Digital Transformation - Building the Foundation for AI
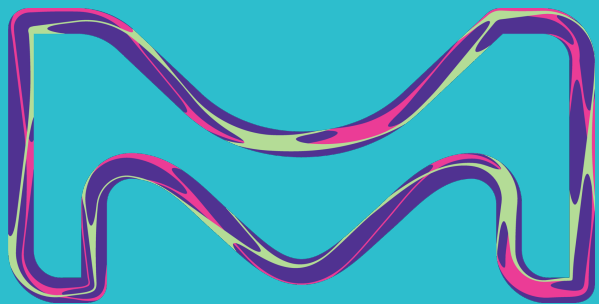
October 31st, 2025

Andreas Bargon, HealthCare ERP Business Partner & Architecture Lead

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Merck Key Figures at a Glance
Figures 2024

AT A GLANCE

A strong team

62,557 employees

142 nationalities

39% women in leadership positions

Life Science
Together, we impact life and health with science.

Share of net sales **42%**

Share of EBITDA pre **39%**

Healthcare
We help to create, improve and prolong lives.

Share of net sales **40%**

Share of EBITDA pre **46%**
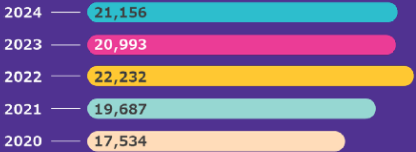
Electronics
We are advancing digital living.

Share of net sales **18%**

Share of EBITDA pre **15%**

Merck Group

Net sales
€ million

Year	Value
2024	21,156
2023	20,993
2022	22,232
2021	19,687
2020	17,534

Merck Group

EBITDA pre[1]
€ million

Year	Value
2024	6,072
2023	5,879
2022	6,849
2021	6,103
2020	5,201
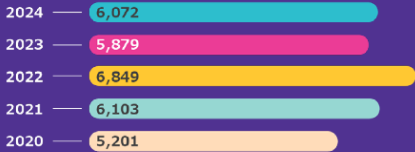
[1] Not defined by International Financial Reporting Standards (IFRS).

Net sales per region

North America €5,710 million

Europe €6,171 million

Asia-Pacific €7,017 million

Latin America €1,477 million

Middle East and Africa €781 million
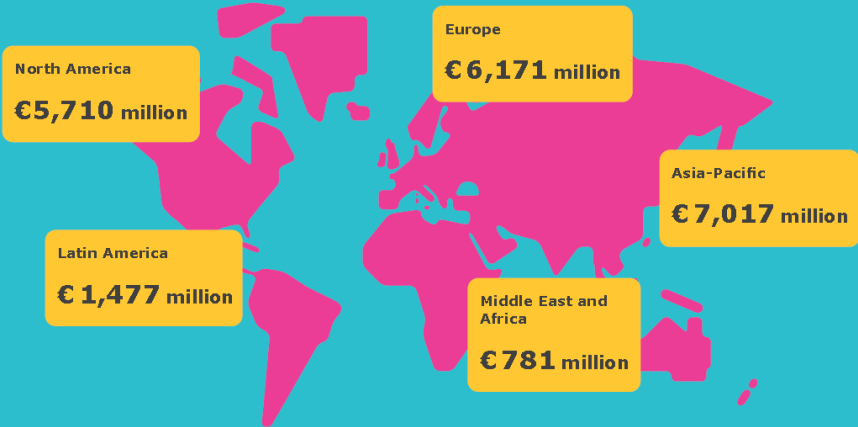
Merck Strategic Goals
Mobilize for Growth

Enterprise Strategy

Mobilize for Growth

↓

Enterprise Priorities

Performance & Efficient Growth	Think & Act Sustainably	Innovation Powered by Data & Digital	High-Impact Culture and Leadership

IT Ambition

We want to be recognized as **the partner of choice** for

DIGITAL TECHNOLOGY ENABLEMENT

support company growth at scale in an effective and efficient way.

IT Strategic Pillars
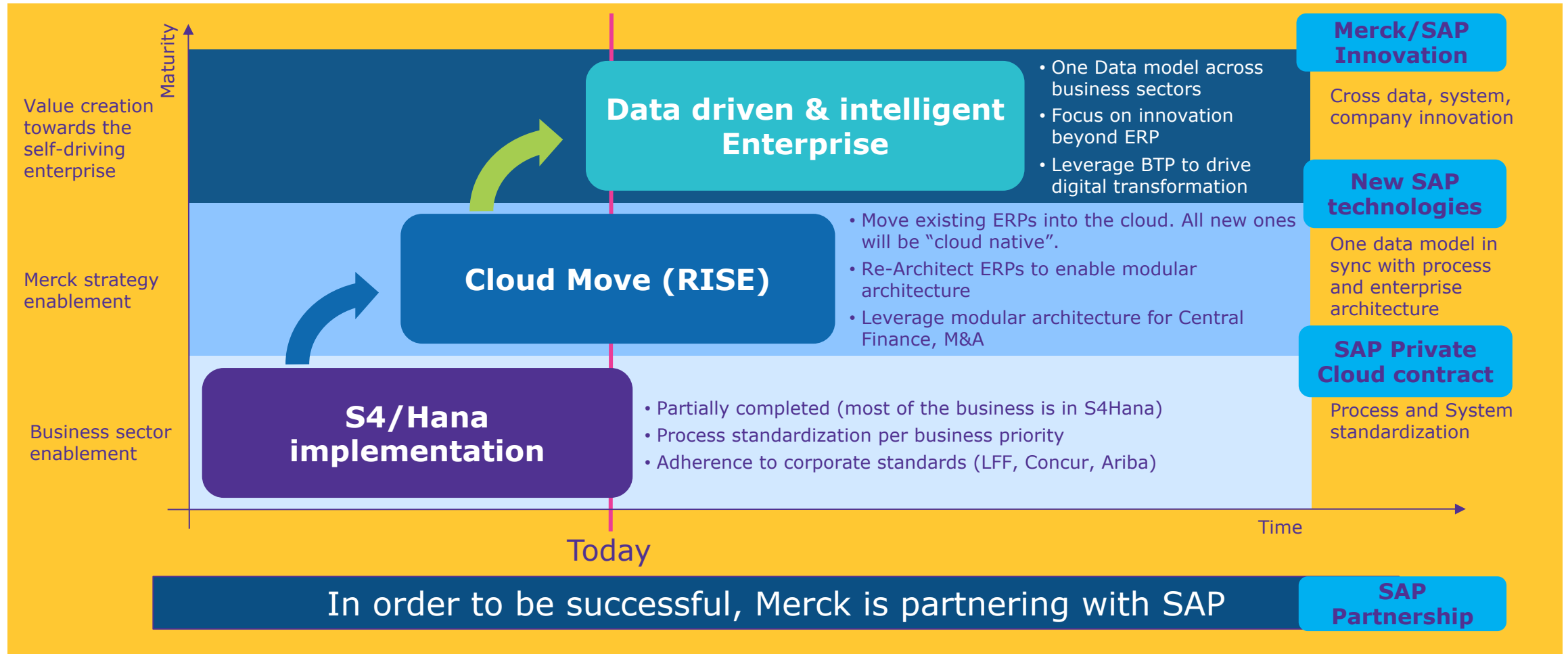
Effective IT Operating Model	Improve Operations	Leading Technology	People and Culture

MerCK

Long Term ERP Strategy – Truly Business Enabling

Our long-term ERP strategy is setup to enable business strategy, while evolving towards a clean, modern architecture

Maturity

Value creation towards the self-driving enterprise

Data driven & intelligent Enterprise
- One Data model across business sectors
- Focus on innovation beyond ERP
- Leverage BTP to drive digital transformation

Merck/SAP Innovation
Cross data, system, company innovation

Merck strategy enablement

Cloud Move (RISE)
- Move existing ERPs into the cloud. All new ones will be "cloud native".
- Re-Architect ERPs to enable modular architecture
- Leverage modular architecture for Central Finance, M&A

New SAP technologies
One data model in sync with process and enterprise architecture

Business sector enablement

S4/Hana implementation
- Partially completed (most of the business is in S4Hana)
- Process standardization per business priority
- Adherence to corporate standards (LFF, Concur, Ariba)

SAP Private Cloud contract
Process and System standardization

Today

Time

In order to be successful, Merck is partnering with SAP

SAP Partnership

Merck

Merck and **SAP**
engaged in a strategic
partnership that will enable to
further accelerate our
Digital Transformation
and support achieving our
business goals

1 Move SAP Landscape to SAP Cloud

2 Accelerate use of SAP technologies beyond ERP

3 Design & drive future industry standard together via Co-Innovate

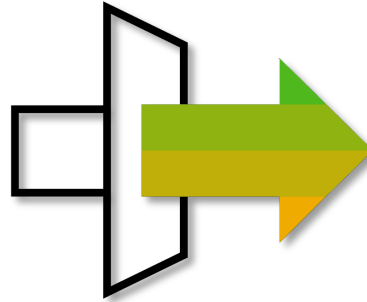**4** Implement the data driven and intelligent enterprise

Merck

Building the Foundation for AI

Building the Foundation for AI – RISE
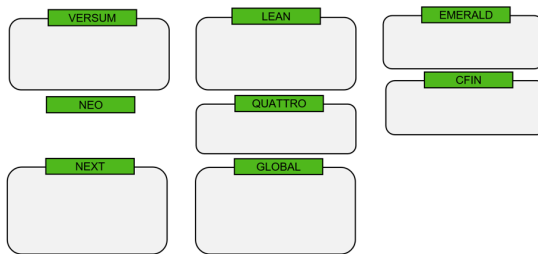## Cloud Move Scope

SAP systems onPremise

SAP Private Cloud Services

8 Solution Areas

VERSUM

LEAN

EMERALD

NEO

QUATTRO

CFIN

NEXT

GLOBAL

29 Productive Systems

VERSUM
AP1 | BP1
HP1 | LP1

LEAN
PLA | PLE
PLI | PLF

EMERALD
P95 | P96

CFIN
CFP

NEO
PNE

QUATTRO
PWM

NEXT
PHR | PMG
PSE | PSU | PRP
PTR

GLOBAL
PGR | P21 | PCM
PCD
P57 | P44 | P33
PMJ | PCB | PMP
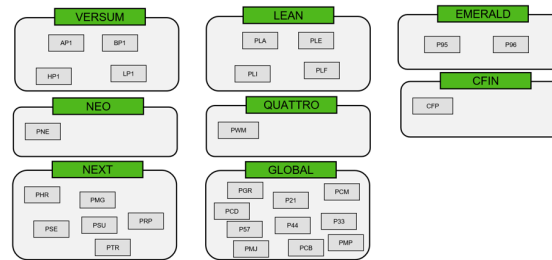
159 Transitions (*)
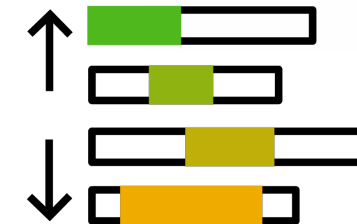
(*) SANDBOX, DEV, TEST, QA, PROD

Out of Scope
- Cloud Migration of NON-SAP Systems
- Merck Legacy SAP Systems

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Building the Foundation for AI
Operating model in the private cloud environment

Past Operating Model

Operating Model in the SAP Private Cloud

Merck / Partner	Proactive Applications-Services	Merck / Partner
	Application-Support	
SAP	SAP Software-Licenses	SAP
	SAP Software-Maintenance / Support	
Merck / Partner	SAP Basis Operations	
Merck / Partner	SAP Database-Management	
	OS Management	
	Backup-Management	
Merck / Partner	Intra-Datacenter-Connectivity	amazon web services
	Infrastructure and Hardware	
Merck DC / Hyperscaler	Datacenter	

Building the Foundation for AI – RISE
RISE Benefits

Functional differentiators

- Certain **SAP innovations** are **exclusively made available to RISE customers**: e.g.
  - Generative AI business use cases, personal assistant Joule etc.
  - Green ledger capabilities (apply financial principles and qualities of double entry bookkeeping to carbon emissions)
  - Co-innovation (new co-innovations will focus on S/4HANA Cloud customers)
- **Clean core dashboard** to enable clean core strategy: helps organizations to use the latest release, minimize or eliminate modifications, and run with cloud-compliant extensions and customizations
- Becoming **innovation-ready** due to always on the latest release
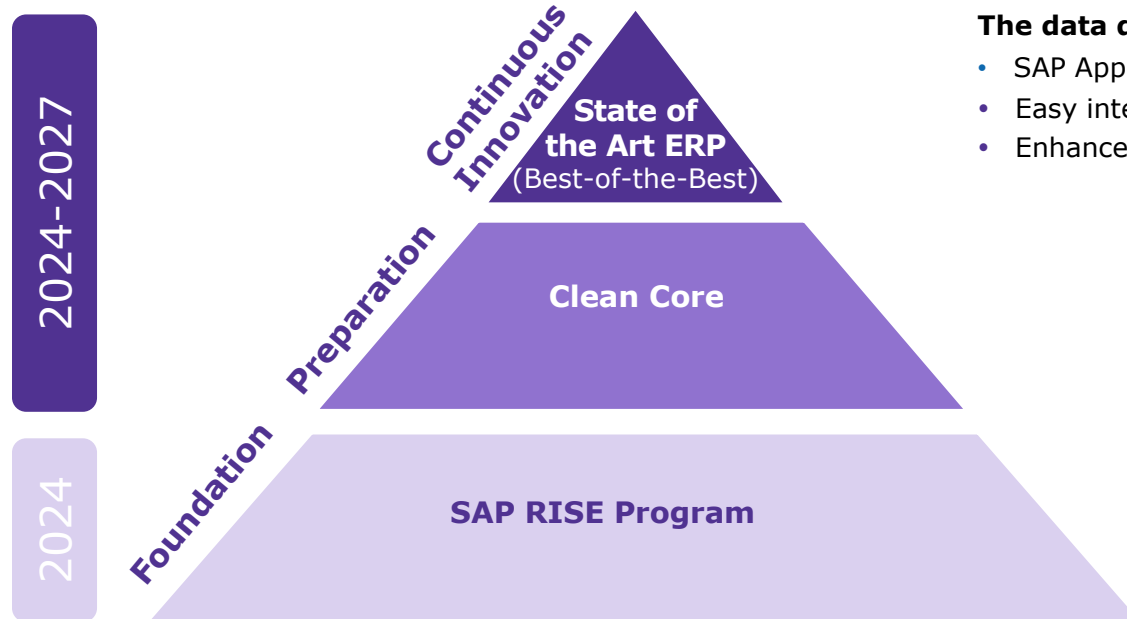
Commercial differentiators

- **Cloud-based consumption model** (CAPEX to OPEX)
- Overall simplification due to **ONE single contract**
- Enterprise-wide **flexible agreement** (commit-to-consume):
  - Risk sharing between SAP templates regarding committed contract volume
  - Flexibility in project speed between SAP template role outs
- **Termination** of on prem Software licences including elimination of maintenance costs
- Eliminate **shelfware** and right-size future landscape (incl user optimization – Full usage equivalent FuE)
- Eliminate **hyperscale overprovisioning**

- **New maturity level achieved for full SAP stack architecture and clear responsibilities**
- **Scalability & agility by avoiding the bottleneck of internal Merck Teams**
- **Industry Security Standards delivered by SAP and AWS**
- **Rigidness for Application LifeCycle Management**

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Building the Foundation for AI – Clean Core
FREE ERP - Future Ready Enterprise Enablement

State of the Art ERP (Best-of-the-Best)

Clean Core

SAP RISE Program

Continuous Innovation
Preparation
Foundation

2024-2027

2024

SAP Clean Core is a **mindset and methodology** supported with **governance and guiding principles** that lays foundation for a flexible and future-ready ERP

The data driven and intelligent enterprise

- SAP Applications with embedded AI: Siganvio, Joule, WalkMe, SAP Build ...
- Easy integration of Gen. AI in custom enhancements: e.g. Merck Duplicate Invoice Check
- Enhanced leverage of BTP for Innovations

FREE ERP - Future Ready Enterprise Enablement: Project to adapt ERP to new innovations

- ERP Clean Core program to clean-up technical debt and to use modern ways to extend the Core for new requirements
- Signavio for improving Business Processes and Bus. KPIs
- Tools for Monitoring the ERP ecosystem, such as Cloud ALM

Setting the foundation

- Upgrade ERP to a recent version to be more mature in the Application LifeCycle Management.
- Move to Cloud: Only SAP RISE customer will be enabled with latest SAP innovations
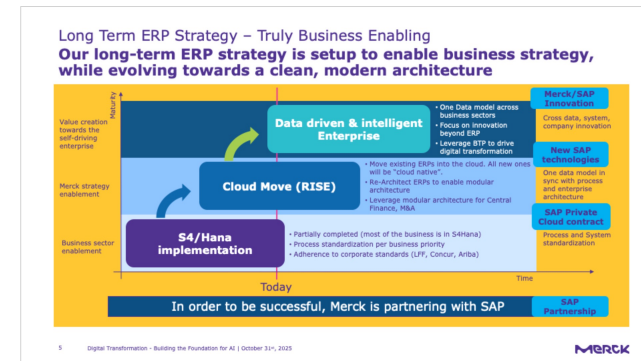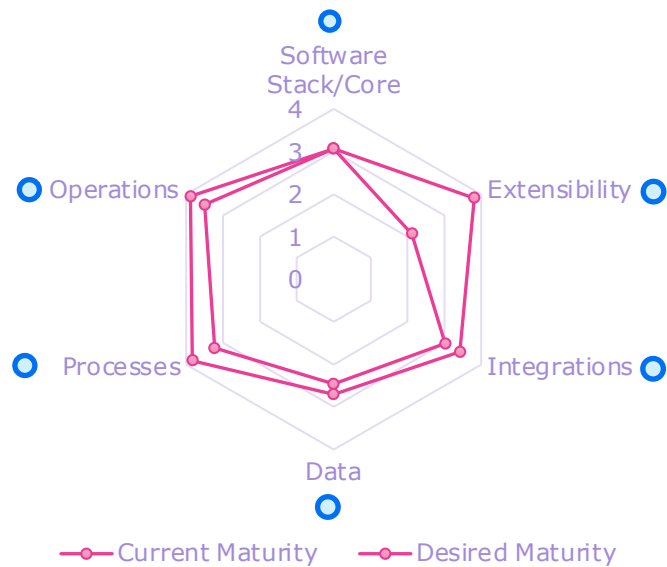
Building the Foundation for AI – Clean Core

Clean Core? Where to put the focus ?

Maturity on Clean Core Dimensions

—●—Current Maturity   —●—Desired Maturity

Key Observations

- **Software Stack:**
  - Core software has been upgraded in 2024, major upgrades every 3 years
  - Faster upgrade Cycles currently not envisioned / aligned so far

- **Operations:**
  - System Monitoring capabilities to be improved
  - Test automation initiatives were not so successful so far

- **Extensions:**
  - Technical debt of >35 k Custom objects
  - OCM to implement Clean Core Guidelines and Governance

- **Integrations:**
  - Point-to-point integrations via PIPO
  - Roadmap for the BTP Integration Suite?

- **Processes:**
  - Current Template Processes vs SAP Standard
  - Usage of Signavio will bring improvements

- **Data:**
  - Good maturity and Governance for Materials
  - Other objects such as Suppliers, Customers etc. have room for improvement

Strategic value roadmap including a path to a clean core:

Recommen-dations
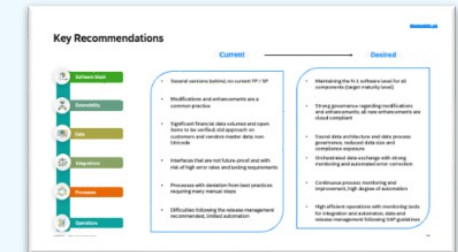
Business Case

Roadmap

Merck
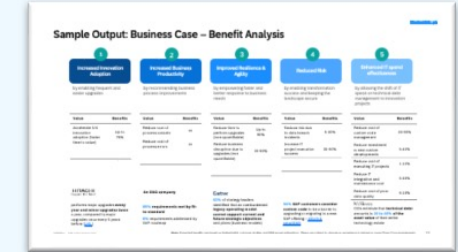
Building the Foundation for AI – Clean Core

Extensibility - OCM to implement Clean Core Guidelines and Governance

Past

- ➤ ERP Change Request Management **(CR)** as per current procedures
- ➤ **GAP** Assessment and implementation are part of Deployment Project.
- ➤ **Practicing Clean Core procedures are not in place**

Future

- ✓ **Governance and Clean Core Principles in place and applied**
- ✓ ERP **CR**s and **GAP**s are reviewed against the Clean Core Principles.

- ❗ Clean core is the IT prerequisite to be able to technically **respond to business change** in an agile way.

- ❗ The clean core strategy enables the adoption of **new technologies**..

- ❗ For all sectors, implementing ERP, Clean Core is relevant to prevent **extensive process complexity**.

Clean core governance within an ERP project & CRs

Project

Governance Structures

Gap / CR with Fit-2-Standard-Assessment → Gap Governance

Gap approval with Technical Specification → **Technical Extensibility Governance** in accordance to SAPs' Solution Standardization Board — Clean Core Authority

Revision if needed

Implement according to Guidelines ← Development Guidelines & Guardrails → Final assessment provided on how the Clean Core has been applied based on clean core index

Building the Foundation for AI – Clean Core
Success Factor Organizational Change Management

- ✓ Clarify Accountabilities
- ✓ Communication strategy to "broadcast" the Architectural principles to all stakeholders
- ✓ Training Concept
  - Common Understanding of the Clean Core Principles within programs: PMO and Business Architect
  - Upskilling of the Developers: to specific clean core extensibility guidelines (incl. external onboarding)
- ✓ Guidance from Clean Core Authority
  - Build One Repository for Clean Core to find all related Guidelines & Guardrail
- ✓ Incentivize Stakeholders
  - Incentivize System Integrators

Dimension	IT Leadership	X-Sector BTP	IT Operations	CoE	Process Arch	Program Mgmt. /Project	Data Office
				Sector			
1 Business Processes				C	A, R	R	
2 Extensibility	I	A, R	I	R	C	R	
3 Data			C	C	C	R	A
4 Integration		A, R		I	I	R	
5 Operations	I	R	A, R	R			
Methodology / Best Practice	A	R	C	R	C	R	

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Building the Foundation for AI – Clean Core
Success Factor Monitoring and Tooling concept

✓ Define 'SMART'* Clean Core KPIs to check:
- Transparent and conscious decision are taken at design phase
- Finally design decisions consistently applied throughout the build process

     * S(pecific), M(easurable), A(ccepted), R(ealistic), T(imed)

✓ Additional Tooling to track Clean Core
- GEAR (LeanIX) for architectural topics
- SAP Signavio for Process Monitoring
- SAP Cloud ALM for Application Life-Cycle Mgmt.
- Monitoring Extensibility Domain. e.g.
  - ICCM Report
  - Clean Core Dashboard
  - ATC (Abap Test Cockpit)
  - ...

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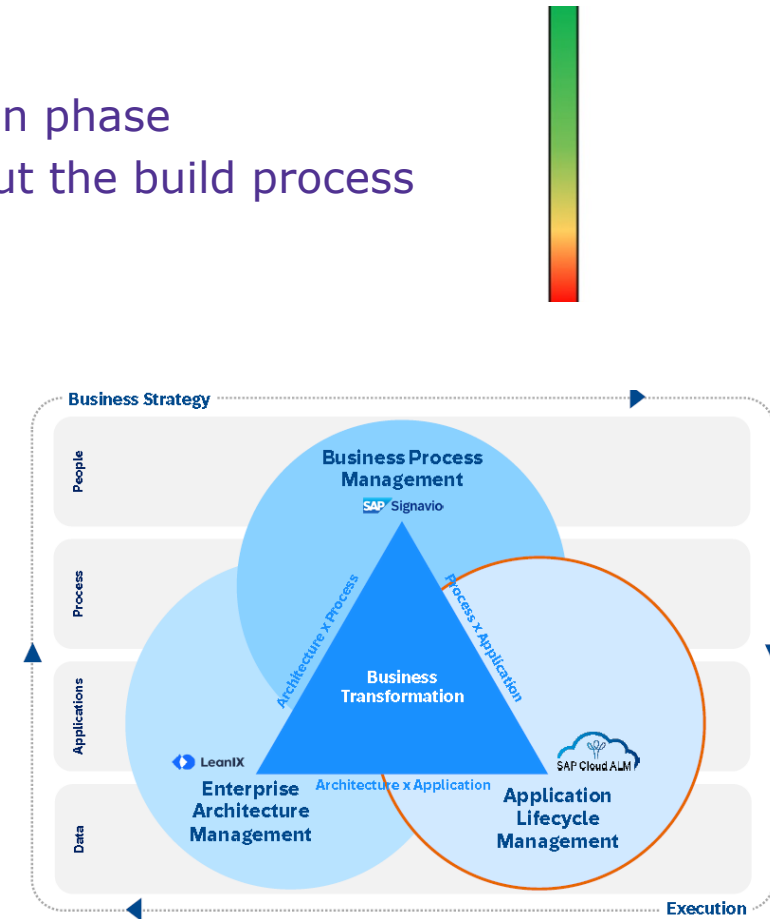
Building the Foundation for AI – Max Attention

SAP MaxAttention ensures the highest level of strategic engagement to drive success

1 SAP Value Assurance

A **short-term engagement** to accelerate and safeguard solution deployments that includes:

- A single purpose engagement with a defined scope and expiration date
- Access to the full expert services portfolio
- A TQM as required

2 SAP ActiveAttention

A **long-term engagement** for customers that includes:

- A programmatic approach supporting your business transformation end-to-end
- Access to the full expert services portfolio and additional service level obligations
- A TQM fully embedded in your customer's organization

3 SAP MaxAttention

A **long-term strategic partnership** for large-scale transformations that includes:

- An enterprise architect to guide the Suite transformation
- The North Star architecture service to deliver an SAP-endorsed architecture roadmap
- Access to the full expert services portfolio and additional service level obligations
- A senior lead-TQM embedded in your customer's organization
- Senior management sponsorship and access to SAP development experts

Building the Foundation for AI – Max Attention

Business Scenarios: proven solution blueprints tailored to the business needs

Explore Potential	Build the Vision	Deliver the Promise	Maximize Value	Innovate and Grow	Influence
Discover	Select	Adopt	Derive	Extend	portfolio

RISE with SAP
Digital Transformation Strategy ⭐

RISE with SAP
Build Your Innovation Foundation ⭐

RISE with SAP
Run Best on RISE with SAP ⭐

RISE with Clean Core

RISE with SAP
Brownfield Scenario ⭐

Accelerate Your Cloud Transformation
with a Clean Core ⭐

Innovate with the
latest S/4HANA release ⭐

RISE with SAP
Greenfield Scenario

Integrate, Extend and Innovate with
SAP Business Technology Platform ⭐

RISE with SAP
Selective Data Transition

GROW with SAP
Enhance Your Innovation Journey ⭐

Transform ⭐

Drive Enterprise Transformation with
North Star Architecture Services ⭐

Transition to
Hybrid Cloud

Transform into an
Intelligent Digital Supply Chain ⭐

Enhance Your Business Operations
with **Data and Analytics** ⭐

Develop a Strategy for Line-of-
Business **Cloud** Solutions from SAP

Transform Your **HR** Processes by
leveraging AI from SAP

Transform Your Business with **SAP**
Customer Experience Solutions

Accelerate adoption of **Billing** and
Revenue Innovation Mangement

Digitize Your **Sourcing** and
Procurement Business Processes

Leverage **Central Finance** with **new**
Analytics for your Transformation

Enhance and Innovation Your Business
Processes with **SAP Signavio** ⭐

Enhance **Cybersecurity**
and **Compliance** ⭐

Drive Innovation with
Industry Cloud Solutions ⭐

Build a **Sustainable**
Intelligent Enterprise ⭐

Continuously Improve
Hybrid Operations

AI for Business

Empower Your Business with **AI** ⭐

Merck

Building the Foundation for AI – Max Attention

SAP MaxAttention brings out the best in your company-wide transformation

Unique premium experience

Gain a unique premium experience with maximum visibility and priority within SAP and enhance your business with SAP Business Suite and SAP Business AI

Strategic Partnership

Take advantage of a holistic multi-year strategic partnership providing advisory and guidance to drive your business transformation across SAP applications, SAP Business Data Cloud and SAP Business AI

Personalized expert services

Benefit from customized, focused attention and personalized expert services driven by AI - based innovation and best practices

Dedicated team

Work closely with a dedicated team to maximize your investment in SAP solutions and SAP applications powered by SAP Business Technology Platform
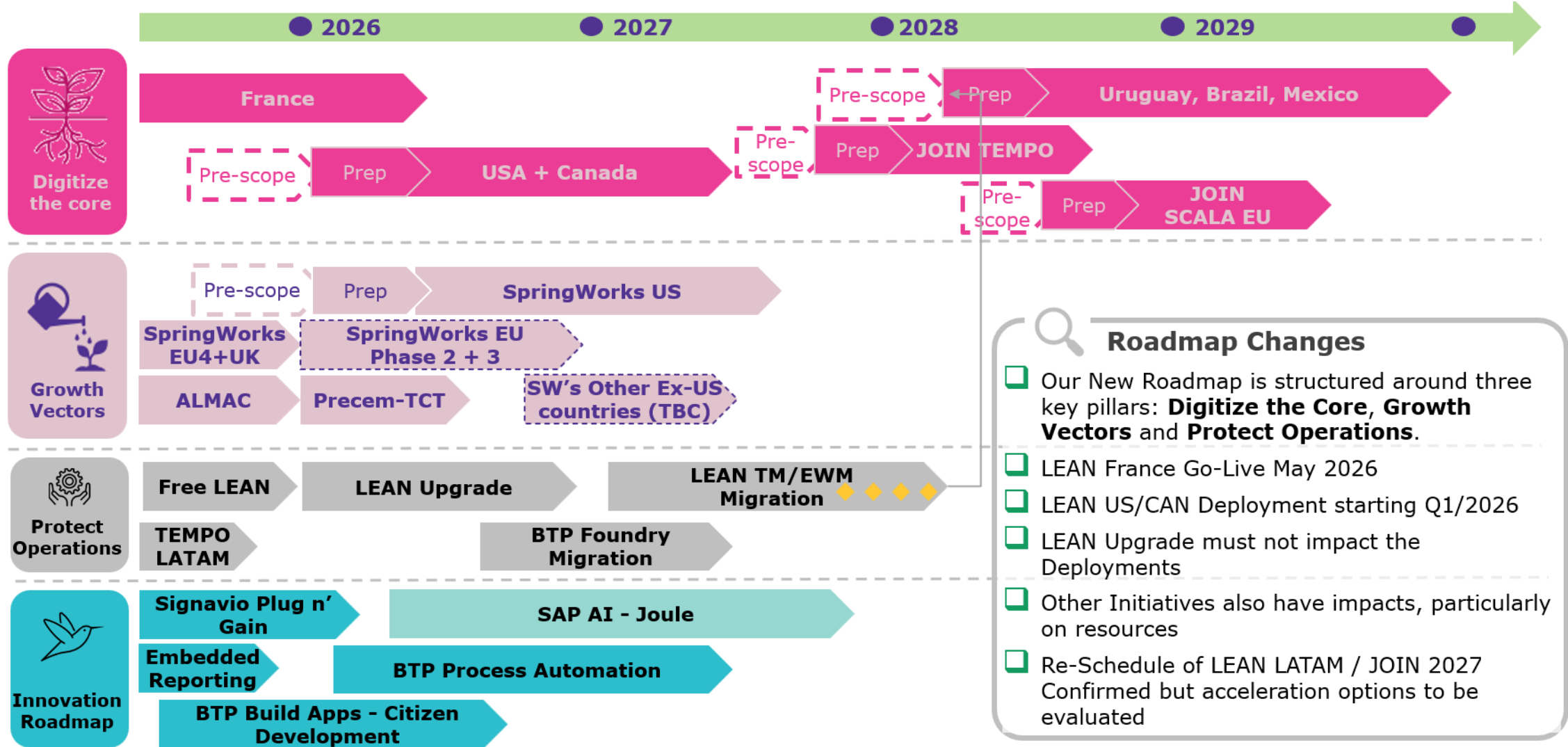
High-quality interactions

For an enhanced strategy, foster your support for tailored Suite and AI scenarios developed by SAP, clients, or partners

Merck

Challenges and Considerations

Challenges and Considerations

Healthcare ERP | Roadmap: Outlook beyond 2027

Timeline: 2026 — 2027 — 2028 — 2029

Digitize the core
- France
- Pre-scope → Prep → USA + Canada
- Pre-scope
- Pre-scope → Prep → Uruguay, Brazil, Mexico
- Pre-scope → Prep → JOIN TEMPO
- Pre-scope → Prep → JOIN SCALA EU

Growth Vectors
- Pre-scope → Prep → SpringWorks US
- SpringWorks EU4+UK
- SpringWorks EU Phase 2 + 3
- ALMAC
- Precem-TCT
- SW's Other Ex-US countries (TBC)

Protect Operations
- Free LEAN
- LEAN Upgrade
- LEAN TM/EWM Migration
- TEMPO LATAM
- BTP Foundry Migration

Innovation Roadmap
- Signavio Plug n' Gain
- SAP AI - Joule
- Embedded Reporting
- BTP Process Automation
- BTP Build Apps - Citizen Development

Roadmap Changes

- ☐ Our New Roadmap is structured around three key pillars: **Digitize the Core**, **Growth Vectors** and **Protect Operations**.
- ☐ LEAN France Go-Live May 2026
- ☐ LEAN US/CAN Deployment starting Q1/2026
- ☐ LEAN Upgrade must not impact the Deployments
- ☐ Other Initiatives also have impacts, particularly on resources
- ☐ Re-Schedule of LEAN LATAM / JOIN 2027 Confirmed but acceleration options to be evaluated

Challenges and Considerations
Some concrete Examples

- Appliction LifeCycle Management
    - Technical Upgrades need to be incorporated into the Deployment Roadmap leading to resource conflicts
    - Increasing the upgrade frequency by making an upgrade a "non-event" is challenging (due to technical debt and Satellites compatibility)
    - Business is not directly seeing the value of upgrades and a full-blown value assessment requires much effort

- Architectural Design
    - Moving EWM/TM and SCM/APO from side-car concept into S4H embedded
    - Improving SAP Tool-Chain Integration (LeanIX, Signavio, Cloud ALM)
        - LeanIX manual data entry versus automatic discovery
        - Signavio Process Modeling for existing ERP Template
        - Cloud ALM for Requirements Management & Testing, Test Automation

- FREE LEAN (Merck HealthCare's Clean Core Initiative)
    - Advisory around Intelligent Custom Code Management and related Clean-up Activities
    - FIORI Activation and Adoption (Customizations blocking usage of Standard FIORIs, Training)
    - Build-Apps & Citizen Development

- Strategical Roadmap
    - BTP Adoption and Maturity
    - AI Adoption
    - …

MERCK

Final Call for Action: Building the Foundation for AI with Clean Core ?

A resilient business needs a technology foundation that enables them to:

- *Embrace Change*

- *Operate at Pace*

- *Protect the Core*

In an intelligent and effective manner

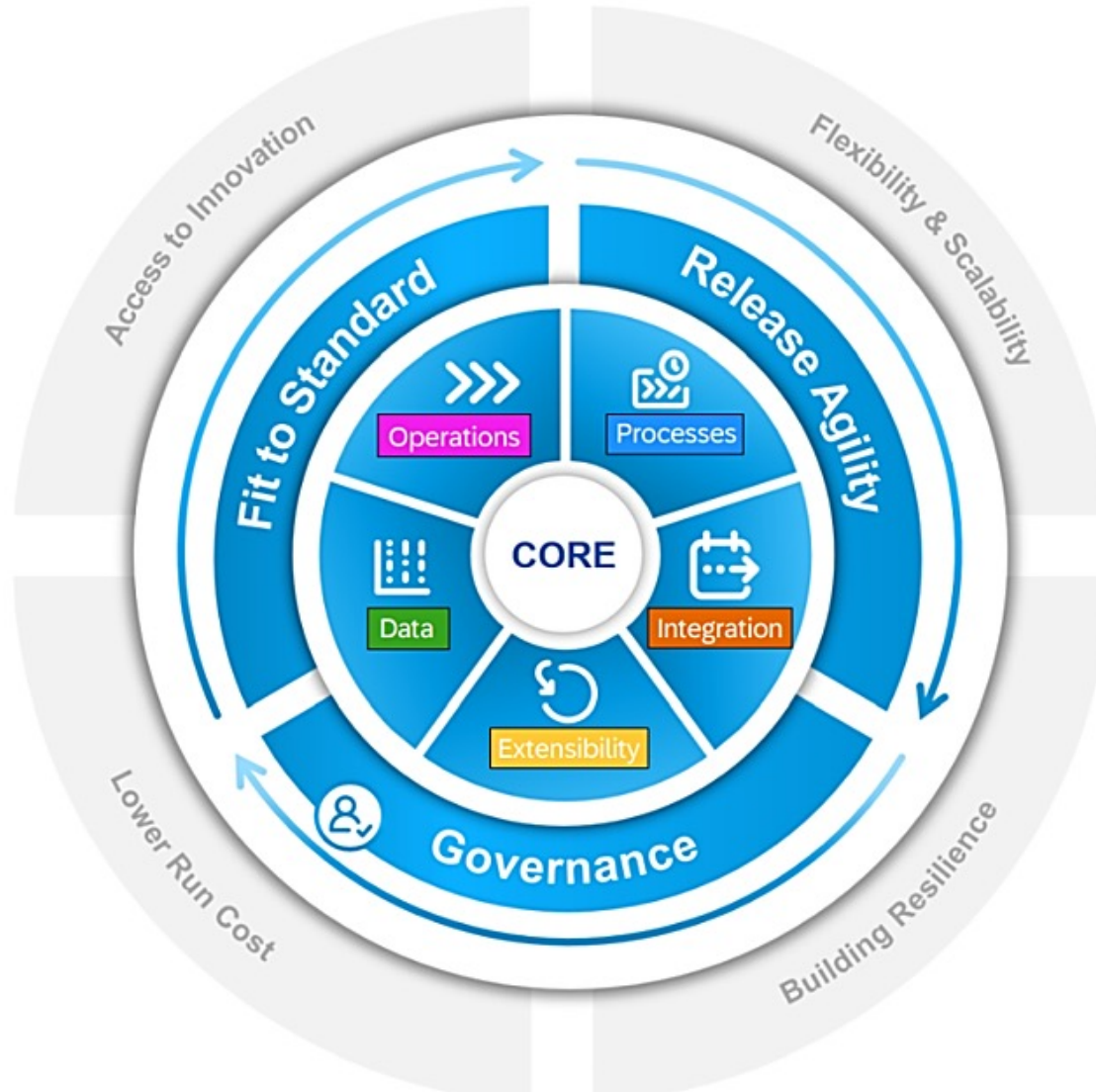# Building the Foundation for AI
What is Clean Core?

SAP Clean Core is a **mindset and methodology** supported with **governance and guiding principles** that lays foundation for a flexible and future-ready ERP

Keep **competitiveness** while **reducing complexity**.

1 Business Processes

Decouple extensions from standard.

2 Extensibility

Control data according to **latest standards**.

3 Data

Keep the landscape **reliable and flexible**.

4 Integration

Keep the operations **effective and efficient**.

5 Operations

Merck