

POV DOCUMENT

Modernize Legacy Systems. **Keep the Core Clean.**

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Introduction.

Simplify S/4HANA. Stay Agile.

As organizations transition to SAP S/4HANA, SAP's "Clean Core" strategy offers a roadmap to keep core ERP systems stable, upgradeable, and adaptable.

A Clean Core ensures smoother upgrades and fosters a scalable, cloud-ready ERP environment, aligning with SAP's long-term goal of a Software as a Service (SaaS) model for ERP.

Neptune Software is committed to supporting this strategy, providing a seamless way to implement clean, sustainable customizations. This POV document outlines the Clean Core concept, examines challenges with legacy customizations, and shows how Neptune Digital Experience Platform (Neptune DXP) enables businesses to sustain a Clean Core approach.

SAP's Definition of a Clean Core:
A clean core is defined as an SAP S/4HANA Cloud solution that is up to date, documented, unmodified, consistent, efficient, and has custom extensions decoupled from SAP source code.

Source: www.sap.com/documents

The Evolution of Customizations: Challenges and Opportunities.

The solid ABAP platform, which is the technical foundation of SAP Enterprise Central Component (ECC, the predecessor of S/4HANA) and **S/4HANA was not only used to run the ERP system, but also as a development platform.** It's easy to develop on-stack extensions on the ABAP platform directly integrated into the ERP system. This is not a problem per-se, but the way these extensions were built became a challenge. Although there are concepts and tools like the software package system, customers and partners didn't pay attention to a clean software architecture with **decoupled modules. There were no interfaces or APIs between SAP- and custom-code, it just became one monolith.**

If customers implement a clean core strategy now, they need to find a way to decouple the existing custom code base from the SAP standard code. The S/4HANA transformation can be seen as the once in a lifetime opportunity to aim for a Clean Core. Neptune recommends to customers to use this opportunity to clean up the core. But implementing a Clean Core strategy is not a one-time project, it's an ongoing activity. **Getting the core clean is a challenge, but staying clean comes also with a lot of effort.**

Understanding SAP's “Clean Core” Strategy.

The Clean Core strategy emphasizes maintaining an uncluttered ERP core to enable swift, uninterrupted adoption of SAP's latest features and updates. At the center of this approach are three key dimensions:

1. Software Stack: **Standardizing and stabilizing** core ERP software.
2. Extensibility: Enabling customization **without compromising system integrity**.
3. Integrations: **Simplifying connections** with external systems.

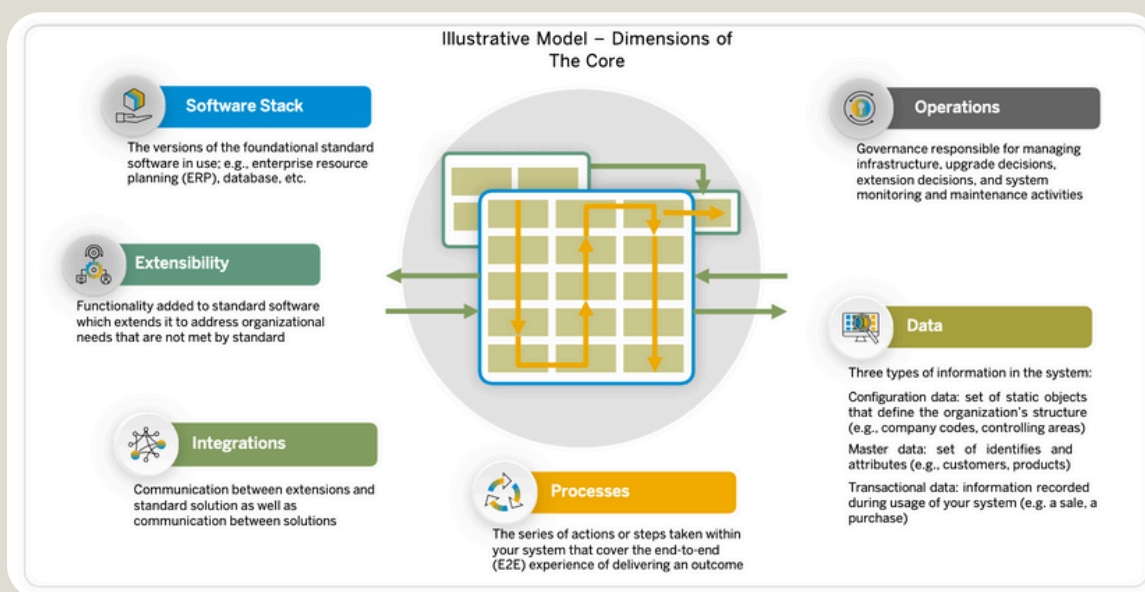
These pillars guide SAP S/4HANA customers towards cloud-readiness and streamlined updates. A successful Clean Core transformation entails removing unnecessary customizations and transitioning essential code to either on-stack or side-by-side extensions.

The Clean Core Opportunity:

With the move to SAP S/4HANA, organizations have a unique opportunity to decouple custom code from the SAP standard. This transition requires an initial clean-up and, more importantly, a sustainable strategy for ongoing maintenance.

You can find more details about how SAP defines the Clean Core in this document.

In SAP's document are six dimensions of a Clean Core defined. In the context of Neptune DXP mainly the dimensions software stack, extensibility and integrations are relevant. That's why this document focuses on these three dimensions.



Source: <https://www.sap.com/documents/2023/05/5cfc89ba-707e-0010-bca6-c68f7e60039b.html>, Page 4, visited November 15 2024

The Path to a Clean Core: Implementation Steps.

01 Inventory Your Custom Code.

Start by inventorying all existing custom code. Leverage system tools to track code usage over an entire business cycle, typically a year, to capture infrequently used programs. Any unused code is a candidate for retirement. As a rule of thumb, all code which was not executed within a year is a candidate for retirement.

02 Analyze and Prioritize Custom Code.

Once usage tracking is complete, evaluate code relevance. Determine if a function can now be managed by S/4HANA's standard features or if it's integral to unique business processes, providing a competitive advantage.

03 Select an **Extension Pattern.**

There are two main patterns for implementing custom code in SAP S/4HANA:

- On-Stack Extensions (within the S/4HANA ABAP environment): Tight integration but requires ABAP Cloud for clean, decoupled development.
- Side-by-Side Extensions (external to S/4HANA): Developed on platforms like SAP BTP or Neptune DXP, connected via APIs.

04 Begin **Re-Implementation.**

Re-implement essential customizations using modern ABAP Cloud principles or a dedicated platform like Neptune DXP. For developers, this often includes skill upgrades in ABAP Cloud, SAP BTP, and Neptune DXP.

But the need for
**custom developed
extensions is
indisputable.**

This is neither questioned by [SAP \(Clean core extensibility for SAP S/4HANA Cloud , page 4\)](#) nor by industry analysts as e.g. [Jon Reed \(diginomica\)](#). Each company has processes which are differentiating. These processes are important to stay ahead of the competition. **As they are differentiating, standard software as SAP does not support these processes.** Therefore, there is a clear business need for custom extension to S/4HANA.

Extension Patterns: On-Stack vs. Side-by-Side.

Each extension pattern offers distinct advantages:

On-Stack Extensions:

- Developed within the S/4HANA ABAP environment for tight integration.
- Built using ABAP Cloud, enforcing clean separation through stable APIs.
- Suitable for custom code that needs high interaction with the SAP core.

Side-by-Side Extensions:

- Built on an external platform like Neptune DXP, connected via OData or REST APIs.
- Provides flexibility for multi-platform, mobile capabilities, including offline functionality.
- Ideal for scenarios requiring diverse infrastructure options, integrations with other platforms, and extensibility through additional software components.

Selecting the appropriate pattern depends on business requirements and each scenario's unique technical considerations.



Organizations must adopt a clean core strategy during their migration to cloud-based ERP systems to streamline workflows and maintain data integrity.

Source: SAPInsider



Benefits of a Clean Core.

Embracing a Clean Core strategy brings significant advantages:

01

Reduced **TCO**

A reduced codebase clearly reduces the total cost of ownership (TCO). Each line of code causes maintenance and testing effort

02

Reduced **Security Risks**

Each line of code can be a potential attack vector. As custom code must be maintained by the customer, this weighs even more. Therefore, it's clear that a clean core comes with less security risks.

03

Smoother **Upgrades.**

As cleaner the core as smoother the upgrades are. If integration is done only by released APIs either on-stack or side-by-side, there should be no incompatible changes appearing during an upgrade. This will customers not relieve from testing but at least the upgrade itself can be done in a more automated way.

04

Improved **Cloud Readiness.**

As already mentioned, the precondition to run software as SaaS is the possibility to upgrade software fully automated. Decoupled custom-code and stable APIs ensure that systems can be updated automatically. It can be granted that the SAP system will be up after the upgrade.



But as of October 2024
There Are Only Five Apps
Worldwide Which **Got**
Certified and Listed in
SAP's Certified
Solution Directory.

The Clean Core strategy also includes partner add-ons. In best cases, all ABAP Add-ons customers install are already written in ABAP Cloud and can therefore get installed on any S/4HANA system, even S/4HANA Public Cloud Edition.

SAP introduced in spring 2024 the new certification for “clean core with SAP S/4HANA Cloud” for partner add-ons. SAP recommends to customers to install only apps with this certification going forward. But as of October 2024 there are only five apps worldwide which got certified and listed in SAP's certified solution directory.

As for custom code, there is no migration path to ABAP Cloud. All the add-ons need to get reimplemented to get this certification. We at Neptune Software kick-started our activities for the reimplementation already. We will double down on these activities as we want to continue to serve our customers in the best possible way and to offer them future prove options to run Neptune DXP. We are confident to ship ABAP Cloud compliant features in a short term. Our goal is to potentially ship two ABAP Cloud compliant artefacts.

The Neptune SAP Connector which will bring the known Neptune DXP SAP Edition API capabilities. These can be leveraged in a side-by-side scenario.

An ABAP Cloud compliant version of Neptune DXP SAP Edition Furthermore, Neptune will improve the existing OData capabilities further

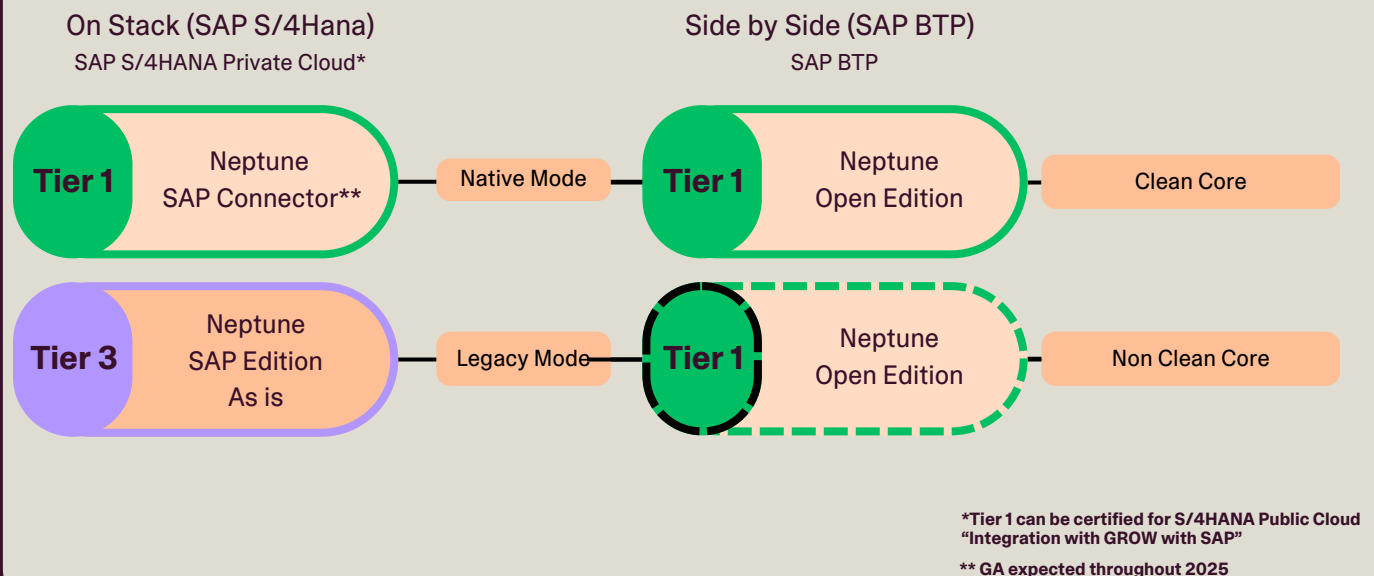
How Neptune DXP Supports Your Clean Core Strategy.

Neptune DXP offers two editions that enable organizations to achieve and sustain a Clean Core:

Open Edition brings its own runtime. It's possible to run it standalone on-premises, as managed service in Neptune's DXP Cloud, on the hyperscaler infrastructure of choice or on SAP BTP. Customers can implement their custom application with Neptune DXP Open Edition and integrate with S/4HANA either with OData APIs or with REST APIs which can be created by leveraging Neptune DXP SAP Edition's API Factory.

SAP Edition runs on the ABAP stack of the S/4HANA system. Custom backend logic is implemented in ABAP. Neptune Software clearly recommends using ABAP Cloud to implement backend logic wherever possible. This is fully in line with SAP's Clean Core strategy.

Neptune Approach Modes.



These reimplemented components will ensure that our customers can continue to leverage Neptune DXP in a cloud environment and reinforce their Clean Core strategy.

Neptune DXP SAP Edition is already certified for integration with RISE with SAP S/4HANA Cloud private edition. This and all other SAP certifications of Neptune DXP can be found in SAP's Certified Solution Directory.

Low-Code in Action for SAP Customers.



Secil's Digital Transformation: 17 Simple Apps in 3 Months, Impacting 1,000+ Employees & Customers.

Secil created one digital hub with 4 supplier portals, containing 17 simple apps in just 3 months that impacted over 1,000 customers and partners. The 17 developed enterprise applications eliminated the need for over 7,500 annual paper documents. The new digital hub streamlined HR, procurement, and commercial processes, reducing approval times from weeks to days and increasing sales volume by 53%. The integration of mobile-friendly interfaces across 4 portals enhanced customer and vendor relationships, while the overall project delivered a positive ROI and freed up substantial labor hours annually.

[Read Their Story](#)



Hitachi Rail Europe Transforms IT & Supply Chain With New Business Critical Apps.

Hitachi rolled out 60 warehouse management apps within 3 months, cutting development time by 70% and eliminating manual, paper-based processes. The apps, compatible with scanners and Windows 10 tablets, vastly improved data accuracy and operational agility. This transformation facilitated the efficient management of over 120 trains in the UK and allowed any developer to quickly build and deploy new apps.

[Read Their Story](#)



How Johnson & Johnson is creating a new digital supply chain transformation using Neptune DXP

J&J faced the challenge of modernizing their extensive SAP environment across 16 sites. They streamlined with Neptune their operations, improved user adoption, and supported mobile workforce—all while overcoming legacy limitations with a mature and predictable technology stack. By simplifying their IT processes and rolling out mobile solutions, Johnson & Johnson reduced SAP supply chain processing time by 40%. They didn't just save time—they saved \$70,000 per site annually in printing costs alone, totaling \$1.12 million in savings. Plus they achieved high user satisfaction among 130,000 end users.

[Read Their Story](#)

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About Neptune Software.



Neptune Software is a leading app development platform that empowers businesses to easily create digital solutions that simplify complex enterprise processes for SAP & beyond. For decades, we've pioneered advancements in no-code, low-code, pro-code and AI-driven application development. We help accelerate your digital enterprise's innovation and execution while maximizing ROI through optimized technology and processes.

With a focus on bridging the gap between business and IT, we enable tech teams, business counterparts, and operations worldwide to easily build and deliver custom solutions at scale and with ease.

Neptune has been named a Top 50 Best Software in G2 Inc.'s Software Development Awards and made it into the Gartner Magic Quadrant year after year.

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