

White Paper: Navigating the "Clean Core" Dilemma in Life Sciences SAP S/4HANA Transformations

Prepared by: M. Hart Solutions

Date: April 14, 2025

Client Context: Pharm-Stem Inc. (Hypothetical Global Life Sciences Manufacturer)

Executive Summary

Life sciences companies embarking on SAP S/4HANA transformations face a critical strategic paradox: the imperative to adopt a standardized "Clean Core" versus the need to preserve value from complex, specialized legacy investments in supply chain planning and execution systems. This white paper examines the "Clean Core Dilemma" through the lens of Pharm-Stem's transformation journey, proposing a structured, value-driven framework for decision-making. We argue that the choice between customization, extension, or replacement is not technical, but strategic—requiring a business-outcome-focused methodology that balances innovation, operational stability, and total cost of ownership (TCO).

1. Introduction: The Inescapable Tension

For global life sciences manufacturers like Pharm-Stem, enterprise resource planning (ERP) modernization is not optional. Legacy systems—often a patchwork of 7+ platforms like OMP, ATLAS, and Galaxy—are costly, fragmented, and unable to support modern supply chain agility. SAP S/4HANA offers a unified digital core. The "Clean Core" philosophy—minimal customization, maximized use of standard functionality—promises lower implementation risk, easier upgrades, and reduced long-term TCO.

However, Pharm-Stem has invested millions in specialized advanced planning systems (OMP) and batch execution logic that are deeply embedded in its operations. These systems contain proprietary algorithms, unique business rules, and hard-won process maturity that standard S/4 may not replicate. The dilemma is stark: blindly enforce "Clean Core" and risk eroding competitive advantage; over-customize and inherit the very complexity S/4 aims to eliminate.

2. The Three Paths: Customize, Extend, or Replace

A. Customize the Core

- What it means: Modifying the SAP S/4HANA source code or deeply embedding custom logic within the core ERP.
- When it might seem tempting: To perfectly replicate a unique, business-critical legacy process.
- The true cost: "Technical debt" that escalates with every upgrade. Future SAP innovations become inaccessible or prohibitively expensive to implement. Violates the core principle of upgradeability.

B. Extend via Side-by-Side Innovation

- What it means: Keeping a best-of-breed system (e.g., OMP) and integrating it seamlessly with the S/4HANA core using modern APIs (SAP BTP, clean extensions). The core remains pristine.
- When it's strategic: When the legacy system provides genuine, differentiated competitive advantage (e.g., superior demand sensing algorithms, specialized regulatory batch tracing).
- The value preserved: Business logic, user familiarity, and specific capabilities without corrupting the core.

C. Replace with Standard (or new) Solutions

- What it means: Decommissioning the legacy system and adopting S/4's native functionality (e.g., SAP IBP for planning) or a new, modern best-of-breed solution.
- When it's optimal: When the legacy system is a commodity capability, heavily customized to support outdated processes, or its maintenance cost outweighs its unique value.
- The benefit: Simplification, reduced integration overhead, and a single source of truth.

3. The Pharm-Stem Decision Framework: A Four-Phase Methodology

We propose a disciplined, business-led framework to navigate these choices.

Phase 1: Process Decomposition & Value Assessment

- Action: Don't assess systems; assess process capabilities. Break down high-level processes (e.g., "Monthly S&OP") into L3-L5 executable steps.
- Critical Question: "At this detailed step, does our current legacy way of working provide us with a competitive advantage, regulatory necessity, or significant efficiency gain that standard S/4 does not?"
- Output: A heat-mapped inventory of processes categorized as:
- Strategic Differentiators: (e.g., patient-centric lot allocation) → Candidates for Extension.
- Operational Necessities: (e.g., standard MRP) → Candidates for Replacement with standard.
- Legacy Artifacts: (e.g., custom report to compensate for old system gap) → Mandate Replacement.

Phase 2: The "Two-Box" Fit-Gap Analysis

Move beyond the standard SI-led fit-gap. Conduct two parallel assessments:

1. Functional Fit-Gap: Can S/4 standard functionality meet the business requirement? (Led by SI).
2. Value-Risk Fit-Gap: What is the business impact (value erosion/risk) of changing or losing our current capability? (Led by M. Hart Solutions as the business partner).

This creates the "constructive tension" needed for informed decisions.

Phase 3: Decision Matrix & Business Case

Plot each process component on a 2x2 matrix:

Y-Axis: Business Criticality (from "Commodity" to "Competitive Edge").

X-Axis: Technical Alignment (from "Poor Fit with Standard" to "Excellent Fit").

Quadrant Analysis:

- High Criticality / Poor Fit: The heart of the dilemma. Requires a deep cost-benefit analysis of Extension vs. targeted, justified Customization.
- High Criticality / Good Fit: Prime for Replacement. Quick wins that demonstrate value.
- Low Criticality / Poor Fit: Challenge the requirement. Often a legacy artifact to be eliminated via process change.
- Low Criticality / Good Fit: Simple Replacement.

Phase 4: Governance & "Clean Core" Guardrails

Establish a Business-led Design Authority (part of the "3-in-a-box" model) with clear guardrails:

- Customization Request: Must prove a direct link to sustainable competitive advantage or unmovable regulatory requirement. Must include a full lifecycle cost analysis.
- Extension Request: Must demonstrate a superior ROI versus replacement, with a defined integration architecture using clean interfaces.
- Replacement Mandate: The default path. Requires change management plans to adopt new standard processes.

4. Case in Point: The OMP Planning System at Pharm-Stem

Scenario: Pharm-Stem's OMP system handles complex, constraint-based production scheduling for biologics.

- SI's "Clean Core" View: "S/4 PP/DS can handle planning. Replace OMP to simplify."
- Business Reality: OMP's algorithms are tuned to unique plant constraints and changeover rules, contributing to a 15% higher asset utilization. This is a Strategic Differentiator.

Our Recommended Path: EXTEND.

Execution: Architect a clean, real-time integration between OMP (as the planning engine) and the S/4HANA core (as the system of record). Invest in OMP's cloud roadmap. This

preserves the competitive advantage while maintaining a clean S/4 core for finance, order management, and inventory.

5. Conclusion: From Dilemma to Strategy

The "Clean Core Dilemma" is misnamed. It is not a problem to be solved, but a strategy to be defined. For life sciences companies like Pharm-Stem, the goal is not the cleanest possible ERP system, but the most effective digital operating model.

The winning formula is:

1. **Business-Led, Not IT-Led:** Decisions must be driven by value, risk, and competitive strategy, not just technical elegance.
2. **Disciplined & Transparent:** Use a structured framework to remove emotion and subjectivity from the decision process.
3. **Governed by Partnership:** The "3-in-a-box" model (Client, SI, Specialized Partner like M. Hart Solutions) ensures all perspectives—technical, functional, and business-operational—are heard.

By embracing this approach, Pharm-Stem can achieve a true clean core—one that is clean of valueless complexity, but richly extended with the specialized capabilities that make its supply chain a source of resilience and advantage.

Ready to define your clean core strategy?

Contact M. Hart Solutions to apply this framework to your S/4HANA transformation and turn your legacy investments into engines for future growth.