.



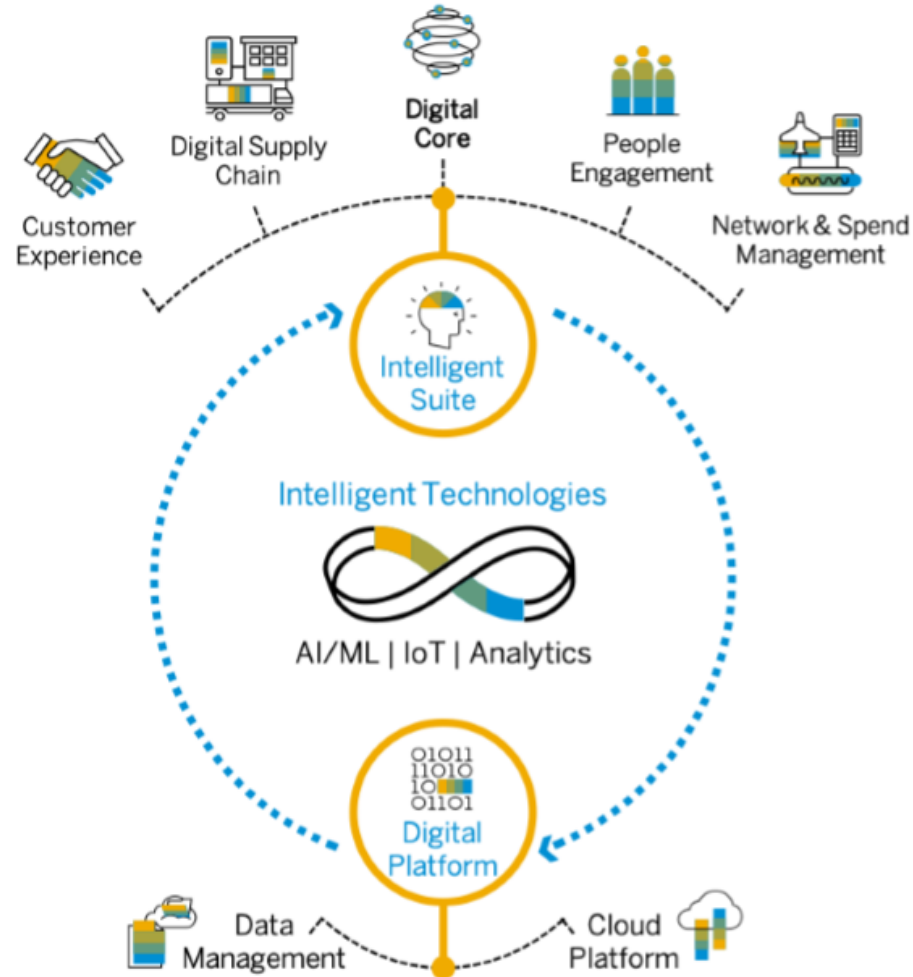
Compete As an Ecosystem

Capitalize on open innovation, leverage extended manufacturing networks, go beyond the boundaries of your existing value chain, and understand the needs of your customers' customers. Adopt the capability to flexibly redesign your network and relationships in line with market dynamics.



Adopt Strategic Agility in Response to Market Dynamics

Adjust your strategy and portfolio dynamically in response to market opportunities and needs, grow rapidly into new markets or segments, and capitalize on mergers, acquisitions, and spin-offs to secure continued growth in a challenging global environment.



SAP Enables Businesses to Become Intelligent Enterprises

Intelligent Suite

The set of applications provides the business capabilities that companies need to run their business. End-to-end business processes span multiple applications, so processes and data must be integrated for automation, a seamless user experience, fast adoption, and ease of operations.

Intelligent Technologies

Several innovative technologies have matured to practical use.

The **Internet of Things** makes business applications interact with the physical world.

Big Data makes large data sets accessible for advanced analytics and intelligence.

Machine learning and **artificial intelligence** automate repetitive processes and learn from human exception handling and decision-making.

Advanced analytics finds data patterns to support decisions and predict the future.

Blockchain distributes collaborative processes across the entire value network.

Data intelligence finds new value in data assets for new business models.

Intelligent Platform

The digital platform is powered by SAP HANA, extends the intelligent end-to-end processes, and connects to data sources.

The SAP Cloud Platform allows customers and partners to extend their intelligent suite to run additional business processes.

Data management handles and organizes data as a strategic asset of the intelligent enterprise

Chemicals Value Map 2019

Customer Engagement and Co-Innovation

Single Customer View
Consent-Based Marketing
Optimized Marketing
Portfolio and Project Management
Product Formulation and Recipe Development
Sales Force Automation
Sales Performance Management
Quote to Cash
Omnichannel Commerce Management
Commerce Personalization

Planning & Sourcing

Sales, Inventory, and Operations Planning
Demand Management and Insights
Response and Supply Management
Manufacturing Planning and Operations
Sourcing and Contract Management
Supplier Management
Inventory and Basic Warehouse Management
Procurement Analytics
Supplier Collaboration
Central Procurement

Integrated Operations Management

Operational Procurement
Manufacturing Execution
Manufacturing Network
Industrial Insights
Environment, Health, and Safety
Asset Operations and Maintenance
Intelligent Asset Management
Services Procurement
External Workforce Management
Invoice and Payables Management

Delivery & Service

Product Compliance
Order Promising
Warehouse Management
Transportation Management
Track & Trace and Logistics Network
Yard Logistics
Omnichannel Customer Service

Human Resources	Core Human Resources and Service Delivery	Payroll & Time and Attendance Management	Talent Management and Learning	Talent Acquisition	People Analytics	
	Accounts Payable and Receivables	Real Estate Management	Financial Performance Management	Accounting and Financial Close	Finance Operations	
Finance	Treasury Management	Enterprise, Risk, and Compliance	Cybersecurity and Data Protection			
Platform and Technology	Analytics	Application Platform and Infrastructure	Database and Data Management	IT Management	Security Software	IoT Business and Technology Services

Customer Engagement and Co-Innovation

Key recent and planned innovations (3/4)

Customer Engagement and Co-Innovation
Single Customer View
Content Recommendation
Customer Onboarding
Product and Project Management
Product Formulation and Recipe Development
Supply Chain Management
Quality Management
Service to Customers
Customer Feedback Management
Customer Relationship Management

Recent innovations

Product Formulation and Recipe Development

- SAP CoPilot for recipe developers (SAP S/4HANA Cloud, Q2/18)
- Recipe finder app – advanced search functionality (SAP S/4HANA Cloud, Q2/18)
- Enhanced overview page for recipe developers (SAP S/4HANA Cloud, Q2/18)
- Integrated product design (collaboration) to recipe development (SAP S/4HANA Cloud, Q3/18)
- Recipe finder app – analytical enhancements (SAP S/4HANA Cloud, Q3/18)
- Recipe development enhancements, such as overview pages, analytics, and SAP CoPilot integration (SAP S/4HANA 1809)
- Continuous improvements for SAP Recipe Development (SAP ERP EHP6)
- Recipe development – functional enhancements for chemicals (SAP S/4HANA Q4/18)
- Recipe development/contribution-based formulation, SAP S/4HANA Cloud (SAP S/4HANA Cloud, Q4/18)
- Recipe development – nonoverlapping validity dates of recipe versions SAP S/4HANA Cloud (SAP S/4HANA Cloud, Q3/18)

For all SAP innovations for the chemicals industry, visit [Innovation Discovery](#).

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2019 – Planned innovations¹

Product Formulation and Recipe Development

- Handover of engineering structures (product structure and engineering BOMs)

Customer Engagement and Co-Innovation

Future direction and vision (3/4)

Customer Engagement and Co-Innovation
Single Customer View
Content Recommendation
Customer Onboarding
Product and Project Management
Product Formulation and Recipe Development
Supply Chain Management
Quality Management
Service to Customers
Customer Feedback Management
Customer Relationship Management

2020 – Future direction¹

Product Development

Intelligent product design

- Test progress reporting
- Evaluation of alternatives in systems engineering
- SysML model exchange
- Live product cockpit enhancements for systems engineering
- Collaboration with structured data (process industries)
- Integration to Ariba Network
 - Onboard collaboration partners from Ariba Network
- Overarching collaborative change management process
 - Including customers, manufacturers, partners, and suppliers

PLM

- Further enhancements for chemicals in recipe development
- Single formula editor for recipe development on SAP S/4HANA Cloud
- Further enhancements to bill of materials handling such as thumbnails
- Authoring tool integration for SAP S/4HANA Cloud

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2021 – Vision¹

Product Development

Intelligent product design

- Integrated system modeling with simulation to reduce development complexity and optimize products
- Leverage intelligent systems engineering best practices with support of machine learning to optimize and shorten development process
- Impact evaluation in engineering change and affected downstream processes and products supported by machine learning insights
- Handing over of sensor data to the thing model for the Internet of Things

PLM

- Digitally assisted formulation – real-time compliance check and compliant label generation
- Predictive analytics on recipe data based on machine learning
- Predictive analytics on IoT data for closed-loop engineering based on machine learning

SAP S/4HANA and SAP S/4HANA Cloud innovations

Value based, digital industry roadmaps – structure

3 levels to connect coherently from thought leadership to capabilities, value and single innovations

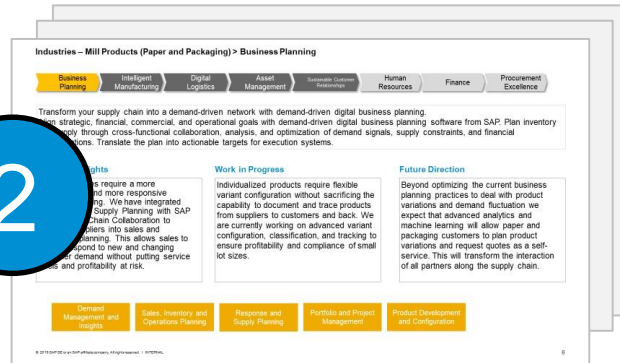
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Industry level

- Industry trends, priorities and role of SAP.

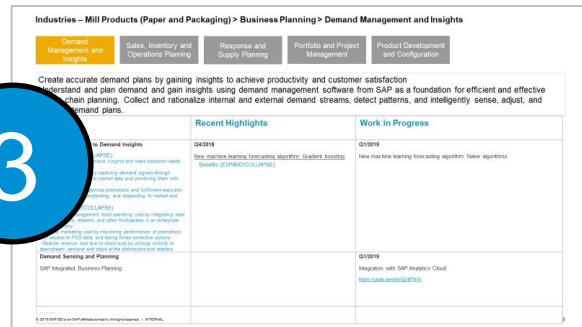
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Business Value across Value Chain

- Recent and upcoming highlights as well as SAP's vision per business priority leading to the IE.

3

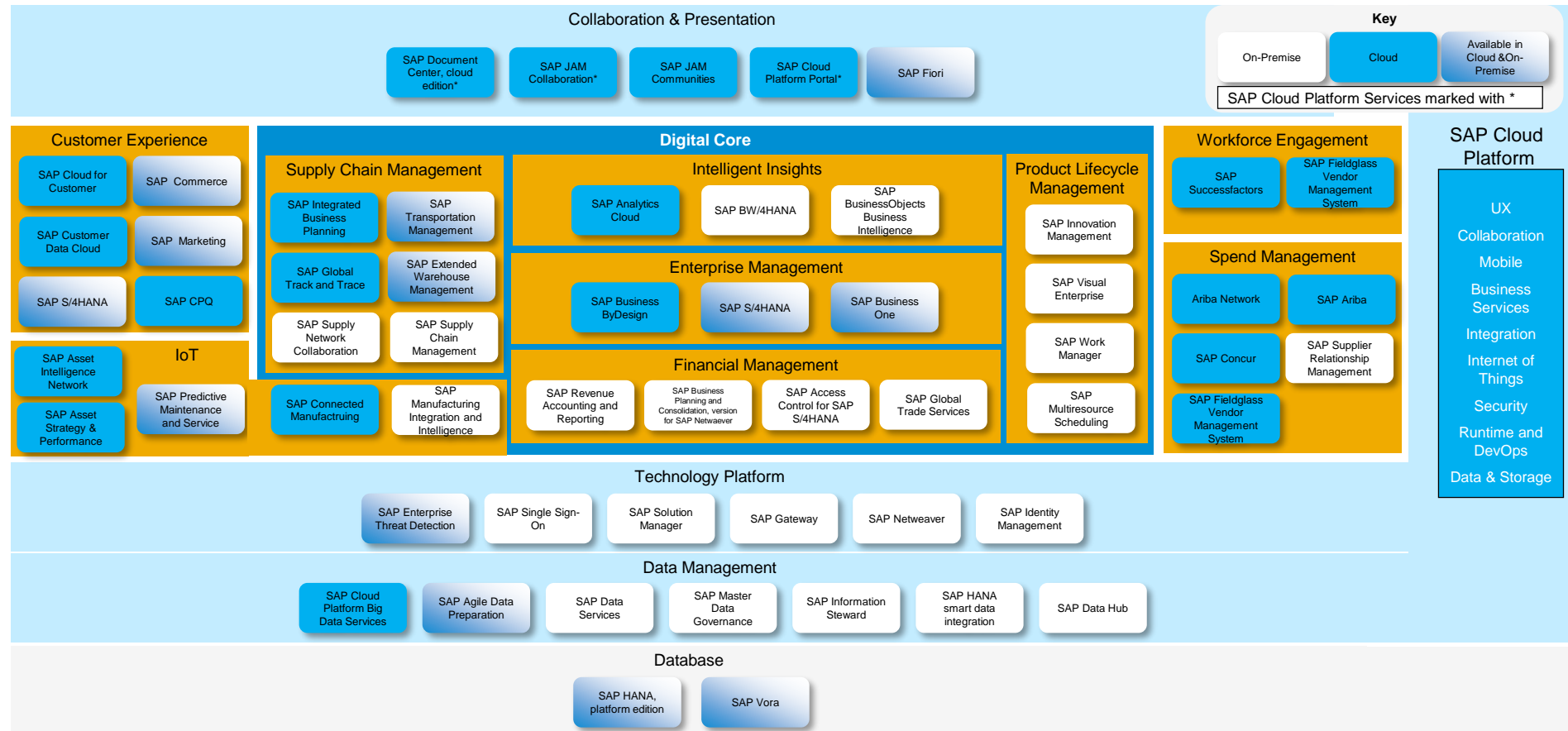


Solution/Capability and Innovation level

- Recent and upcoming innovations for new and enhanced capabilities.

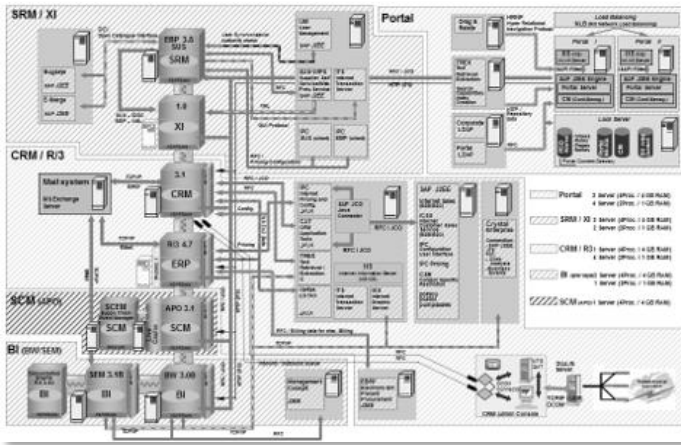
Production Consumption UI

Chemicals reference architecture

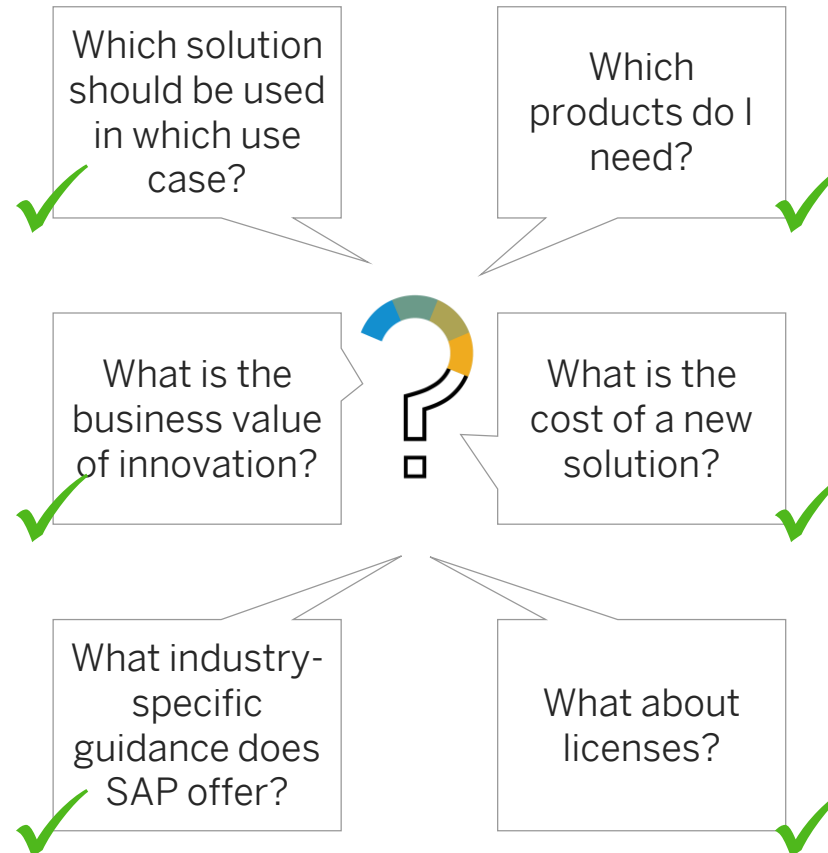


Customers asked for **clear guidance** toward an intelligent enterprise

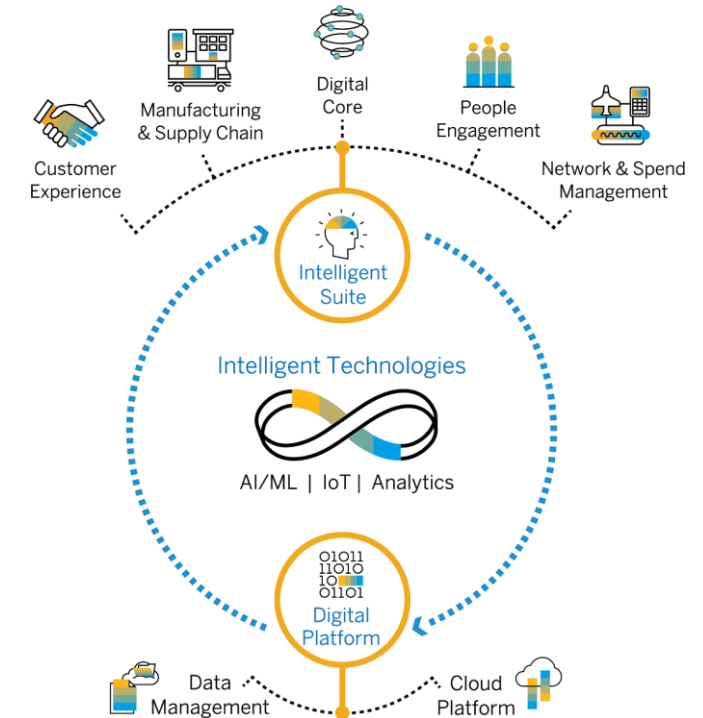
TODAY



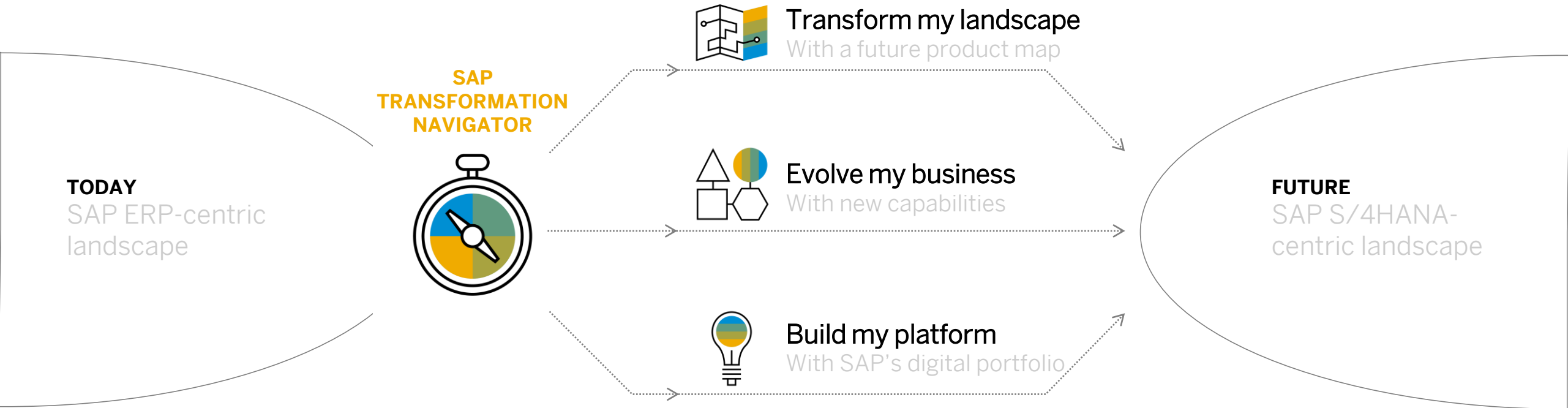
GUIDANCE



TOMORROW



Transformation scenarios



Generates company-specific **product map & guides**

CUSTOMER INPUTS



Current product list

Pre-filled from support profile



Business needs

Selected from capability catalog

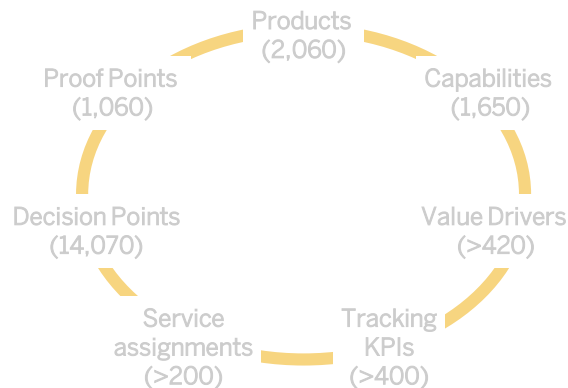


IT-strategy

Prompted decision points, such as cloud preference



Select | Navigate | Display | Share



TOOL OUTPUTS

Business guide – why?



- Value drivers
- Aspiration ranges
- Tracking KPIs

Technical guide – what?



- Industry reference map
- Product recommendations
- Decision points

Transformation guide – how?



- Transition types
- License policies
- Services

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<http://www.sap.com/industries/chemicals.html>



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Thank you.

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