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# Purpose:

# The purpose of this document is to present improvement opportunities and necessary updates for the Power BI Planning Tool used by the terminal planning teams. Currently, this tool allows users to visualize and project upcoming maintenance activities, as well as manage material forecasting. However, based on user feedback, areas for improvement have been identified to optimize its functionality and ease of use.

# Our proposal focuses on reviewing the current setup, implementing key improvements, and updating visualizations to make the tool more intuitive, efficient, and aligned with the operational needs of the team. These updates will not only facilitate decision-making but also enhance the user experience, ensuring a more dynamic and functional environment.

# Context:

Currently, the Power BI Planning Tool displays data from ERPAPP10 in a user-friendly and practical way. However, several areas for improvement have been identified that affect operational efficiency and the quality of the information used for planning.

1. **Limited data refresh:**  
   The tool performs only one data update per day. This creates a lag in information, as new tasks or work orders generated during the day are not reflected in the system in real time. As a result, the ability to plan and respond efficiently is limited.
2. **Incomplete data integration:**  
   Although key data exists in the ERPAPP10 system, not all relevant fields have been integrated into the Power BI tool. This is especially true for critical information related to Preventive Maintenance (PM) tasks and Work Orders (WO/WT), which limits the user’s ability to properly identify and schedule activities.
3. **Manual data extraction for reporting:**  
   Currently, report generation for stakeholders is a manual process. Users must extract data from ERP through Excel files and manually cross-reference different tables to compile their reports. This method consumes time and increases the risk of errors such as missing information, typing mistakes, or inaccurate forecasts, which can affect decision-making.

# Vision:

The goal of the Power BI Planning Tool is to evolve into a more robust, intuitive, and functional solution that not only allows users to visualize data from ERPAPP10 but also provides real-time updates that enable more accurate and efficient maintenance planning.

1. **Comprehensive visualization and real-time updates:**

The tool should present information clearly and well-structured, allowing users to view both projected maintenance plans and available execution windows. This can be achieved through direct integration with operational tools like Berth Plan, providing a unified view that connects planning with operations.

It is essential for the tool to provide **full visibility of key planning fields**, particularly the maintenance envelope (*Earliest Start* and *Latest Finish* dates) of Work Tasks (WT), as well as actual execution times. This visibility will enable planners to quickly identify and differentiate tasks that are **overdue**, **approaching their due dates**, or **within acceptable timeframes**, improving prioritization and overall decision-making. Since planning is executed at the WT level, these insights are critical to ensure alignment with scheduling priorities and plan compliance.

1. **Automation and data consolidation:**

Another key improvement is the automation of report and forecast generation to be able to look 12-18 months ahead. Currently, this process requires manual extraction and cross-referencing with external tables, causing rework, delays, and increased risk of errors. Included within this should be the ability to forecast based on variances, for example:

* if expected throughput increases, forecast the impact on the maintenance plans.
* If the number of equipment changes (increase/reduction) how would that impact cost and maintenance plan.
* If the average running hours of the fleet changes, forecast the impact on the maintenance plans and costs.

The idea is to be able to model the variances and forecast the impact of those changes, in terms of resources, cost, uptime, number of hours required for maintenance. The vision is to enable users to generate and download reports and forecasts with a single click, improving accuracy, reducing time, and enhancing the overall user experience.

1. **Support for planning and scheduling.**

Finally, incorporating a Planning Board-style view, similar to the defunct maintenance planning board in ERP, will allow the tool to support not only planning but also detailed scheduling of activities, providing a more integrated and operationally aligned platform.

This view should display not only Purchase Orders of inventoried materials and PRs but also information related to services in process. Likewise, resources (man-hours) should be visualized according to the roles assigned in each WT, showing both planned hours and available hours, and presenting the Planned Work for each specialty or resource type.

All the above should be easily exportable with a single click, generating a consolidated summary that can be shared with stakeholders without the need for external data cross-referencing, all fully integrated with the ERPAPP10 system.

1. **Impact on Planning and Scheduling KPIs:**  
   The combination of real-time visibility, operation-aligned scheduling, and consolidated data in a single environment will significantly reduce factors that currently affect plan adherence and execution.

By eliminating rework, improving the logical sequencing of tasks, avoiding bottlenecks, and anticipating material or resource constraints, it will be possible to achieve higher adherence to the plan (PMPC) and better efficiency in scheduling and execution, positively impacting key operational KPIs such as reliability, availability, and efficient use of installed capacity.

# Customer experience:

With the implementation of the proposed improvements in the Power BI planning tool, users will experience a significant transformation in their way of working, accessing a more integrated, agile, and operationally aligned platform.

1. **Direct interaction with real-time planning**  
   Planners will be able to consult critical data such as the Earliest Start and Latest Finish dates, execution times, and task statuses. This visibility will help them determine the appropriate actions to take and make the necessary updates directly in ERP, enabling more effective planning management.
2. **Complete visibility of resources and materials**  
   The tool will display, in a consolidated manner, purchase orders for inventoried materials and PRs, as well as information on services in progress. Additionally, users will be able to view planned and available man-hours by specialty, according to the roles assigned in each task (WT).
3. **Automatic generation of reports and forecasts**  
   With a single click, users will generate personalized reports and forecasts ready to share with stakeholders, significantly reducing report preparation times and improving the quality of delivered information.
4. **Visual and integrated operational scheduling**  
   Thanks to the incorporation of a Planning Board-style view, users will be able to schedule activities, assign resources, and adjust timelines directly from a visual interface.

**Direct operational benefit:**  
These capabilities will allow not only more realistic planning with updated data but also tracking execution based on reliable information, resulting in sustained improvement in plan adherence and effective scheduling.

# :

# The proposed improvement for the Power BI Planning Tool is based on the following key assumptions, which must be fully or partially implemented to ensure effective implementation:

# Availability of data in ERPAPP10: It is assumed that all required information to improve planning and scheduling (including dates, resources, materials, actual times, and task statuses) is properly recorded, structured, and accessible within the ERPAPP10 system, enabling its integration into Power BI.

# Technical access to data sources and infrastructure: It is assumed that there is adequate technical access (connectors, permissions, and necessary updates) to integrate data sources from ERPAPP10 directly into Power BI, including frequent or real-time updates.

# Support from IT and BI teams: It is assumed that the Information Technology (IT) and Business Intelligence (BI) teams are available to support the technical development of new visualizations, automations, integrations, and configurations required.

# Active participation of key users: It is expected that planners, schedulers, and other end-users actively participate in requirements validation, functional testing, and continuous feedback during development and implementation of improvements.

# Operational alignment with involved areas: Coordination with Operations, Purchasing, Maintenance, and other key areas is considered necessary to ensure that information on operational windows, materials, services, and human resources is updated and efficiently integrated into the planning environment.

# Commitment to continuous improvement: Stakeholders are assumed to be committed to adopting digital tools and standardizing processes, which will facilitate the sustainability of the proposed model in the long term.

# Risks / Solution Considerations:

The main risks associated with implementing the proposed solution and considerations to mitigate their impact are identified below:

1. **Risk: Technical limitations in ERPAPP10 integration**  
   Description: There may be technical complexity in accessing or integrating certain critical fields from ERPAPP10 into Power BI (e.g., actual dates, execution times, specific WT roles, etc.).  
   Mitigation: Coordinate early with IT and BI teams and conduct a detailed technical analysis of the required data sources and structures before starting development.
2. **Risk: Low quality or inconsistency in base data**  
   Description: If the data entered in ERPAPP10 is not up to date or contains errors, Power BI visualization will reflect inaccurate information.  
   Mitigation: Define quality controls and validations at the source. Implement training for key users and reinforce good recording practices.
3. **Risk: Additional workload for BI/IT teams during implementation**  
   Description: Development and maintenance of new visualizations, automations, and integrations may generate additional operational load for support teams.  
   Mitigation: Align timing and resources from planning. Consider incremental phases or an MVP strategy to release functionalities in a controlled manner.
4. **Risk: Mismatch between real operation and Scheduled data**  
   Description: If operational data (such as execution windows or resource availability) is not updated timely, decisions may be made based on outdated scenarios.  
   Mitigation: Establish frequent update mechanisms (ideally daily or real-time) and visual alerts to detect activities with outdated status.

General solution considerations:

* Prioritize features impacting planning and scheduling compliance KPIs.
* Ensure scalability for future improvements and integrations.
* Maintain alignment with real operational processes.
* Consider security and access control according to roles defined in ERPAPP10.
* Enable automated report export in standard formats (Excel, PDF) ready for stakeholders.

# Proposed Product Evolution:

To ensure the sustainable and functional evolution of the Power BI Planning Tool, a phased product evolution is proposed that allows agile implementation, continuous user validation, and future capability expansion. This evolution is designed to naturally integrate with the assumptions, vision, and expected benefits already described.

**Phase 1 – Visualization optimization and basic integration:**

* Incorporate critical planning fields (actual WT dates, execution times, status).
* Display purchase orders, PRs, and active services.
* Basic exportable reports from existing views.
* Implementation of filters by specialty, equipment, and criticality.

**Phase 2 – Automation and advanced analysis:**

* Automated generation of reports and forecasts (consolidated by specialty, resource, and equipment).
* Visualization of resource availability vs. planned load.
* Operational integration with tools like Berth Plan to validate windows.
* Alerts for overdue tasks, unplanned tasks, and tasks without assigned resources.

**Phase 3 – Interactivity and advanced scheduling:**

* Development of a Planning Board view with dynamic task adjustment and resource assignment options.
* Visualization of Scheduled vs. Actual Work, by WT and specialty.
* Real-time visualization of compliance with planning and scheduling KPIs.

This evolution will progressively achieve the stated objectives, minimizing initial risks, and consolidating a scalable solution with strong alignment between users, processes, and digital tools.

# Business Requirements:

Epic E1: As a Planner Analyst and Planner Manager, we want to…

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Key Feature** | **#** | **User Story/Business Requirement** |
| V2 | Enhance Visibility | E1US1 | * Integration of the Berthing Plan and Gantt chart |
| V2 | Enhance Visibility | E1US2 | * Add services (PRs) into material table |
| V2 | Enhance Visibility | E1US3 | * Automated generation of reports and forecasts |
| V2 | Enhance Visibility | E1US4 | * Alerts for overdue tasks, unplanned tasks, and tasks without assigned resources (Display the quantity either in a tag or a box, and when clicked, list the tasks that match the ones previously mentioned) |
| V2 | Enhance Visibility | E1US5 | * Add all columns relevant to the filters in the Annual Planning tables (site, work type, priority, object type, object id, org) |
| V2 | Enhance Visibility | E1US6 | Add a table that summarizes the quantity of WT expected by month per Asset ID/Action Id |
| V2 | Enhance Visibility | E1US7 | * Add a new Resources table, like the one we already have comparing Planned Man Hours vs Available Man Hours, however, considering if any day of the week is selected, then the day is mapped to the corresponding week, granularity keeping the grouping on the week level |
| V2 | Cost | E1US8 | * Add a Cost tab. |
| V2 | Cost | E1US9 | * Cost tab - First table with the totalization of work order / work task cost according to the filters selected, broken down per resources, materials and requisitions and totalized |
| V2 | Cost | E1US10 | * Cost tab - Second table showing cost % per work type per cost type (manhours, materials, services...) |
| V2 | Cost | E1US11 | * Cost of backlog (Task Overdue) |
| V2 | Preventive Maintenance | E1US12 | * Add a tab that includes a table with the average RH per Object ID to generate the forecast |
| V2 | Preventive Maintenance | E1US13 | * Add the job description in BI planning Tool Gantt chart |
| V2 | Enhance Visibility | E1US14 | * to maximize the use of the 8WLA: request to add an option to extract the Gantt chart data per WT/PM Line level (with only min information to be shared with OPS: OID/Job desc/WT Or PM N/Due date/execution time) |
| V2 | Preventive Maintenance | E1US15 | * Present a table of non-PM Work Rates (work orders / period) & estimated average unplanned downtime (repair window). Differentiate BDs from CMs |
| V2 | Enhance Visibility | E1US16 | * Include view of forecasted total required man hours of PM + nonPM assuming 100% PM Completion, adding non-PM workload from historical records. Compare with new scenario of PM Optimized / Rationalized |

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# Project Plan:

**To be determined**

# MVP Acceptance Criteria: