

KDD010 - Maintenance Management Process

Status	Approved
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Issue

This Key Decision Document (KDD) serves as a comprehensive guide outlining the decisions, considerations, and recommendations essential for the implementation and management of maintenance processes at Syensqo. The document aims to clarify the rationale behind evaluating whether to process maintenance orders using a phase-based approach, determined by predefined order types (Reactive Maintenance and Proactive Maintenance), versus Standard Maintenance Processing across Syensqo plants.

Key areas covered in this document include:

- Benefits and drawbacks of each solution, including factors such as efficiency, accuracy, safety, and compliance.
- Overview & Background
- Design Options
- Evaluation
- Recommendation
- Business & Project Impacts

The purpose and structure of the KDD ensure clarity, transparency, and accountability throughout the process of adopting and utilizing the chosen maintenance approach within Syensqo.

Recommendation

After a thorough evaluation of the maintenance management processes it is recommended that Syensqo adopts the **Phase-Based Maintenance Process** for core maintenance activities. This structured approach is well-suited to the diverse needs of Syensqo's various plant sizes and complexities, enhancing efficiency and operational performance.

The Phase-Based Maintenance Process covers different types of core maintenance tasks:

- **Proactive:** Preventive and Predictive Maintenance
- **Reactive:** Corrective, Emergency, and Minor Work

Within the Phase-Based Maintenance Model project and shutdown work will incorporate both Reactive and Proactive maintenance processes. This approach ensures that planned maintenance tasks (Proactive) are carried out efficiently, while still allowing flexibility to address any unexpected issues (Reactive) that might arise during the work.

The integration of new Fiori applications and features within the Phase-Based Maintenance Process will facilitate a smoother user experience and improved process tracking.

For specialized processes such as refurbishment and calibration it is recommended that Syensqo adopts the **Standard SAP Maintenance Process**. These processes have unique requirements that may not align well with the structured phases of the Phase-Based model necessitating a more tailored approach.

Overall, this combined approach aligns with Syensqo's strategic objectives of standardization, simplification, efficiency and flexibility ensuring a robust and adaptable maintenance solution.

Background & Context

Syensqo operates and maintains a diverse number of plants globally, each with different sizes and complexity levels. Maintenance teams are tasked with a wide range of activities to ensure the smooth operation of these plants. The goal is to achieve standardization and simplification across its maintenance processes, enhancing efficiency, reducing downtime, and improving overall operational performance.

The current maintenance process faces challenges in meeting the dynamic and varied needs of different plants, ranging from large, complex operations with extensive maintenance requirements to smaller sites with more straightforward needs. The maintenance activities cover a broad spectrum, including corrective, preventative, emergency, predictive, refurbishment, shutdown, and projects, each with unique demands and complexities.

The Syensqo's strategic objectives include:

- **Standardization:** Creating uniform maintenance processes across all plants to ensure consistency, improve compliance, and facilitate easier management and reporting.
- **Simplification:** Streamlining maintenance operations to reduce complexity, enhance usability, and improve efficiency.
- **Efficiency:** Optimizing maintenance activities to minimize downtime, reduce costs, and improve asset reliability and performance.
- **Flexibility:** Ensuring the maintenance process can adapt to the varied needs of different plants and types of maintenance activities.

Assumptions

Maintenance Activities: All maintenance tasks will be documented in S/4HANA for accountability and traceability.

Constraints

Specialized Processes: Refurbishment and Calibration will continue to be managed according to the standard maintenance process. As processes require specific handling that might not align well with the structured phases designed for standard maintenance activities.

Process Control: Phase control codes and user statuses should not be used simultaneously to avoid conflicts and ensure proper tracking and management of maintenance orders.

Further constraints may be determined during the detailed design phase.

Migration: There is no direct migration path from the standard maintenance process to the phase-based process if considered at a later stage.

Impacts

User Training: Extensive training will be required for users to adapt to new systems and business processes. This training will need to cover several key areas to ensure a smooth transition and effective utilization of the new maintenance processes. Example:

- Understanding the specific roles and responsibilities within the new maintenance framework.
- Dedicated Fiori Applications
- Process Workflows

Data migration:

- Compatibility issues between legacy systems and the new S/4HANA system, requiring data cleansing, transformation and mapping.
- Testing and validation to confirm that migrated data accurately reflects the original datasets.

Reporting: More efficient tracking, management and reporting of maintenance activities, leading to better decision-making and transparency.

User Experience: Supported by Transactional and Overview Fiori applications, the system provides a more intuitive and user-friendly interface. It includes customizable dashboards that enable users to quickly access and view relevant information.

Business Rules

Process Alignment

- Maintenance orders must be classified by their order type to ensure appropriate processing.
- Phase control codes should be used to manage the progression of orders and prevent unauthorized transitions.
- User statuses and phase control codes should not be used simultaneously to avoid conflicts.

Additional defined requirements and further updates will be determined during the detailed design phase.

Options considered

Option A: Phase-Based Maintenance Process

The SAP S/4HANA Phase-Based Maintenance Process is a structured approach to managing maintenance activities by implementing the system in clearly defined phases. Each phase targets specific maintenance order types, such as Reactive Maintenance and Proactive Maintenance, allowing for incremental adoption and adaptation. This approach is particularly beneficial for organizations with diverse plant sizes and complexities, as it offers flexibility and scalability. By implementing the phase-based process, Syensqo can systematically address the unique needs of each plant, mitigate risks and ensure a smooth transition with minimal disruption to ongoing operations.



- An end-to-end process that is structured according to nine phases.
- The individual phases are divided into subphases.
- You can track the life cycle of the maintenance processes using phases as an alternative to User Statuses.

- Track and schedule compliance of the maintenance backlogs according to the phases or subphases in several order list views.
- Simplified and granular phase management to guide users along the process
- Supported with new Fiori applications and lots of features, like Maintenance Backlog Overview & Management Maintenance Planning Buckets.

Maintenance orders are classified by their order type, which represents a specific business process and dictates the realization and subsequent processing options for individual orders. The phase-based maintenance process supports Reactive Maintenance and Proactive Maintenance. The associated order types define the relevant process phases that each maintenance order will go through.

Reactive Maintenance: This process enables the maintenance of technical objects in response to breakdowns or failures, minimizing asset downtime and enhancing productivity. It also encompasses processes for Emergency Work and Minor Work to address additional maintenance needs promptly and effectively.

Proactive Maintenance: This process focuses on preventing asset failures by implementing preventive maintenance and proactive measures. It ensures optimal asset utilization and availability, promoting efficient performance and reducing costs associated with breakdowns.

Phase control codes enable Syensqo to manage the progression of orders from one subphase to another. These codes can be activated at the order header or order operation level to prevent a maintenance order or operation from moving to a designated subphase. In this way, phase control codes function similar to user statuses. However, it is important to note that phase control codes and user statuses should not be used simultaneously.

Specialized processes such as refurbishment and calibration are not covered by the Phase-Based Maintenance Process. These processes will instead be managed according to the standard maintenance process. This ensures that specific workflows and requirements for refurbishment and calibration activities are addressed effectively within the organization's maintenance management framework.

Option B: Standard SAP Maintenance Process

The Standard SAP Maintenance Process involves a comprehensive, single-step implementation of the SAP S/4HANA system across all plants within Syensqo. This approach aims to standardize maintenance processes, providing a uniform system that streamlines operations and ensures consistency. Syensqo can leverage the full capabilities of SAP S/4HANA, enabling utilization of all features and functionalities. This option is designed for organizations that prioritize uniformity across their operations, aiming to enhance efficiency and reduce complexity in managing maintenance activities.

Benefits:

- **Operational Efficiency:** Standardizing processes across all plants enhances efficiency by streamlining workflows and optimizing resource allocation. Real-time data integration facilitates quicker decision-making and improves overall operational performance.
- **Compliance and Risk Management:** Ensure compliance with industry standards and regulatory requirements through standardized maintenance practices and data management.
- **Comprehensive Coverage:** The standard SAP Maintenance Process accommodates all types of maintenance work and processes, including corrective, preventive, predictive, refurbishment and calibration activities.
- **Enhanced Decision-Making:** Access to accurate and timely information enables informed decision-making for maintenance planning and resource allocation.
- **User Adoption:** The streamlined deployment and comprehensive support programs provided during implementation promote user adoption and engagement across the organization. Training and change management initiatives ensure smooth transitions and maximize the utilization of new system capabilities.

Note: There is no direct migration path from the standard maintenance process to the phase-based process if considered at a later stage. For instance, transitioning from corrective maintenance under the standard process to a phased approach like reactive maintenance would require a separate implementation strategy and potentially additional customization to align with new operational needs and configurations. Thus, careful planning and strategic alignment with organizational goals are essential when determining the initial implementation approach.

Comparison Table

Criteria	Phase-Based Maintenance Process	Standard Maintenance Process
Process Approach	<u>Structured:</u> Divided into phases, allowing for incremental adoption and customization per phase.	<u>Comprehensive:</u> Implements all maintenance processes simultaneously, ensuring uniformity and immediate system-wide deployment.
Key Functionality Coverage	<u>Core-focused:</u> Initially centers on core maintenance activities (corrective, preventive), with flexibility to add specialized processes in later phases.	<u>Comprehensive:</u> Covers all maintenance types (corrective, preventive, predictive, refurbishment, calibration) from the outset, supporting comprehensive maintenance operations.
Customization	<u>Flexible:</u> Allows customization in each phase based on specific plant needs and operational requirements.	<u>Limited:</u> Standardized processes may not align with unique operational nuances, minimal customization per plant.
User Experience	<u>Gradual:</u> Adoption with phased training and support facilitates smoother transition and user engagement.	<u>Immediate:</u> System-wide adoption with comprehensive training may pose challenges in change management and user acceptance.

Operational Efficiency	Enhanced: Over time as each phase optimizes processes based on feedback and performance metrics.	Immediate: Efficiency gains through standardized processes and real-time data integration support quick decision-making.
Scalability	Scalable: Approach suitable for varying plant sizes and complexities, adapts maintenance strategies based on phased implementation.	Scalable: Requires additional customization for future adaptations, challenges in uniformity across diverse operational environments.
Maintenance Consistency	Potential: For transitional inconsistencies in maintenance practices during phased rollout.	Consistent: Ensures consistency in maintenance practices across all locations, minimizing operational variations.
Future Roadmap	Adaptable: Future enhancements and new functionalities can be integrated based on SAP's development plans, aligning with evolving business needs and enabling continuous improvement through subsequent phases.	Fixed: Less flexibility for incremental improvements with limited focus on SAP's future roadmap.

Evaluation

Based on the comprehensive evaluation the Phase-Based Maintenance Process demonstrates a significant alignment with Syensqo's strategic objectives and operational requirements. This approach excels in operational efficiency, standard configuration options and scalability making it particularly suitable for Syensqo's diverse plant sizes and complexities. The structured nature of the Phase-Based Maintenance Process allows for detailed management of core maintenance activities promoting improved asset reliability and reduced downtime. The integration of new Fiori applications and enhanced process tracking features further contribute to a smoother user experience, facilitating better adoption and engagement across the organization.

However, it is important to note that the SAP Standard Maintenance Process will still be required for specialized processes such as refurbishment and calibration. Specialized processes like these differ significantly from standard Reactive or Proactive maintenance tasks which makes them less suited to the structured phases of the Phase-Based Maintenance Model. These processes require more tailored approaches that can be better supported by the flexibility of the standard SAP maintenance process.

Criteria	Weight	Phase-Based Maintenance Process	Standard Maintenance Process
Operational Efficiency	Very High	Very High	High
Compliance and Risk Management	High	High	Very High
Customizability	Med	Very High	Low
Integration Simplicity	Med	Medium	High
User Experience	Med	High	Medium
Scalability	Med	Very High	Medium
Maintenance Consistency	Med	High	Very High
Future Roadmap	Med	High	Low
Overall		High	Medium

See also

The following section describes relevant documentation:

Document Name
SAP documentation on Phase-Based Maintenance

Change log

Version	Published	Changed By	Comment
CURRENT (v. 36)	Aug 28, 2024 13:49	LEIGHTON-ext, Dean	
v. 35	Aug 28, 2024 13:47	LEIGHTON-ext, Dean	
v. 34	Jul 29, 2024 12:13	LEIGHTON-ext, Dean	

v. 33	Jul 24, 2024 16:16	WENNINGER-ext, Sascha
v. 32	Jul 24, 2024 16:03	WENNINGER-ext, Sascha
v. 31	Jul 24, 2024 13:01	LEIGHTON-ext, Dean
v. 30	Jul 24, 2024 12:29	WENNINGER-ext, Sascha
v. 29	Jul 24, 2024 12:23	WENNINGER-ext, Sascha
v. 28	Jul 23, 2024 10:27	LEIGHTON-ext, Dean
v. 27	Jul 19, 2024 13:17	LEIGHTON-ext, Dean

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Title	Last Updated By	Updated	Status
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Workflow history

This view shows the 5 most recent entries. The complete workflow log is available from the 'Document Activity' menu item.

Sept 26, 2024	Actor	Type	Activity	Version
Approved	 FALL-ext, Cheikh	State	changed state to Approved at 1:12 pm	v36
Pending SteerCo Review	 FALL-ext, Cheikh	State	gave <i>Final Approval</i> approval at 1:12 pm	v36
		State	changed expiry date to '10 Oct, 2024 01:12 pm' at 1:12 pm	
		State	changed state to Pending SteerCo Review at 1:12 pm	
Pending Stakeholder Review	 FALL-ext, Cheikh	State	gave <i>Stakeholder Review</i> approval at 1:12 pm	
Sept 11, 2024				
	 FALL-ext, Cheikh	State	changed expiry date to '18 Sept, 2024 03:52 pm' at 3:52 pm	v36
		State	changed state to Pending Stakeholder Review at 3:52 pm	
Edited following DA Endorsement	 FALL-ext, Cheikh	State	gave <i>Minor change</i> approval at 3:52 pm	