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.
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

### Finance
- 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

- Treasury Management
- Enterprise, Risk, and Compliance
- Cybersecurity and Data Protection
- 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

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Customer Engagement and Co-Innovation
Key recent and planned innovations (3/4)

Recent innovations

Product Formulation and Recipe Development

- SAP CoPilot for recipe developers (SAP S/4HANA Cloud, Q3/18)
- Recipe finder app – advanced search functionality (SAP S/4HANA Cloud, Q4/18)
- 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 EHP9)
- Recipe development – functional enhancements for chemicals (SAP S/4HANA Cloud, Q4/18)
- Recipe development/composition based formulation, SAP S/4HANA Cloud (SAP S/4HANA Cloud, Q4/18)
- Recipe development – nonoverlapping validity dates of recipe versions (SAP S/4HANA Cloud, Q3/18)

For all SAP innovations for the chemicals industry, visit Innovation Discovery.

1. This is the current state of planning and may be changed by SAP at any time without notice.

2019 – Planned innovations

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)

2020 – Future direction

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 Aruba Network
  - Onboard collaboration partners from Aruba 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 – Vision

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
- Handling 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

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Value based, digital industry roadmaps – structure

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

Industry level
- Industry trends, priorities and role of SAP.

Business Value across Value Chain
- Recent and upcoming highlights as well as SAP’s vision per business priority leading to the IE.

Solution/Capability and Innovation level
- Recent and upcoming innovations for new and enhanced capabilities.
Chemicals reference architecture
Customers asked for clear guidance toward an intelligent enterprise

- **Today**
  - Which solution should be used in which use case?

- **Guidance**
  - Which products do I need?
  - What is the business value of innovation?
  - What is the cost of a new solution?
  - What industry-specific guidance does SAP offer?
  - What about licenses?

- **Tomorrow**
  - Manufacturing & Supply Chain
  - Digital Core
  - People Engagement
  - Network & Spend Management
  - Intelligent Suite
  - AI/ML | IoT | Analytics
  - Data Management
  - Cloud Platform

What about licenses?
Transformation scenarios

TODAY
SAP ERP-centric landscape

SAP TRANSFORMATION NAVIGATOR

FUTURE
SAP S/4HANA-centric landscape

Transform my landscape
With a future product map

Evolve my business
With new capabilities

Build my platform
With SAP’s digital portfolio
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

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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Thank you.

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