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# Solution Review

## SAP® Review Program



Prepared for:



Run Phase

May 29 - 31, 2012

Prepared by: SAP Public Services



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## Introduction

The Solution Review Service, developed by the platinum consulting group of SAP® Consulting, provides the SAP customer with an independent and objective review of business processes, application configuration, and current productive implementations of SAP software.

The Solution Review Service:

- Focuses on the project team structure and functional application
- Assesses the functional areas upon which the project should focus and identifies the associated risk areas
- Provides business-application expertise to highlight potential problem areas for the project team early in the implementation process
- Analyzes the project team to ensure assignment of the correct resources to the project
- Reviews project schedules and implementation documentation to assess the progress made by each subteam
- Examines business procedures with the customer and provides a high-level review of configuration
- Might also look at systems configuration, depending upon the length of the Solution Review

As presented to the customer, the Review includes the following:

- General team observations
- Process overview assessment
- Strengths
- Areas for improvement
- Risks
- Recommendations



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This Solution Review document includes a summary of findings and details of findings, identifies the areas of potential risk, and notes the recommendations of the Solution Review Service. The present document includes the following sections:

- Executive Summary
- Summary of Findings
- Details of Findings

As listed, each section offers an examination of the material in greater detail.



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## Executive Summary

### Background

Omnitrans provides transit service to the county of San Bernardino and fifteen surrounding cities within the San Bernardino Valley of California. Serving an annual ridership of over sixteen million, Omnitrans has 652 employees and is responsible for managing a bus fleet of over 330 vehicles. Omnitrans is governed by a 20-member Board of Directors comprised of San Bernardino County Supervisors and fifteen elected representatives designated by the surrounding cities the transit agency serves.

Omnitrans targeted the replacement of the Ellipse software solution to improve alignment of Omnitrans business strategies and operations, increase productivity and visibility of Omnitrans' business processes. On May 7, 2008, Omnitrans awarded the purchase of the SAP Enterprise Resource Planning (ERP) application and implementation services to CIBER, Inc. CIBER led the implementation of SAP solutions within Omnitrans for three phases over three and a half years.

- Phase I – Financials, Human Resources (HR). Go-Live July 2009
- Phase II – Plant Maintenance (PM); HR: eRecruitment, Payroll, Employee Self Service (ESS), Manager Self Service (MSS), Procurement: Supplier Relationship Management (SRM), Materials Management (MM), and Inventory Management (IM). Go-Live September 2010
- Phase III – Project Systems. Go-Live June 2011

In response to Federal Transportation Agency (FTA) investment in transit solutions, Omnitrans applied for a grant that would enable provision of the Omnitrans SAP solution as a template for other transit agencies. Pending approval for the FTA grant, Omnitrans requested an SAP Review to assess the current state of the solution focusing on recommendations to address production issues and Maintenance Department concerns.

### Components Reviewed

This Solution Review included interviews with key team members and reviews of project documentation listed in Appendix II. The Solution Review was conducted from May 29, 2012 – May 31, 2012.

The report covers the following components:





- 
- Financials (FI) – general ledger, accounts receivable, and accounts payable
  - Controlling (CO)
  - Materials management (MM)
  - Supplier Relationship Management (SRM) – Procurement for Public Sector (PPS)
  - Funds management (FM)
  - Grants management (GM)
  - Project system (PS)
  - Plant Maintenance (PM)
  - Human resources (HR)
  - Development
  -

## Overall Assessment



= Further investigation or work required by client

Overall, the Omnitrans implementation has permitted the Agency to enhance its operational efficiency and effectiveness across departments. Operational efficiency can be further improved by fine-tuning the solution in conjunction with business process improvements that have been outlined in this report. Some of the benefits the Agency has seen include:

- Streamlined requisition process, reduced to four steps
- Employees have 24/7 access to update personal information
- Improved inventory control, 20% inventory reduction
- More accurate inventory cycle counts (99%)



- Significant reduction of payroll processing time from 5 days to less than 6 hours with 100% accuracy on payroll result
- Significant reduction of month end closing from 3 days to less than 2 hours
- 100% adherence to union rules for representative employees
- Summary of invoices, transfers, purchase orders and requisitions have enabled more efficient use of financial resources in the planning and procurement process.

The findings in this report outline recommendations for Omnitrans to consider in order to further improvements in operational efficiency across the agency. The Omnitrans solution leverages standard SAP functionality with minimal custom development. Leveraging standard SAP functionality provides a solid foundation for template development and future implementations of additional functionality. Operational efficiency can be enhanced through improved business process integration.

One of the most significant benefits that come with implementing SAP solutions is process integration. The capability to leverage the output of a given business process as the input for another process, has not been fully realized. For example, the process of confirming completion of a maintenance work order that automatically settles the costs of the work order to finance has not been implemented. Gaps in business process integration existed across every team. With some tweaks to SAP configuration and business process changes, the inherent process integration within the Omnitrans solution can be leveraged. Focusing on improvements to process integration will eliminate most of the manual (offline) integration processes in place. Offline processes are traditionally not auditable and breed the need for offline reporting, so any effort to reduce them will aid in improving operational efficiency.

From a business process perspective, Omnitrans should have regular integration discussions (bi-weekly or monthly) that assess process changes and discuss issue resolutions across departments. Most departments had *detailed* integration discussions for the first time during the SAP Review. Integration discussions that include process flow walk-thru's and system demonstrations will be a significant benefit in improving process integration. Process integration should also be extended to documentation and future testing efforts. Business process documentation must be updated to reflect end-to-end (E2E) business processes, where the output of one business process serves as the input for another process. E2E business processes should be reflected in future testing efforts via the inclusion of integration testing scenarios that test business processes that span multiple modules.

Reporting is another area where gains can be made in operational efficiency. There is minimal to no use of standard SAP reporting within the Omnitrans solution. It is customary to focus on reporting after production operations have stabilized from a new solution. Now that Omnitrans



has been live for one year with Release 3, this is the perfect time to reassess the current reporting approach. The current reporting approach is to take data out of SAP and leverage offline, non-auditable tools for reporting such as Microsoft SQL, Excel and asp.Net programming language. This offline custom reporting approach will become costly and more challenging to maintain over time. As SAP products and the Omnitrans solution evolve, regular updates will be required to custom reporting to incorporate process changes, software corrections and new functionality.

A major issue impacting efficient business operations are the unresolved issues that resulted from the December 2011 Enterprise Resource Planning (ERP) Enhancement Pack Four (EhP4) upgrade. The technical portion of the upgrade was executed successfully, but the functional portion of the upgrade was not completed thoroughly. Thorough E2E regression testing of the solution post the application of EhP4 was not executed. The functional portion of the upgrade should have been conducted to highlight issues with existing business processes, enabling research on applicable SAP notes or logging of customer messages for issues that could not be resolved.

It must be noted, conducting an upgrade for the first time without consulting support is a significant undertaking. The Omnitrans project team required additional expertise to properly complete the EhP4 upgrade. The incomplete EhP4 upgrade has resulted in some business processes across all teams that can no longer be executed. The Omnitrans project team is commended for the resilience shown to find workarounds in order to keep operations going for those business processes affected by the EhP4 upgrade. The downside is the team has seen a workload increase as a result of the workarounds. The project team had sufficient knowledge of the SAP business processes configured within the Omnitrans solution. During the Review, the project team received hands-on exposure to additional features, tips and standard SAP functionality. By exposing the project team to additional standard SAP functionality, further improvements in operational efficiency can be gained.

The project team appeared to have knowledge on executing standard business processes, but lacked exposure to troubleshooting techniques and process integration. Effective troubleshooting techniques and an approach to continued process integration is critical during the Run Phase. All issues are funneled to the Technical Team for resolution. Issues that require SAP configuration and business process expertise take time to resolve and often require external expertise. Omnitrans should reassess the current approach for post production support.

Across the project team, there were *quick hit* items that could be implemented within one to two weeks with guidance from experienced SAP consultants. The identification of the quick hit items noted within this report can be implemented quickly, under the guidance of experienced SAP resources to walk the team through making the change, holding required integration discussions and thoroughly testing the change before deployment. As previously stated, hands-on knowledge transfer will be invaluable for the Omnitrans project team.



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The business processes implemented to date appear to be straight forward and non-complex. There were no modifications to SAP source code. Excluding reporting, custom development remained modest, with less than 5 custom enhancements. Omnitrans is recognized for the sound approach to leverage standard SAP functionality, no modifications to SAP source code and minimal custom enhancements. As previously stated, this sound approach provides a good foundation for template development and implementing additional improvements for operational efficiency.

The requirement for improved integration highlighted the need for a change management focus that would institute process and organizational integration. Departmentally, the Omnitrans team must start functioning like an integrated organization where business process changes and production resolutions are discussed across the team. Focus must first be given to improving production operations: resolving outstanding issues, implementing E2E business processes and arming the OMNITRANS project team with knowledge on standard SAP functionality and best practices. Once operational efficiency is improved, the post production support approach and establishment of the transit template can be pursued.



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## Summary of Recommendations

### Overall Recommendations for Production

- A three step approach is recommended to aid in improving productive operations.
- **Upgrade to EhP5, engaging SAP expertise to guide the planning and execution of the upgrade.** An EhP5 upgrade is recommended to bring the Omnitrans solution as current as possible on applicable support packs containing software corrections and new functionality. There is new functionality that will benefit the Omnitrans solution for all in-scope modules. For example – there is new GM master data functionality for maintaining grant validity dates. Currently grant validity dates cannot be maintained, thus grants cannot be closed. With the new GM functionality in EhP5, grants can have set validity periods for improved accuracy and efficiency. During the EhP5 upgrade, the Omnitrans team will learn SAP best practices for upgrade planning and regression testing. In addition, the team will learn and develop project collateral on E2E integration testing and troubleshooting techniques. Upon the completion of the EhP5 upgrade, incorporation of other recommendations to further improve production can be begin.
- **Engage SAP Consulting expertise to address the quick hits denoted below.** During the implementation of the quick hits, hands-on knowledge transfer will take place. The Omnitrans project team will learn many invaluable tips on key processes, transactions and features that will aid business operations. The implementation of the quick hits will provide immediate process improvements and resolution to open issues. Ultimately, providing a needed boost to the dedicated Omnitrans project team.
- Establish a project schedule to incorporate those SAP recommendations that should be addressed before the finalization of the transit template. As a joint team, Omnitrans leadership and SAP, a discussion must be held on the recommendations within this report to decide which recommendations should be pursued and included in the stabilization project schedule. The project schedule must also include tasks to finalize the post production support approach.
- Once improvements have implemented, focus should then shift to building the transit template. Planning for the transit template can get underway towards the end of the Realization Phase of the stabilization effort. To aid in securing external input and buy-in to the transit template, consideration should be given to allowing external transit community users / customers to participate in integration testing. This type of external participation can serve as a validation on the scope of functionality targeted for the template.



## Quick Hits

### SRM

1. Deactivate FM BADI
2. Activate Standard SRM-PPS Functionality Business activation sets
3. In ECC – Activate Multiple account assignment functionality
4. In ECC - Activate integration w/ SRM-PPS

### MM

1. Business process change - Implement use of correct account assignment category for the type of purchase (i.e. – PM)
2. Business process change - Finalize timing of GR / IR
3. Complete Open Physical Inventory Documents
4. Implement additional MRP functionality: reservations, adjusting MRP settings
5. Create Work instructions on correct use of movement types

### FM

1. Resolve issue w/ current program to load revenue budget
2. Resolve YE close program FMJ2 issue \*Not a quick hit, but must be done
3. Automate FM labor reversal postings in GM

### GM

1. Change configuration settings for GM update

### HR

1. Activate Structural Authorization
2. Resolve accrual issues
3. Resolve Benefits LTD issue
4. Resolve Benefits FSA issue



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## TECHNICAL Team

1. Search applicable NOTES that should be applied for open issues
2. Assess and implement the use of standard SAP reports within each team
3. Receive hands-on training by an SAP Development consultant on the use of ABAP Query

## PM

1. Integrate External Procurement w/ Work Orders
2. Update existing Shop Paper
3. Fix Issues with Maintenance Planning
4. Create work instructions on visibility of maintenance requirement details for approval within SRM

## FI

1. Resolve leap year issue
2. Resolve tax code default issues
3. Create Credit Memo Form
4. Resolve printing issue with 1099 forms
5. Process change for accrual of Closed PO \*Requires integration with MM

## Overall Recommendations for Financials (FI) / Controlling (CO)

Omnitrans has successfully deployed the Financial Accounting and Controlling modules of SAP ERP, leveraging standard functionality with negligible enhancements.

By activating some additional functionality, mainly reporting, planning and budgeting, Omnitrans can improve business processes and elevate the quality of reporting. This additional functionality will facilitate a better return on investment (ROI) in the Omnitrans SAP solution.

Explore the use of SAP Business Intelligence products for improved business insight and enhanced financial analysis. There is significant standard content in SAP Business Warehouse (BW) which will provide a more cost effective reporting solution that can be leveraged throughout Omnitrans.

## Overall Recommendations for Procurement (SRM PPS / MM)

Document business processes to establish a baseline inventory of current processes. This baseline defines the unit tests required for future implementations of support and enhancement



packs. The process documentation must identify integration points amongst the other functional areas. Once the integration points are identified, the functional areas must conduct discussions to ensure the needs of all teams are met.

Compare the identified business requirements and desired configuration to the existing configuration. Complete standard SRM and ECC configuration to ensure basic functionality and the integration between modules is maintained.

Identify, log, prioritize and resolve the pain points in the current processes. Include issues such as the use of multiple account assignments on a single line item and the use of the Order account assignment type to allocate costs to PM work orders.

Use standard functionality in place of custom enhancements for Shopping Cart Commitment and Source Determination from ECC.

Review currently assigned Roles and Authorizations to ensure that users have the ability to perform the business functions for which they are responsible.

### **Overall Recommendations for Funds Management (FM)**

Expand current usage of the FM master data structure to enable lower level detailed reporting.

Consider implementing the Rule Based Account Distribution functionality to eliminate the manual split data entry on the Purchase Requisition / Purchase Order process for multi-funded line items.

Consider using standard functionality for budget prep to eliminate external budget prep systems and extensive manual worksheet effort.

Consider using standard reports in the FM module. For example, use FM Drill Down Report to develop Budget vs. Actual Report.

Re-evaluate the FM year-end close process particularly the closing commitment items step as well as resolving the FMJ2 error message prior to year end in order to perform year-end close successfully.

### **Overall Recommendations for Grants Management (GM)**

Implement FM / GM integration for Carry-Forward Receive and Send Processes.

Consider revising the current GM data dimensions mapping to track and report data at the required level of detail.





Consider implementing SAP standard functionality for Rule Based Account Distribution to eliminate the manual calculation and data entry for the grant cost sharing requirement.

Consider using other standard GM functionalities to enhance grant business processes.

Revisit GM configuration settings to resolve some of the current production issues.

### Overall Recommendations for Project Systems (PS)

- Managing capital projects is the same as managing other project types within SAP ECC. The main difference is the viewpoint of the party managing the project, whether an owner or a contractor. The overall project management process can therefore not be optimized until both are taken into account by definition in the system.
- Implement the interface from Primavera into PS Capital projects for project planning and scheduling.
- Make substantial improvements in the integration of PS with FM, FI / CO, GM, HR, PM and AM teams.
- Give immediate attention to developing process documentation and functional specifications for RICEFW objects. There was no documentation available for review, not even at a high level.
- 

### Overall Recommendations for Plant Maintenance (PM)

The Solution Review identified near-term fixes and provided SAP an opportunity to make mid-term recommendations to meet Omnitrans strategic objectives. The near-term fixes outline what should be resolved within one to three months, while the mid-term recommendations reference a six to twelve month timeline.

The key *near-term fixes* include:

- Integration of the procurement of parts and services with work orders to enable reporting of maintenance costs per equipment, such as vehicles and facilities.
- Change the setup of preventive maintenance plans and mileage data for sub-equipment so the system works to meet business requirements.
- Migrate the current vehicle (Microsoft Access) database into SAP equipment records.



- Hands-on training for the Maintenance Team on standard SAP reports and the use of the ABAP Query tool to minimize the use of offline reporting processes.

*Mid-term*, SAP recommends functionality and tools to enable Omnitrans to build a world-class template solution for transit agencies:

- Processing work order and inventory on mobile devices with Syclo SMART suite for Enterprise Asset Management (EAM).
- Implementation of integration with the SAP PS module with PM for maintenance budgeting and real-time spend tracking.
- Implementation of integration with SAP HR for maintenance and safety training software, either SAP eLearning or Success Factors.
- Enhanced EAM reporting using SAP BW and add-on software for SAP Business Objects Asset Analytics.
- Implementation of SAP Open Text for Extended Engineering Change Management (ECM) for automating data creation (order confirmation, close, incoming invoices) and archiving of paper based Invoices and Work Orders.
- Implementation of SAP Environmental Health & Safety (EH&S) to aid in OSHA 300 reporting for Incident Management.
- Implementation of ECC EAM functionality like equipment warranty claims processing for supplier and Original Equipment Manufacturer (OEM) recovery; inspection rounds for facilities inspection; shift reports and notes; pooled asset management for check in and out of shared resources like tools and corporate fleet and operational risk management for EAM worker safety.
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### **Overall Recommendations for Human Capital Management (HCM)**

Resolve security issues by turning on Structural Authorization, which would allow managers to see only the employees that report up to them. This would allow Omnitrans to begin utilizing MSS to give managers information on their reports and assist them in making proper business decisions. It would also give the HR Department the confidence they need in the SAP security to grant access to departments which have been requesting access to specific HR data on their employees.

Grant specific HR / Payroll processors access to several SAP Personnel Administration utility transactions:



- PU00 - Delete Personnel Data (Deleting Personnel Numbers)
- PU03 - Change Payroll Status
- PA41 - Change Entry/Leaving Date
- Engage a Senior SAP Time Management Consultant to conduct a more in-depth review of the business processes and issues within time management. There are several issues occurring within the Time Management module that must be addressed, which would improve the performance of the system and lessen the burden on the Payroll and HR departments, while putting more of the ownership on employees to manage their leave requests. Members of the HR department could benefit from additional knowledge transfer from a Senior SAP Time Consultant, who would be able to work through these issues with Omnitrans while giving the Omnitrans HR personnel hands-on experience making these changes. Once the Leave Request issues have been resolved, employees could begin using ESS (Employee Self-Service) to request their leave requests.
- Engage a Senior SAP Payroll Consultant to conduct a more in-depth review of the business processes and issues within payroll. The HR and Payroll processors will benefit significantly from hands-on knowledge transfer on SAP payroll functionality and features.
- Resolve Benefits Issues – The Benefits module has several configuration problems and a required process change. To ensure the correct deductions occur for an employee and that the correct display of benefit plans when adding or changing plans for an employee, Omnitrans must implement the changes below.
- LTD (Long Term Disability): Make configuration changes to display the correct coverage level for an employee and to ensure the correct employer deduction occurs per pay period.
- FSA (Flexible Spending Account): Make configuration and master data changes to ensure the last deduction of the year occurs for all employees enrolled in the Flexible Spending Accounts.
- Process change for benefits enrollment: Benefit adjustment reason needs to be configured using Infotype 0378 (Adjustment Reasons) whenever a benefit change occurs. Benefit administrators should be using the Benefits Enrollment workbench whenever adding or making changes to an employee's benefits. The customer needs to ensure the staff follows the rules configured in SAP for benefits and presents the correct plans to the users.
- A process change is required to the Personnel Actions (PA40) for Terminations. This is required to resolve a problem that is occurring in the Finance module for terminated employees. HR is processing an incorrect termination date in the Personnel Actions (PA40) for terminations.



- Engage a Senior SAP E-Recruitment Consultant to conduct a more in-depth review of the business processes and issues within the E-Recruitment module. Again, members of the HR department could benefit from additional knowledge transfer from a Senior SAP Recruitment Consultant, who would be able to work through issues while giving the Omnitrans HR personnel hands-on experience with making changes.

## Overall Recommendations for Development

- Leverage the AcceleratedSAP (ASAP) Methodology going forward for all future development. By following the ASAP methodology, the Omnitrans project team will have an outline of the sequence for key tasks and activities. In addition, ASAP will outline the deliverables and work products that must be provided by the completion of each phase. Key artifacts that should exist for all RICEFW objects: functional and technical specifications. Minimal functional specifications existed and there were *no* technical specifications.
- Engage SAP security expertise to review authorizations across the project team, with a special emphasis on HR authorizations.
- The need for improved reporting and elimination of custom developed reports both within SAP and outside of the SAP solution resignated across the entire project team. Engage SAP Reporting expertise to review capabilities with the following SAP reporting tools that can leveraged rather quickly across the team:
  - SAP QuickViewer
  - Info Set Query
  - SAP Query
  - ABAP Query
- Consideration should be given to change the current reporting approach. Look to implement SAP Business Intelligence (BI) 4.0 to enable leveraging the data warehouse & enhanced reporting capabilities within SAP BW and the Business Objects components for dashboard reporting and analysis.



## Summary of Findings

The **Topic Rating** describes the overall state of the topic reviewed:



= Solution appropriate in this area



= Further investigation or work required by the client



= Project at risk. Further investigation or follow-up by the client required

The **Risk Level** indicates how the current approach or design affects the success of the implementation.

<b>High</b>	A critical issue that must be addressed within the next 30 days to improve production operations.
<b>Medium</b>	A serious issue in which business processes are functioning, but likely to experience numerous problems affecting business operations.
<b>Low</b>	A minor issue requiring fixing before going live with the next release if there are no pressing issues.
<b>None</b>	Non-issue in which the reviewer examined the area, but found everything to be in order.

The **Address-By Date** indicates the time period by which the client should opt to address, complete, or resolve the issue(s) to ensure successful operations.



## Financials (FI) / Controlling (CO)

### Overall Component Rating





### Reasons for Rating

Omnitrans did not present any issues that disrupted the execution of its financial business processes.

Almost all functionality configured is standard.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
General Ledger		Generating financial statement reports	Low	Prior to template rollout
Accounts Payable		Closing Service related Purchase Orders & accruing expenses	Medium	Within the next 30 days
<b>Accounts Payable</b>		Incorrect sales / purchase tax code default on invoice entry	None	Prior to template rollout
<b>Accounts Payable</b>		Correction of incorrect 1099 code in transactions to be executed in mass	Low	Prior to year end close
<b>Accounts Payable / Procurement</b>		Timely recording of goods receipt	Medium	ASAP



<p><b>Accounts Receivable</b></p>		<p>Printing of Credit Memo document</p>	<p>None</p>	<p>Future enhancement consideration</p>
<p><b>Cost Center Accounting</b></p>		<p>Calculate Activity Type rate using Planning functionality in CO-Cost Center Accounting</p>	<p>Low</p>	<p>Future enhancement consideration</p>



**Procurement (SRM-PPS / MM)**

**Overall Component Rating**







**Reasons for Rating**

- Inventory Management is not fully integrated with Plant Maintenance
- Reporting capabilities of SRM and ECC are not being fully utilized
- Workflow is not in place for Purchase Orders
- Director of Procurement and CEO are not included in existing workflows
- SRM and PPS functions are only partially implemented
- Business processes are functioning but in a silo fashion

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
Integration		<p>Inventory Management is not fully integrated with Plant Maintenance</p> <p>SRM and PPS functions are only partially implemented</p> <p>Financial integration with SRM is only partially configured</p>	High	Within next 30 days
RICEFW-Technical		<p>Reporting capabilities of SRM and ECC are not being fully utilized</p> <p>Workflow is not in place for Purchase Orders</p> <p>Director of Procurement and CEO are not included in existing workflows</p>	Medium	Within next three months





SRM/PPS – Shopping Carts		<p>Punch-Out catalogs are not currently used but catalogs have been configured in Production</p> <p>Shopping Cart Commitments have been set to create a pre-commitment at the time the document is created</p>	Medium	Within next three months
SRM/PPS – Strategic Sourcing		<p>End-user training was done at the last minute and users have a hard time navigating</p> <p>Catalogs have been configured in Production but none are assigned to users in the Organizational Structure</p> <p>Shopping Carts create funds pre-commitments at the time the document is saved</p> <p>“Order” type account assignment not used to allocate procurement costs to a PM work order</p>	Medium	Within next three months
MM - MRP		<p>Omnitrans has 1 Plant and two storage locations for storing materials</p> <p>Lack of integration causes poor visibility to long-term needs</p>	Medium	Within next three months
MM - Inventory		<p>Many physical inventory documents are outstanding and should be closed or processed.</p>	Medium	Within next three months



<p>SRM/PPS – Contracts &amp; Purchase Orders</p>		<p>Service Contracts are not done within SRM</p> <p>Document Builder has not been implemented</p> <p>PPS Functions have not been utilized</p> <p>Standard Service functionality is not being utilized</p>	<p>Medium</p>	<p>Within next three months</p>
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## Funds Management (FM)

### Overall Component Rating







### Reasons for Rating

Overall, the design and implementation of the Funds Management module meets the core business requirements. However, there is standard functionality that can be utilized to improve Omnitrans business processes.

Standard Funds Management reporting in ECC is not being utilized. Integration with other modules such as SRM, MM, Payroll, GM, PS, FI/CO is very critical in ensuring end to end business process integration. Most transactions have a financial impact, capitalizing on the inherent integration within SAP should streamline businesses processes and increase efficiency within the FM component of the Omnitrans solution.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>FM Master Data</b>		FM master data structure is overly simple which limits the granularity of posting dimensions details	Low	Future enhancement consideration
<b>FM Derivation Strategy</b>		FMDERIVE strategy met current business requirements	None	None
<b>Budgeting/AVC</b>		Budget prep is not being done in ECC Based on the simple master data structure design, AVC is checked at a very high level	Low	Prior to template rollout



<b>Reporting</b>		Utilize standard FM ECC reports and / or FM drill down reports	Low	Prior to template rollout
<b>Multi-Funded Projects/Grants</b>		Current multi-funded projects / Grants cost sharing requires manual data entry which increase the risk of incorrect postings	Medium	Prior to template rollout
<b>Integration</b>		Deactivate pre-encumbrance approval workflow BAdI in SRM	Medium	Within 3 months
<b>Year-End Close</b>		FMJ2 issue  PO close issue without using special posting period for year-end closing	High  Medium	Prior to year-end close  Within 30 days



## Grants Management (GM)

### Overall Component Rating



### Reasons for Rating

Overall, the design and implementation of the Grants Management module meets the core business requirements. However, there is standard functionality that can be utilized to improve Omnitrans business processes.






Omnitrans is not utilizing Standard Grants Management reporting in ECC. The grant-related reports are all custom reports.

To have a fully integrated system and derive optimal benefits, Grants Management must be integrated with modules such as SRM, MM, Payroll, GM, PS, and FI/CO.

Grant cost sharing requires manual data input which increases the risk of incorrect data postings.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>GM Master Data / General Settings</b>		<ul style="list-style-type: none"> <li>Grant Type</li> <li>Grant Master Data Elements</li> <li>Derivation Strategy</li> </ul>	Low	Prior to template rollout
<b>Update Settings</b>		<ul style="list-style-type: none"> <li>GM Update Settings</li> </ul>	High	ASAP
<b>GM Budgeting / AVC</b>		<ul style="list-style-type: none"> <li>Released and Unreleased budget functionality is not being used correctly, duplicate effort</li> <li>Incomplete GM budget process configuration</li> </ul>	Medium	Prior to template rollout



<b>Reporting</b>		<ul style="list-style-type: none"> <li>All reports are custom</li> <li>Extensive manual effort</li> </ul>	Low	Prior to template rollout
<b>Cost Rule</b>		<ul style="list-style-type: none"> <li>Indirect Cost Sharing rule</li> </ul>	Medium	ASAP
<b>Grant Billing</b>		<ul style="list-style-type: none"> <li>Manual grant billing process</li> </ul>	Low	Prior to template rollout
<b>Grant Cost Sharing</b>		<ul style="list-style-type: none"> <li>Manual split for grant funded activities that have cost sharing requirement</li> </ul>	Medium	Prior to template rollout
<b>Integration</b>		<ul style="list-style-type: none"> <li>Lack of business process integration</li> </ul>	Medium	Within the next 3 months



## Project Systems (PS)

### Overall Component Rating









### Reasons for Rating

There is limited use of SAP Project Systems for planning and managing projects. Project Systems functionality is not integrated with other modules: AM, FI/CO, FM, GM, HR, MM, PM. There is no visibility of:

- Project planning and scheduling
- Actual costs and / or revenue on projects
- Labor, equipment, material and overhead costs
- In addition, business processes do not exist for:
  - Budgeting projects
  - Month / Year end activities for projects

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
Integration		<ul style="list-style-type: none"> <li>• Limited PS functionality implemented</li> <li>• No E2E business process integration has been implemented within PS</li> </ul>	Medium	Prior to template rollout
Project Planning and Scheduling		<ul style="list-style-type: none"> <li>• No interface to Primavera for project planning and scheduling</li> <li>• No planning or scheduling process on capital projects</li> </ul>	Medium	Prior to template rollout
Split-Funding requirements		<ul style="list-style-type: none"> <li>• Split funding functionality</li> </ul>	Medium	Prior to template rollout



<b>Multi-funded Projects and Grants</b>		<ul style="list-style-type: none"> <li>One capital project with multifunded grants</li> <li>Need automatic splitting costs between objects</li> </ul>	Medium	Prior to template rollout
<b>Overhead Allocations</b>		<ul style="list-style-type: none"> <li>Collection of labor rates is not captured within PS</li> </ul>	Medium	Prior to template rollout
<b>Project Actuals</b>		<ul style="list-style-type: none"> <li>Actual costs are not captured within the project structure</li> </ul>	Medium	Prior to template rollout
<b>Month / Year End Processing for activities in PS</b>		<ul style="list-style-type: none"> <li>No business process for Month-End</li> <li>No business process for Year-End</li> </ul>	Medium	Prior to template rollout
<b>Budgeting and Cost Planning for Projects</b>		<ul style="list-style-type: none"> <li>No business process in place to complete budgeting for projects</li> <li>Not properly budgeting Grants on capital projects</li> <li>No business process in place to complete cost planning for projects</li> <li>No current business process for material management on capital projects and PM projects</li> </ul>	Medium	Prior to template rollout
<b>Services and Projects</b>		<ul style="list-style-type: none"> <li>No current business process for commissioning services</li> </ul>	Medium	Prior to template rollout <i>OR</i> release of new PS functionality





<p><b>Training</b></p>		<ul style="list-style-type: none"> <li>• All teams need hands-on training</li> <li>• Worklist instructions are not in place</li> </ul>	<p>Medium</p>	<p>Prior to template rollout</p>
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## Plant Maintenance (PM)

### Overall Component Rating



### Reasons for Rating

The system posts only the stock material and direct labor costs on the SAP work orders. The system cannot report total costs of maintaining the equipment, vehicle and facilities.

Maintenance plans are not generating work orders at the required mileage intervals as required by the business.

Reliance on stand-alone systems for maintenance budget planning, vehicles and road calls. Significant reporting issues.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>Work Order Integration</b>		Costs posted to cost centers Purchase requisitions are not originating from work orders	High	Within 30 days
<b>Preventive Maintenance</b>		Incorrect Maintenance Planning Results	High	Within 30 days
<b>Measurement Points and Documents</b>		Sub-equipment mileage is not updated	High	Within 30 days
<b>Equipment Master Data</b>		Equipment transfer history not recorded Vehicle information in SAP and MS Access	Medium	Prior to BI – Reporting
<b>Maintenance Planning and Budgeting</b>		Maintenance budget prepared in MS Access	Medium	Prior to fiscal year end



<b>Maintenance Training and Safety</b>		Standalone systems for Training and Safety Management	Medium	Prior to template rollout
<b>Mobility</b>		Maintenance work order completion manually entered in SAP PM	Medium	Prior to template rollout
<b>Document Archiving</b>		Manual completion of PM paperwork and invoices	Low	Prior to template rollout
<b>Refurbishment Order Processing</b>		SAP does not allow refurbishment orders with reference to a work order	None	Within 90 days
<b>Maintenance Notification</b>		Stand alone database for Road Calls	Low	Prior to template rollout
<b>Maintenance Order Processing</b>		PM order cannot close until sub-orders are closed	High	Within 30 days
<b>Reporting</b>		Difficult to build new reports Standard SAP PM reports are not utilized	Medium	Within 120 days
<b>Warranty Claims Processing</b>		Warranty is not tracked on equipment SAP Warranty Claims functionality is not implemented	Medium	Within 90 days



## Human Capital Management (HCM)

### Organizational Management (OM), Personnel Administration (PA) and Security

#### Overall Component Rating



#### Reasons for Rating

- Overall, the configuration of the Organizational Management module is well organized. The customer has turned on all integration points with the exception of the Cost Accounting / Distribution integration between OM and PA for Cost Distribution. Cost Accounting / Distribution should be turned on prior to the template rollout.
- The PA configuration appears to be sound. Prior to rolling out the template, Omnitrans needs to review the Employee Group and Sub-group configuration. Omnitrans could perform some tweaking to remove the Inactive and Terminated Employee Groups since they are not required.
- HR power users should have access to several of the utility programs SAP provides for correcting master data issues (Delete Personnel Numbers, Changing Payroll Status and Change Entry/Leaving Date).
- A change in the process of terminating employees from the system is required and is more of a training issue on how to process the Termination action in PA40.
- There are some major security concerns around access to data by managers and certain departments. This has delayed the rollout of MSS (Manager Self-Service) and granting access to specific departments that are requesting HR data. Omnitrans needs to turn on Structural Authorization and test it thoroughly.
- No custom solutions were developed and Omnitrans followed the SAP best practices for configuration of the OM and PA modules.
- The HR team recognizes the need for additional training and knowledge transfer, including additional training on reporting within OM and PA.



Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>OM Configuration</b>		Integration with Cost Accounting/Distribution	Low	Prior to template rollout
<b>PA Configuration</b>		Employee Group and Sub-Group tweaking	Low	Prior to template rollout
<b>PA Process</b>		<ul style="list-style-type: none"> <li>Utility Program Access</li> <li>Termination Action</li> </ul>	Medium	Within 30 days
<b>Security</b>		MSS (Manager Self-Service) access to master data (Structural Authorization)	Medium	Within 30 days
<b>OM / PA Training</b>		<ul style="list-style-type: none"> <li>Additional training / knowledge transfer</li> <li>Training on Reports and Queries</li> </ul>	Medium	Within 30 days



## Time Management (TM) and Payroll

### Overall Component Rating



### Reasons for Rating

Time Management needs the most focus in the HCM module at this time. Omnitrans needs to address several issues in this module in the accrual process including the configuration of accruals. A Senior SAP Time Consultant is required to address these issues. Omnitrans currently has workarounds, but requires assistance to resolve them and to get them setup properly.

Payroll also needs some focus to help address several issues that Omnitrans is currently experiencing. A Senior SAP Payroll Consultant is required to help address these issues and provide knowledge transfer to the payroll group. Issues requiring focus are as follows:

- Issuing checks immediately to terminated employees during normal payroll processing
- Re-issuing a paycheck when an employee has multiple deposit requirements (Example: direct deposit & paper check)
- Transfers from one payroll area to another
- Omnitrans recognizes that both the Time and Payroll module requires the most attention at the present. The customer also recognizes that they require additional training on reporting from these two modules.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>Time Management Module</b>		Accruals	High	Within 30 days



Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>Payroll Module</b>		<ul style="list-style-type: none"> <li>Terminated Employees</li> <li>Transfers between Payroll Areas</li> <li>Re-issuing paychecks</li> </ul>	Medium	Within 30 days
<b>Payroll Custom Programs</b>		<ul style="list-style-type: none"> <li>Step Report</li> <li>Bucket Program</li> </ul>	Medium	Within 30 days
<b>Time / Payroll Training</b>		<ul style="list-style-type: none"> <li>Additional training / knowledge transfer</li> <li>Training on Reports (Wage Type Reporter) and Queries</li> </ul>	Medium	Within 30 days



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## Benefits

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### Overall Component Rating



### Reasons for Rating

The Long Term Disability (LTD) plan coverage and cost rules need to be reconfigured for the 3 cost groupings that are setup. The plans were configured incorrectly causing the wrong coverage to display for employees and the wrong employer deduction amount to be taken out. Omnitrans currently has a workaround for the deduction issue which finance handles during the billing process. *Note:* This issue was addressed while on-site and HR just needs to make the configuration changes and test throughout the landscape.

In 2011, the final deduction of the year was missed for hourly employees enrolled in the Flexible Spending Account. These plans should be reconfigured and the master data requires an adjustment on IT0170. This problem has had a negative impact on employees.

Benefit adjustment reasons are not being utilized on IT0378 and need to be setup in configuration. In addition, a process change is required and plan enrollment needs to be done through the Benefits Enrollment Workbench.

Omnitrans recognizes additional training on the Benefits module is required along with additional reporting training for this module.





Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>Benefits Configuration</b>		<ul style="list-style-type: none"> <li>LTD plan</li> <li>FSA (Flexible Spending Account)</li> <li>Benefit Adjustment Reasons</li> </ul>	High	Within 30 days
<b>Benefits Administration</b>		Processing Benefits (using adjustment reason and the Benefits Enrollment Workbench)	Medium	Within 30 days
<b>Benefits Training</b>		<ul style="list-style-type: none"> <li>Additional training/knowledge transfer</li> <li>Training on Reports and Queries</li> </ul>	Medium	Within 30 days



## E-Recruitment

**Overall Component Rating**



**Reasons for Rating**

A more detailed analysis is required for this module. As the Omnitrans HCM scope was rather broad, a cursory review of e-recruitment was conducted. Based on the issues raised during the Review, this module is deemed high risk and requires further investigation.

Reporting is currently not working and requires further investigation.

Rejection letters were randomly being generated and sent to candidates who have an e-mail address setup in the system. No letters are currently being sent out as a workaround until this issue is resolved. Letters are being handled manually through HR.

Omnitrans recognizes additional training on the E-Recruitment module is required along with additional training on reporting for this module.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<b>Reports</b>		Reports	High	Within 30 days
<b>Forms / Letters</b>		Rejection Letters	Medium	Within 60 days
<b>E-Recruitment Training</b>		Additional training/knowledge transfer Training on Reports and Queries	Medium	Within 60 days



## Development

### Overall Component Rating



### Reasons for Rating




A standard four-system landscape is in place: Sandbox, Development, Quality Assurance and Production environments. Solution Manager is used to manage the landscape.

There is no standardized approach for RICEFW development. The use of the ASAP methodology for development will ensure that the appropriate tasks, deliverables and work products get completed.

Perform Enhanced syntax check (SLIN) and code inspector for all the custom objects; the extended check will highlight errors in the code. Add error handling to custom developed code and the program documentation. There were minimal functional specifications and technical specifications have not been developed. In addition, there was no comprehensive list of all RICEFW objects.

Topic Reviewed	Topic Rating	Finding Title	Finding Risk Level	Address-By Date
<i>Landscape</i>		Typical four system landscape using Solution Manager	None	None



<p><b>Reporting</b></p>		<ul style="list-style-type: none"> <li>• There limited use of standard SAP reports across the project team.</li> <li>• There is no standardized approach for the development of RICEFW objects.</li> <li>• No naming conventions for reports</li> <li>• No visibility of current reports in SharePoint</li> </ul>	<p>High</p>	<p>Prior to template rollout</p>
<p><b>Interfaces</b></p>		<p>Interfaces not developed leveraging current SAP methods for interface development</p>	<p>Low</p>	<p>Prior to template rollout</p>
<p><b>Enhancements</b></p>		<p>Enhancements developed using Enhancement Framework</p> <p>Cloning of SAPScript / Smartforms</p>	<p>Low</p> <p>Medium</p>	<p>Prior to template rollout</p>



## Details of Findings

### Financials (FI) / Controlling (CO)

#### General Ledger

#### Generating Financial Statement Reports

<b><i>Finding</i></b>	Omnitrans is using a third party tool to generate financial reports with a custom layout.
<b><i>Potential Impact</i></b>	This approach requires development effort when changes are required to the layout, resulting in a higher cost of report development and additional maintenance cost for support of the third party tool.
<b><i>Recommendation</i></b>	Use the Report Painter tool in SAP to develop these reports. The users will find it easy to use.  Financial statements should be developed in the Report Painter tool and included in the transit template.
<b><i>Finding Risk Level</i></b>	Low
<b><i>Address-By Date</i></b>	Prior to template rollout

#### Accounts Payable

#### Closing Service related Purchase Orders & accruing expenses

<b><i>Finding</i></b>	Omnitrans follows the practice of closing service-related purchase orders (PO) and accruing for invoices not received for the relevant fiscal year. The invoices are posted the following year as a financial invoice not tied to the PO.
<b><i>Potential Impact</i></b>	This process is complicated and time intensive. This process also limits visibility to the completion of purchasing transactions.
<b><i>Recommendation</i></b>	Streamline the process to provide a better audit trail for purchasing transactions.  Consideration should be given to allow posting these



invoices in period 13.

**Finding Risk Level** Medium

**Address-By Date** Within the next 30 days

### **Incorrect sales / purchase tax code default on invoice entry**

**Finding** Before the upgrade of SAP ECC to EhP4, the tax code used to default from the Purchase Order during the execution of the MIRO transaction. The tax code no longer defaults, resulting in manual intervention by the user.

**Potential Impact** This additional step adds time to the data entry process.

**Recommendation** Research the issue, reviewing system configuration to identify any changes since the upgrade.

**Finding Risk Level** None

**Address-By Date** Prior to template rollout

### **Correction of Incorrect 1099 Code in Transactions to be executed in mass**

**Finding** Omnitrans is assigning some vendors the incorrect 1099 code.

**Potential Impact** This error increases the risk of incorrect tax deductions and / or tax reporting.

**Recommendation** Use the mass change functionality in SAP to make changes to incorrect transactions in an effort to save time. Users should be diligent at the time of assigning the 1099 code in the vendor master data.

**Finding Risk Level** Low

**Address-By Date** Prior to year end close

## **Accounts Payable / Procurement**



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## Timely recording of goods receipt

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<b>Finding</b>	The receiver is not entering a goods receipt (GR) in SAP at the time of physical receipt. Omnitrans asks the receiver to wait for the invoice from the vendor in order to record the GR.
<b>Potential Impact</b>	This process produces inventory inaccuracies, with the potential for out of stock and / or over stocked inventory. This is not a good business practice. Steps should be taken immediately to change this process.
<b>Recommendation</b>	Change the receiving process to record the GR at the same time as the physical receipt.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	As soon as possible

## Accounts Receivable

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### Printing of Credit Memo document

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<b>Finding</b>	The user is unable to print a credit memo document in the Financial Accounting module of SAP ERP.
<b>Potential Impact</b>	This adds time to the credit memo process since the user has to create a credit memo outside SAP.
<b>Recommendation</b>	A Credit memo form should be developed and assigned to the customer credit memo variant in transaction code F.61.
<b>Finding Risk Level</b>	Low
<b>Address-By Date</b>	Future enhancement consideration



## Cost Center Accounting

### Calculate Activity Type Rate using Planning functionality

<b>Finding</b>	The user is calculating the Activity type Rate outside SAP and manually assigning the rate to a labor cost category. The planning process at Omnitrans is at the cost center level and is mainly outside of SAP ERP.
<b>Potential Impact</b>	This is a manually intensive process with limited visibility to performance of individual functional areas.
<b>Recommendation</b>	Conduct planning in a bottom-up approach by functional area like HR, PM. Then, roll up the plan data to the cost center level.
<b>Finding Risk Level</b>	Low
<b>Address-By Date</b>	Future enhancement consideration

## Procurement (SRM-PPS / MM)

### Integration PPS, MM, and HCM

#### Integration

<b>Finding</b>	<p>Plant Maintenance functions are not integrated with MM Planning functions</p> <p>SRM and PPS functions are only partially implemented</p> <p>Year-end closing processes are not integrated</p> <p>Goods Receipts not recorded until Invoice is also recorded</p> <p>SRM and HCM are not systematically integrated</p>
<b>Potential Impact</b>	Integration at Omnitrans is largely done outside of the system using manual processes. Requisitions for Plant Maintenance orders are being manually created with the account assignment charged to a cost center. As these PR's do not reference the PM work order, it disrupts the





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materials planning process and makes cost settlement difficult.

In the year-end closing process, Open Purchase Orders are closed and then re-created in the following year as new Purchase Orders. This increases the workload on Procurement staff and causes confusion with the supplier base. This artificial closure of the documents impacts the ability to evaluate suppliers as gaps are created in the timing of deliveries and invoices.

Omnitrans should post invoices and Goods Receipts when received. Withholding the posting of a Goods Receipt can have a negative impact on supplier ratings, skew inventory quantities, negatively impacts Budget availability, and understate inventory GL balances.

HCM and SRM can be automatically integrated using change pointers in ECC or manually using transaction PFAL. This integration is not currently being used and manual integration is inconsistent.



**Recommendation** PM and MM should be integrated so that demand generated from PM orders create requisitions which tie back to the Work Order. The Requisition should have the 'F' account assignment type so that the cost of the goods can more easily be tracked back to a specific work order. If using the same account assignment for Internal Orders and Maintenance Orders causes confusion, create unique account assignment types for each to clearly identify a specific Order type.

Consider using a special period for invoice posting for previous year open items.

Supplement financial integration by reviewing the business needs of each functional area. Establish tolerances on an invoice that validate variances between the PO and the invoice value. Set additional tolerances at the PO level to prevent over-deliveries. Review these tolerances to allow for MM processes to be normalized while still achieving Financial goals.

Integration between SRM and HCM functional areas is critical, even if not done automatically. Several functions in HCM do not have a corresponding SRM function, position based security for example. The assignment of users to positions and the maintenance of their master data are critical to the functionality of the system. Standing meetings or well-defined processes should be established to ensure that communication channels between HCM and SRM are in place.

**Finding Risk Level** High

**Address-By Date** 30 days




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## Reports, Interfaces, Conversions, Extensions, Forms, and Workflow (RICEFW)

### RICEFW & Technical Settings

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<b><i>Finding</i></b>	<p>Reporting capabilities of SRM and ECC are not being fully utilized</p> <p>Workflow is not in place for Purchase Orders</p> <p>Director of Procurement and CEO are not included in existing workflows</p> <p>Document output via e-mail is no longer functional</p> <p>PO form is printing the Internal Version rather than the external version</p> <p>Business Activation sets are only partially activated for required functions</p>
<b><i>Potential Impact</i></b>	<p>Several functions that have not been successfully implemented are causing duplicate efforts and confusing business processes in Procurement.</p> <p>The CEO is the individual authorized to issue Procurements. The CEO and Director of Procurement are not receiving workflows for document approval.</p>
<b><i>Recommendation</i></b>	<p>Review the business needs in that areas of Account Assignment and compare the business needs to the existing configuration. Configure default account assignments by Product Category to enable an automated population of the Account assignment data in SRM.</p> <p>After the implementation of EhP4, email output of documents is no longer functional. Review and repair as necessary the technical configuration of the email output to reduce the cost of processing and manually sending/faxing documents to suppliers. Include security as a new security change may also limit functionality without providing a notification to the end-user.</p> <p>In order to ensure compliance with internal policies and procedures, include the Director of Procurement and the CEO in the workflow process. Implement a workflow for Purchase Orders.</p> <p>Change the content of the Smartform used to output</p>



PO's so that correct version of the PO is printed.  
Currently the first document output shows a '2' rather than the first version.

**Finding Risk Level** Medium

**Address-By Date** Within 3 months

## Supplier Relationship Management (SRM) Procurement for Public Sector (PPS)

### SRM/PPS – Shopping Carts/Requisitions

**Finding** End-user training was done at the last minute and users have a hard time navigating.

Catalogs have been configured in Production but none are assigned to users in the Organizational Structure.

Shopping Carts create funds pre-commitments at the time the document is saved.

**Potential Impact** Although catalogs have not been implemented, the presence of unused/tested configuration raises the possibility that it could be referenced and activated inadvertently. Configuration that is not to be used in a Production client should not be transported into that environment.

**Recommendation** Remove the unused Catalog configuration from Production to prevent the assignment to end-users. Do this in Development where the removal is verified and tested and then transported through a Quality environment and then on to Production.

Maintain end-user training materials. These materials ensure that users know which processes to follow in order to achieve a desired outcome. Documenting these processes helps to maintain organizational continuity in the event of staff turnover and helps to bring new resources up to speed faster than one-on-one training. As there are multiple ways to create Shopping Carts, identifying when to use each and how will reduce help



desk calls.

Activate Shopping Cart commitments in ECC and complete configuration in SRM. Enhancements have been implemented to change the point in the process when pre-commitments are created. Omnitrans expressed a desire to change to the standard functionality, which creates the pre-commitment at the time the Shopping Cart is approved.

**Finding Risk Level** Medium

**Address-By Date** Within 3 months

## SRM/PPS – Strategic Sourcing

<b>Finding</b>	<p>Solicitations for Services are not done in SRM</p> <p>Document Builder and Records Management have not been implemented</p> <p>Supplier Evaluation is not implemented</p> <p>Sourcing of Shopping Carts is only partially implemented</p>
<b>Potential Impact</b>	<p>With the procurement of services maintained outside of the system, Omnitrans is not taking advantage of several functions offered in the. This lack of functionality slows down processes that could otherwise be automated.</p> <p>Without Supplier Evaluation configuration in ECC, the evaluation of Suppliers must be done outside of the system, if done at all. The lack of functionality to evaluate suppliers could lead to future business with unworthy suppliers.</p> <p>Sourcing via ECC can lead to Requisitions being sourced to suppliers when they should not. As of ECC 4.0, sourcing is done automatically and if a single inforecord is found for a material, the source from that inforecord is used by default. As the PR has a source (essentially a sole source), it does not go out for RFx.</p>



**Recommendation** Implement the use of standard SRM Service functionality to allow the system to be used to solicit and receive services. This would enhance reporting accuracy, allow for automated source selection, and drive procurement to documented contracts in the system.

Implement OSS note 157830 to prevent the sourcing of PRs to vendors of historical procurements automatically.

Configure Vendor Evaluation in ECC. The standard evaluation criteria (Goods Receipt time, Goods Receipt Quantity, Invoice Value, etc.) should be implemented to capture quantifiable criteria.

**Finding Risk Level** Medium

**Address-By Date** Within the next three months

## SRM/PPS – Purchase Orders and Contracts

**Finding** Service Contracts are not done within SRM  
 Document Builder has not been implemented  
 PPS Functions have not been utilized  
 Standard Service functionality is not being utilized

**Potential Impact** Although PPS has been activated in SRM, very little corresponding functionality has been activated in ECC. As such, the chosen functionality in SRM does not function.

Without Document Builder, the staff creates legal contracts manually which can be different depending upon the author. Implement Document Builder to enforce the creation of consistent legal documents.

Service items are not widely used in SRM or ECC and as a result, the quantity and value of line items must be flipped. This skews reporting on PO line item values if reports are not pulled correctly.



**Recommendation** Review SRM/PPS functionality and activate the required functions in SRM and ECC. Activating functionality in ECC will facilitate the usage of multiple account assignments on single line items and the conversion of the Shopping Cart commitment process from custom to standard.

Implement Document Builder to enforce the creation of consistent legal documents. This function helps to build contract, solicitation, and PO documents that are based on document content and business rules rather than historical knowledge.

As Service functionality has been used in the system, perform further testing to validate the business process. Service functionality allows line items to be established with values that are in the correct fields. User training should be done to highlight the differences in the receipt and invoicing processes.

**Finding Risk Level** Medium

**Address-By Date** Within the next three months

## Materials Management (MM)

### MM – Planning (MRP)

**Finding** Omnitrans has 1 Plant and two storage locations for storing materials.  
Lack of integration causes poor visibility to long-term needs.

**Potential Impact** MRP Processing depends on the information that is fed into it. As work orders are planned, the system automatically passes to MRP.

**Recommendation** Integrate MRP into the replenishment process by generating requirements from PM work orders. By planning requirements further, rush orders can be reduced, volume purchases can be established, and overall cost per unit reduced.



Having a single Plant means that all MRP is run at one level. Establishing MRP areas or planning stock levels at the Storage location level will help to provide better visibility to stock needs at both facilities. With better visibility, stock movements and transfers can be planned more efficiently.

**Finding Risk Level** Medium

**Address-By Date** Within the next three months

## MM - Inventory

<b>Finding</b>	<p>Many Physical Inventory (PI) sessions active</p> <p>Materials missing Cycle Count indicators</p> <p>Materials still to be counted</p>
<b>Potential Impact</b>	<p>Physical inventory documents can have negative impacts on the availability of materials as well as on future PI processes. Materials with active PI documents will not be counted again until open documents are closed. The number of outstanding documents can cause the number of documents created in subsequent runs to be erratic.</p> <p>Materials without the Cycle Count indicators selected will not be chosen in the cycle counting runs. These materials would need to be processed in another way.</p>
<b>Recommendation</b>	<p>Ensure that all materials are covered by a physical inventory process. Materials without a Cycle Count indicator should be updated and an indicator assigned to ensure that they are included in the count process at least once per year.</p> <p>The outstanding Physical Inventory documents should be processed if still valid and deleted if not. If processing of the Physical Inventory documents is too cumbersome and staff intensive, the Inventory Sampling method should be evaluated.</p>





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**Finding Risk Level** Medium

**Address-By Date** Within next three months



## Funds Management (FM)

### FM Master Data

#### Fund Master Data Design

<b><i>Finding</i></b>	Currently there are only two funds (1000 – Operating Fund and 2000 – Capital Fund).  The two funds are categorized as the exact same fund types in configuration.
<b><i>Potential Impact</i></b>	FM master data structure is overly simple which limits the granularity of posting dimension details in FM and reporting.
<b><i>Recommendation</i></b>	Operating Fund and Capital Fund should be the Fund Types, which are already created in configuration. Under these two fund types, new fund master data can be created for a new funding source. For example, if all grant fund is categorized as Capital Fund type in FM, new fund master data can be created when a new grant fund is awarded.
<b><i>Finding Risk Level</i></b>	Low
<b><i>Address-By Date</i></b>	Future enhancement consideration

### FM Derivation Strategy

#### FMDERIVE Trace Tool

<b><i>Finding</i></b>	Overall, the current FMDERIVE is sufficient to derive all FM objects for core business processes at Omnitrans.
<b><i>Potential Impact</i></b>	No impact
<b><i>Recommendation</i></b>	If there are changes in the FM master data structure, the FMDERIVE strategy will have to be redesigned. The FM derivation strategy is integral to the funds derivation process and will require periodic reviews.
<b><i>Finding Risk Level</i></b>	None



**Address-By Date** None

## FM Budgeting

### Budgeting and AVC

**Finding** Currently, Omnitrans performs budget preparation outside of SAP, which requires extensive manual effort.

There are four budget versions (0, 100, 110, 990); However, budget is loaded with the same budget data four times to each budget versions

Budget is consumed at the pre-commitment level with availability checked at the Fund/Fund Center/Funded Program/Commitment Item level.

Currently, Omnitrans only uses budget distribution key 1 for equal distribution.

**Potential Impact** Increased workload in the budget preparation process that is prone to errors as a result of manual efforts.

**Recommendation** Consider using standard CO functionalities to perform planning, replacing the third party planning tools and minimizing manual effort.

Re-evaluate loading budget four times to each version with the same data in the budgeting process. This is duplicate effort.

Configure a new budget distribution key, for example, Z0, for non-equal distribution which is required by the business.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout




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## FM Reporting

### Reporting

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<b><i>Finding</i></b>	Currently no standard FM reports are generated. All reports are developed as custom reports.
<b><i>Potential Impact</i></b>	Lengthens the FM reporting process to extract data from SAP and load it for external processing. Increased maintenance costs as resources will be required to make updates that will result from SAP process changes (via upgrades / support packs), business changes and error corrections.
<b><i>Recommendation</i></b>	Utilized standard FM ECC reports and / or FM drill down reports.
<b><i>Finding Risk Level</i></b>	Low
<b><i>Address-By Date</i></b>	Prior to template rollout

## Multi-Funded Projects / Grants Cost Sharing

### Cost Sharing

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<b><i>Finding</i></b>	Currently, for multi-funded projects / Grants cost sharing purchase requisition or purchase order, users manually split the line item into multi lines to enter multiple account assignment.  Manual data entry has caused incorrect postings.
<b><i>Potential Impact</i></b>	Time intensive process for manual splitting, as well as corrections for inaccurate postings. In addition, where incorrect postings are not caught at the time of entry, risk of inaccurate fund / grant distribution.
<b><i>Recommendation</i></b>	Consider implementing Rule Based Account Distribution tool to eliminate the manual splitting data entry process.
<b><i>Finding Risk Level</i></b>	Medium
<b><i>Address-By Date</i></b>	Prior to template rollout



## Integration

### Integration with SRM

<b>Finding</b>	A custom BAdI is implemented to consume budget at the pre-commitment level (purchase requisition) when the shopping cart item is created prior to approval.
<b>Potential Impact</b>	The current process consumes budget before it is approved. This is not a best practice for budget consumption.
<b>Recommendation</b>	Deactivate the BAdI and use standard AVC in conjunction with approval workflow.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Within 3 months

## Closing

### Year End Close

<b>Finding</b>	<p>Finance reported that an error occurs when executing FMJ2 Year End Close – Carry Forward of Open Items transaction.</p> <p>Finance has to close Purchase Orders for which there are no received invoices as part of the year-end close process. Purchasing is not able to reference the PO when the invoice is received raising issues.</p>
<b>Potential Impact</b>	<p>Year-end close cannot be completed.</p> <p>The Purchasing department cannot reference the original PO when the invoice is received. This increases workload on the Purchasing department and impacts the accuracy of supplier evaluations.</p>
<b>Recommendation</b>	<p>Look into OSS notes 1336499, 1416272, 1312400 for possible issue resolution for the FMJ2 error message.</p> <p>Consider using special period for invoice posting for previous year open items.</p>



**Finding Risk Level** High for finding #1, Medium for finding # 2

**Address-By Date** Prior to year-end close for finding #1  
Within next 30 days for finding #2

## Grants Management (GM)

### GM Master Data / General Settings

#### Grant Types

**Finding** New grant type is created in configuration when new grant funding source is awarded.

The lifecycle network, posting control, budget layout and FM budget type integration assigned to each grant type have the exact same settings except the number range.

There is no grant type set up for pass-through grants.

**Potential Impact** Based on the current grant business process, there are too many grant types created. This creates a level of complexity for grant maintenance.

Grant types are not being used for its intended purpose: to control each grant's characteristics such as lifecycle network, posting control, budget layout and FM budget type integration.

**Recommendation** Consider consolidating grant types if they have the same control characteristics.

Consider using Fund to track grant funding source instead of creating new grant type.

Consider setting up a grant type to track pass-through grants.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

#### Grant Master Data Elements

**Finding**

Sponsored Program has one to one relationship with Internal Order (IO) or Work Breakdown Structure (WBS) and Funded Program.

Sponsored Class has one to one relationship with high level Commitment Item. For example, Grant Expenses Commitment Item equals Grant Expenses Sponsored Class.

No grant revenue sponsored class is assigned to the grant master.

The process of creating an additional grant master to track pass-through outgoing grant does not have visibility of the relationship between incoming and outgoing grants.

Award Type is not being used.

Grant master data is always set up with a status - "Award".

**Potential Impact**

Grant master data dimensions design is at a very high level and may cause the inability to track and report all required dimensions based on sponsor's reporting requirements.

Grant revenue is recorded at the Fund level and not at the grant level.

No visibility of pass-through outgoing grants on the grant master.

Award Type can be used to categorize grants for SEFA (Schedule of Expenditures of Federal Awards) reporting.

Not fully utilizing grant status to control different allowable postings in each status.

**Recommendation**

Revisit the grant master data dimensions and reconsider the current mapping of the fields to have the granularity of needed reporting dimensions.

Strong consideration should be given to replacing the manual Excel effort to perform grant reporting, utilizing SAP GM reporting.

Consider using Relationship and Object Mapper to record the Sponsor relationship as well as the mapping of incoming and outgoing grants.



Consider using Award Type to categorize grants for reporting (i.e. -SEFA report fields).

Consider using grant status to implement posting controls in each status.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

### Derivation Strategy

**Finding** Internal Order or WBS derives Grant.  
Funded Program derives Sponsored Program.  
Commitment Item derives Sponsored Class.

**Potential Impact** No impact.

**Recommendation** Consider changing derivation strategy if grant master data dimensions design is enhanced in the future based on the above recommendations.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

### Update Settings

#### GM Update Settings

**Finding** Currently, when a grant funded payroll entry is reversed, the reversal is not reflected in grant billing.  
GM value type update settings may not meet all grant business transactions.

**Potential Impact** Certain business transaction may not be updated in GM correctly.  
Incorrect update settings will impact data accuracy and grant billing.

**Recommendation** Revisit update settings for all GL accounts to *ensure*:





The correct value type is used.  
 The grant is derived correctly through derivation or split processor  
 The statistical indicator is set correctly.  
 Revisit the update settings for controlling specific settings.

**Finding Risk Level** High

**Address-By Date** ASAP

## Budgeting

### GM Budgeting / AVC

**Finding** GM budgeting is configured for both Released and Unreleased budget and it is a two-step process to enter a budget entry document in GM.  
 Budget distribution key 1 is always used for even distribution.  
 Omnitrans checks GM AVC using FM AVC.  
 GM budget process settings are incomplete.

**Potential Impact** Not using the Released and Unreleased budget functionality correctly and the current two-step GM budget creation process results in additional work.  
 There is no budget distribution key for non-even distribution.  
 Since FM has lower level master data details, there's no impact to do AVC using FM AVC.  
 The incomplete GM budget process configuration settings may have caused the FMJ2 budget type error for year-end closing.

**Recommendation** If there is not a valid business requirement to do Released and Unreleased budgets, revisit the configuration to remove the two-step process when GM budget entry document is created.



Consider configuring a non-even budget distribution key.

If GM master data dimensions design is enhanced, consider using GM AVC for GM budget availability control.

Revisit configuration settings for GM budget processes.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

## Reporting

### GM Reporting

**Finding** Not using any standard ECC reports in GM.  
 Many custom reports in place to meet the sponsor's reporting requirements.  
 Extensive manual effort is required to do reporting as a result of the high level master data dimensions design in GM.

**Potential Impact** Not fully utilizing standard reports in GM due to the high level design of GM master data.  
 Costly to maintain custom reports.

**Recommendation** Strong consideration using standard GM reports.  
 Hands-on training should be provided by a seasoned SAP GM consultant, in order to exposure users to standard reporting within GM.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

## Cost Rule

### GM Indirect Cost Rule

**Finding** GM Indirect Cost (IDC) Rule configuration settings do




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	not include value type 95 for secondary cost posting.
<b>Potential Impact</b>	Incorrect IDC postings in GM
<b>Recommendation</b>	Include value type 95 in GM indirect cost rule configuration
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	ASAP

## Grant Billing

### Manual grant billing process

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<b>Finding</b>	Use resource-related billing to perform all GM billing Grant billing process requires manual worksheet effort due to the master data details available in GM.
<b>Potential Impact</b>	GM billing requires long processing time
<b>Recommendation</b>	Consider revisiting GM master data dimensions design to get GM billing data directly from the system to reduce the manual effort.
<b>Finding Risk Level</b>	Low
<b>Address-By Date</b>	Prior to template rollout

## Grant Cost Sharing

### GM Cost Sharing

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<b>Finding</b>	For grants that require cost sharing, the percentage split is calculated and entered manually on the purchase requisition or purchase order.
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<b>Potential Impact</b>	The manual data process exposes higher risk of incorrect data entry.
<b>Recommendation</b>	Consider implementing standard Rule Based Account Distribution tool to split the line item based on the cost-sharing rule automatically.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Prior to template rollout

## Integration

### Lack of Business Process Integration

<b>Finding</b>	<p>The current GM design is not fully integrated with other modules.</p> <p>For grant funded SBX project activities, the grant IO is set to track SBX spending; PS uses WBS with the exact same numbering scheme.</p> <p>No easy way to generate a report to track SBX related spending.</p>
<b>Potential Impact</b>	<p>Duplicate master data set up in GM and PS for grant funded SBX activities, makes data analysis and reporting challenging.</p> <p>Cannot track expenditures by SBX project.</p> <p>No true budget to actual at the SBX level because budget is against an IO.</p>
<b>Recommendation</b>	<p>Consider using WBS instead of an Internal Order for grant funded SBX activities.</p> <p>Create GM budget at the WBS level (Funded Program level in FM and Sponsored Program in GM) and post actuals at the same budget level in order to get the budget to actual data at the WBS level.</p>
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Within the next 3 months



## Project Systems (PS)

### Integration

#### Limited Project Systems functionality implemented

##### ***Finding***

- Limited PS functionality has been implemented. The current setup does not support the successful management of Capital.
- The capital projects have neither management reporting nor allow visibility to goals, cost effectiveness, planning, scheduling and control.
- Capital projects lack standard project management processes and practices. Omnitrans PS resources were available for 2 hours to discuss current PS processes.
- No E2E business process integration has implemented in PS.

##### ***Potential Impact***

Inability to effectively project manage capital projects.

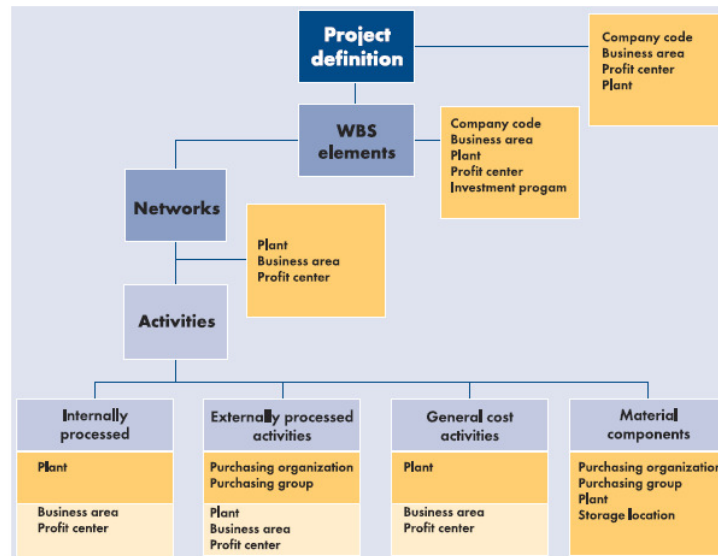
Unable to derive benefits, achieve optimal functionality or use of techniques that are in PS.

##### ***Recommendation***

- Engaged SAP PS expertise to assess which PS functionality should implemented to enable better process integration. Appendix IV outlines PS functionality in greater detail.
- Companies have been successfully using the Project System for years in almost all industries. Not only does the engineering and construction industry benefit from the high level of functionality and flexibility, but also industries like Automotive, Professional Services, and Public Sector for example.
- The SAP system is very flexible in allowing depiction of very complex enterprise structures. By suitably assigning objects in the Project System to organizational units in Logistics and Accounting, Omnitrans can fully integrate projects into the existing enterprise structure. This enables PS to present data clearly and in many different ways as depicted in the graphic below.



### Organizational Structures



- Target eliminating offline manual processes.
- Schedule weekly team lead meetings to discuss integration topics. Include other teams in future discussions to expand the use of PS.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

## Project Planning and Scheduling

### Project Planning and Scheduling Interface

**Finding** No interface to Primavera for project planning and scheduling.



- Potential Impact**
- Inability to effectively manage and analyze capital projects.
  - Increased maintenance costs from not leveraging standard SAP interfaces to Primavera.

**Recommendation** Make plans to implement the SAP interface to Primavera in order to develop E2E business processes with the other departments. Technically, integrating SAP and Primavera is EASY! Appendix IV highlights some considerations that will require planning.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

### **Project Planning and Scheduling on Capital Projects**

**Finding** No Planning or scheduling process on capital projects

**Potential Impact** Inabilities to effectively project manage capital projects

**Recommendation** Consider the implementation of PS functionality for planning and scheduling. Appendix IV outlines key PS functionality that support planning and scheduling.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout



## Split Funding

### Split-Funding Requirements

<b>Finding</b>	No split funding functionality
<b>Potential Impact</b>	Inability to transfer budget allocations (qualitative and quantitative) to individual departments as part of the budget planning process.
<b>Recommendation</b>	<ul style="list-style-type: none"> <li>• Complete the business process design for the funds management derivation strategy.</li> <li>• Other areas to design and implement:             <ol style="list-style-type: none"> <li>1. The reconciliation of funds applications from individual departments and the moderation of budget negotiations.</li> <li>2. The monitoring of proper budget management is part of a budget planner's task area, as is the coordination of budget changes during the year (i.e., supplements, returns and transfers).</li> </ol> </li> </ul>
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Prior to template rollout

## Multi-funded Projects and Grants

### Multi-funded Projects and Grants

<b>Finding</b>	<p>One Capital project with multiple funding grants.</p> <p>Unable to conduct financial reporting within SAP with current process.</p> <p>There is a need to have an automatic splitting of costing between objects.</p>
<b>Potential Impact</b>	Incomplete integrated design, potential for conflict with FM derivation strategy.
<b>Recommendation</b>	Design multi-funded projects and grants process, to ensure that the rule design is complete. A Senior FM consultant must lead this effort with integration focus.





**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

## Overhead Allocations

### Overhead Allocations for Projects

**Finding** Collection of labor rates (activities) is not captured within the current project systems solution.

**Potential Impact** Incomplete integration design with Project Systems

**Recommendation** Design business process to allocate overhead costs within capital projects. SAP PS provides the functionality denoted below for calculating overhead costs.

#### Calculating Overhead

The system allocates planned and actual overhead to work breakdown structure (WBS) elements and networks. The user can have the system carry this out either in proportion to the unit costs or by using templates. If the user chooses the latter, the system distributes the overhead to business processes, or cost centers, or activity types according to what caused them.

In planning, the system automatically determines the overhead in the network as part of costing and updates it to the network header or activity.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout



## Project Actuals

### Project Actuals (Costs, Revenue, Commitments)

<b><i>Finding</i></b>	<p>Capital Projects do not capture actual costs and revenue.</p> <p>Commitments are not capture in a method which allows the project manager to report and analyze.</p> <p>Capital projects have neither management reporting nor visibility to goals, cost effectiveness, planning, scheduling and control.</p> <p>Lacks standard project management processes and practices.</p>
<b><i>Potential Impact</i></b>	<p>Project manager can not accurately report on capital projects, nor manage resources.</p> <p>Benefits of integration with FI, CO, PM, FM,GM, MM, AM &amp; HR cannot be realized.</p>
<b><i>Recommendation</i></b>	<p>Implement PS functionality to capture actual project costs. Appendix IV outlines PS functionality for capturing actual costs.</p>
<b><i>Finding Risk Level</i></b>	<p>Medium</p>
<b><i>Address-By Date</i></b>	<p>Prior to template rollout</p>

## Month / Year-end Processing

### Month End (Periodic Processing) Process for Activities in Project Systems

<b><i>Finding</i></b>	<p>No business process for month end for capital projects</p>
<b><i>Potential Impact</i></b>	<p>Project Managers can't accurately report month end costs.</p> <p>Project Mangers cannot accurately assess and implement cost saving measures.</p>
<b><i>Recommendation</i></b>	<p>Ensure ongoing integrated discussions to finalize the month end process. Appendix IV outlines periodic and</p>



closing processes within PS.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

### **Year end (Periodic Processing) Process for Activities in Project Systems**

**Finding** No business process for year end for capital projects

**Potential Impact** Project Managers can't accurately report year end costs.  
Project Managers cannot accurately assess and implement cost saving measures.

**Recommendation** Ensure ongoing integrated discussions to finalize the year-end process. Appendix IV outlines periodic and closing processes within PS.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

## **Project Budgeting and Cost Planning**

### **Budgeting for Projects**

**Finding** There is no business process in place to complete budgeting on a capital project or PM project.  
The current business process for assigning grants on a capital project do not allow for proper reporting, and collection.

**Potential Impact** Inaccurate monthly and yearly budget preparation by departments.

**Recommendation** Implement PS functionality for budgeting. Appendix IV outlines PS functionality for budgeting.

**Finding Risk Level** Medium



**Address-By Date** Prior to template rollout

### Cost Planning for Projects

**Finding** No business process in place to complete cost planning on a capital project or PM project. This is currently done using Excel.

**Potential Impact** Inaccurate cost planning can lead to cost overruns.

**Recommendation** Implement PS functionality for cost planning. Appendix IV outlines PS functionality for cost planning.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

### Project-Oriented Material Management

**Finding** No current business process for material management on capital projects and PM projects.

**Potential Impact** Incomplete integrated design, potential for conflict with derivation strategy design.

**Recommendation** Implement PS functionality for material management of projects. Appendix IV outlines PS functionality for project oriented material management.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout




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## Services and Projects

### Services and Projects

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<b><i>Finding</i></b>	No current business process for commissioning services directly in a capital or PM project.
<b><i>Potential Impact</i></b>	Services may not be commissioned via best practice. Correct allocation of funding is not accurately collected.
<b><i>Recommendation</i></b>	Implement PS functionality for Service Projects. Appendix IV outlines PS functionality for Service Projects.
<b><i>Finding Risk Level</i></b>	Medium
<b><i>Address-By Date</i></b>	Prior to template rollout

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### Training

<b><i>Finding</i></b>	Limited to know training has been provided on SAP PS functionality. Business Process Procedures (BPPs) or worklist instructions are not in place.
<b><i>Potential Impact</i></b>	Limited PS functionality will be used. In addition, the risk for potentially using PS functionality incorrectly increases.
<b><i>Recommendation</i></b>	Create BPPs or worklist instructions for team members.  Engage a Senior SAP PS resource to provide hands-on exposure to PS.
<b><i>Finding Risk Level</i></b>	Medium
<b><i>Address-By Date</i></b>	Prior to template rollout or release of additional PS functionality.



## Plant Maintenance

### Work Order Integration

#### Work Order Integration with Costing and Procurement

<b><i>Finding</i></b>	<p>External procurement costs are posted to the cost center.</p> <p>Not possible to get complete cost of maintaining equipment, vehicle or facility.</p> <p>Maintenance purchase requisitions are not originating from work orders.</p>
<b><i>Potential Impact</i></b>	Cannot obtain the complete cost of maintenance by equipment, vehicle or facility.
<b><i>Recommendation</i></b>	<p>Create requisitions for services and non-stock part purchases from the work orders.</p> <p>Use work order as the account assignment object on purchase orders and invoice document.</p> <p>Implement service entry sheets and framework purchase orders for contracts – with services requisition initiated from the work order and service acceptance acting as the good receipt.</p> <p>Start using work order as the account assignment for the P-card invoices.</p>
<b><i>Finding Risk Level</i></b>	High
<b><i>Address-By Date</i></b>	Within 30 days

## Preventive Maintenance

### Incorrect Maintenance Planning Results

<b><i>Finding</i></b>	<p>The system does not generate preventive maintenance calls correctly. The system created the order earlier than required with incorrect mileage.</p> <p>The system currently shows one or more days of lag time between the time the work is done and the time the work order completes in the system. In the meantime,</p>
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the vehicle accumulates more mileage in service.

The Call Horizon is set at 85%. However, the system sometimes generates the work orders early.

The maintenance plans cannot be quickly created with reference to existing maintenance plans. Omnitrans requires users to create maintenance plans manually and, if Omnitrans purchases several buses at the same time, this results in manual creation of say 100 maintenance plans.

**Potential Impact** Requires manual adjustment by user to each maintenance plan and the maintenance plan is unable to auto generate the maintenance orders at the required mileage.

**Recommendation** Change maintenance plan shift factors from 100 to 0 and technically complete the orders using the actual completion date as the reference date. If this does not work, open a CSS Message. Custom requirements may need to be implemented in a user exit.

Use a custom BDC load program to create maintenance plans in mass.

**Finding Risk Level** High

**Address-By Date** Within 30 days

## Measurement Points and Documents

### Sub-equipment Mileage is Not Updated

**Finding** Measurement points (for mileage) are not assigned to the sub-equipment.

The measurement point on the vehicle equipment is not setup to transfer counter data to sub-equipment.

**Potential Impact** No mileage information on the sub-equipment; upon install the vehicle mileage does not transfer to the sub-equipment.

**Recommendation** Create and assign measurement counter to the sub-equipment(s) and on the superior equipment's measurement counter (of same characteristic) check



mark the indicator to allow data transfer from the superior equipment. Upon install from the reference date and time, the mileage will transfer to the sub-equipment. Upon removal, the measurement point will not get transfer readings from any superior equipment until it is installed at superior equipment again.

**Finding Risk Level** High

**Address-By Date** Within 30 days

## Equipment Master Data

### Equipment Transfer History Not Recorded

**Finding** The system has not been configured to create change records if the equipment's plant section is changed, i.e., vehicle assigned from east to another location.

Facilities equipment uses external number range in place of the Functional location.

**Potential Impact** System unable to track previous location(s) of the equipment (vehicle).

Without functional location hierarchy, for facilities equipment, it will be difficult to track the movement of facility equipment across the zones.

**Recommendation** Activate change history for plant section and other fields for which change history records should be prepared using t-code OIEZ.

Build functional location hierarchy for Facilities, install existing equipment to appropriate locations.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### Vehicle information in SAP and Access

**Finding** Vehicle Information database is in a stand-alone MS Access database and complete vehicle attributes are not





	maintained in SAP.
<b>Potential Impact</b>	Extra effort involved in maintaining multiple databases. This complicates reporting and analysis.
<b>Recommendation</b>	Move the vehicle database to SAP, as classification or Z-fields on the Equipment record.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Prior to the start of the BI-Reporting project

## Maintenance Budget Planning

### Maintenance Budget Database (currently in MS Access)

<b>Finding</b>	The maintenance budget is prepared in MS Access. Data needs to be fed from SAP to the maintenance budget database so reports can be run.
<b>Potential Impact</b>	Takes excessive time to prepare budget for the year and the access database cannot provide daily, monthly, quarterly or real-time reports.
<b>Recommendation</b>	Implement SAP PS module in integration with existing SAP PM module to enable real-time reporting and quicker budget preparation process. Further, implement SAP PPM 5.0 stand-alone or with integration to SAP PS module for enterprise project and portfolio management.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Before Fiscal Year End

## Maintenance Training and Safety

### Standalone Systems for Training and Safety Management

<b>Finding</b>	Maintenance Courses and Training records are managed via spreadsheets.
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HR uses a subscription web-based application to manage training courses and sessions for employees.

Departments use separate software to manage training courses and there is no centralized solution that is integrated with SAP HR or SAP PM Work orders.

**Potential Impact**

No easy way to report on:

training requirements

courses available or applicable to the position

certifications completed by employee

Issues with OSHA 300 reporting for Incident Management.

**Recommendation**

Implement SAP E-Learning solution or the Success Factor Learning solution, implementing integration with HR qualifications and personnel records.

Implement SAP Environmental Health and Safety module across supply chain and for OSHA 300 incident reporting requirements in Human Resources.

Implement Operational Risk Management for EAM (requires Enhancement Pack 6) for building safety measures on work orders.

**Finding Risk Level** Medium

**Address-By Date** Prior to template rollout

## Interface and Real-time Data with Mobility

### Ease of use for SAP EAM users

**Finding**

Technicians complete maintenance work orders on paper and data (time and catalog) is entered into SAP by data entry clerks.

SAP work order completion data is not real-time and there is a lag of 1 plus days between the time work was actually completed and when the order is technically




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	completed in SAP.
	Requirement to automate and allow technicians and stock room use mobile devices / better front-ends to perform daily tasks.
<b>Potential Impact</b>	Users need to be trained in multiple SAP screens or double data entry as clerks to enter data provided by technicians.
	Work order data is not real-time.
<b>Recommendation</b>	Syclo Mobile suite and hand held devices can be used by technicians for EAM transactions, Inventory Management and Cross Application Time Sheets (CATS).
	Implement SAP Portal Business Package for Maintenance Role for Facilities Maintenance.
	Consider implementing Adobe Interactive Forms to support facilities and fleet maintenance operations.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	Prior to template rollout and after resolving backend SAP EAM integration issues

## Document Archiving and Integration with SAP

### Software to Complete Orders and Fill Invoices by Scanning

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<b>Finding</b>	Technicians fill in paperwork and data needs to be manually re-entered into the SAP system.
	Vendors post paper invoices that need to be manually entered in the SAP system.
<b>Potential Impact</b>	Loss of productivity as data has to be keyed in. It takes too much time to enter time and overtime for the employees per work order using the IW32
<b>Recommendation</b>	Implementation of SAP Open Text for Extended ECM for automating data creation (order confirmation and close, incoming invoices) and archiving of paper based



Invoices and Work Orders.

Consider implementation of SAP Cross Application Time Sheets (CATS) functionality to post time for employees and work order confirmation.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

## Refurbishment Order Processing

### Task Cards and Material BOM planning

**Finding** SAP does not allow creation of refurbishment orders with reference to a work order.

**Potential Impact** Takes longer to create refurbishment order as users have to key in more information on the order screen.

**Recommendation** Use task list with materials planning integration, instead of copy with reference, to quickly create reference orders.

**Finding Risk Level** None

**Address-By Date** Within 90 days

## Maintenance Notification - Road Call (SIS)

### Stand-alone database for Road Call

**Finding** Road calls are recorded in a stand-alone database and if the call requires creation of a work order then the data is manually copied from the road call database.

**Potential Impact** Loss in worker productivity as data has to be keyed

**Recommendation** Record road calls in SAP, this keeps the data in a single system and enables better reporting.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout



## Maintenance Order Processing

### PM Order Cannot Be Closed Until Sub Orders Are Closed

<b>Finding</b>	Preventive maintenance orders cannot be closed until the sub orders have been closed.
<b>Potential Impact</b>	Delays in closing the preventive maintenance orders.
<b>Recommendation</b>	Use reference orders in place of the sub orders or create a CSS Message to change the error message to a warning and permit completion of work orders with open sub-orders.
<b>Finding Risk Level</b>	High
<b>Address-By Date</b>	Within 30 days

## Reporting

### Difficult to Build New Reports

<b>Finding</b>	Current maintenance reports are based on SAP and other access databases – road calls, vehicle and budgeting.  Standard SAP reports and the ABAP Query are not utilized.
<b>Potential Impact</b>	MS Access based Reports are not real-time
<b>Recommendation</b>	Move the MS Access databases to SAP and activate standard SAP BW content.  Use SAP BW add-on software SAP Business Objects Asset Analytics to get pre-defined key performance Indicators and benchmarking capabilities.



**Finding Risk Level** Medium

**Address-By Date** 120 days

## Warranty Claims Processing

### OEM and Vendor warranty claim

<b>Finding</b>	Warranty is not tracked on equipment. Warranty claims functionality is not implemented.
<b>Potential Impact</b>	Potential savings in warranty.
<b>Recommendation</b>	Implement standard SAP warranty check functionality with the system issuing an info message (and even claim creation) if the equipment on the work order is under warranty.  Implement standard SAP warranty claims functionality in integration with work orders.  System can create FI debit memo from the claim record to credit the work order once the OEM / Vendor submits a credit memo for the warranty issue.  Use standard SAP BW Content for reporting on warranty claims.
<b>Finding Risk Level</b>	Medium
<b>Address-By Date</b>	90 days



## Human Capital Management (HCM)

### Organizational Management, Personnel Administration and Security

#### Integration with Cost Accounting / Distribution

- Finding** The Cost Accounting / Distribution integration between Organizational Management and Personnel Administration for Cost Distribution is not turned on. This should be turned on prior to creating the template. However, it is not required at this time for Omnitrans.
- Potential Impact** This is necessary when relationships between cost centers and positions or organizational units are created. The system requires the assignment of the cost center to a controlling area.
- Recommendation** Set the integration for Cost Distribution between OM and PA. PLOGI COSTD should be set to an “X” in configuration under Personnel Management → Org Management → Integration → Set Up Integration for Cost Distribution.
- Finding Risk Level** Low
- Address-By Date** Prior to template rollout

#### Employee Group and Sub-Group tweaking

- Finding** Some tweaking could be performed to remove the Inactive and Terminated Employee Groups, as they are not needed. These can be reported based on the Employee status.
- SAP Best Practice example for Employee Group and Employee Subgroup is as follows:

Employee Group	Employee Subgroup
Employee	<ul style="list-style-type: none"> <li>• Non-Union Hourly</li> <li>• Union Hourly</li> </ul>



	<ul style="list-style-type: none"> <li>• Salaried-Exempt</li> <li>• Salaried-Non Exempt</li> <li>• Executives</li> <li>• Sales</li> </ul>
Retiree	<ul style="list-style-type: none"> <li>• Executive</li> <li>• Survivor w/ Ben</li> <li>• Survivor w/o Ben</li> <li>• Regular Retiree</li> </ul>
Interns	<ul style="list-style-type: none"> <li>• Non-Union Hourly</li> <li>• Union Hourly</li> <li>• Salaried-Exempt</li> <li>• Salaried-Non Exempt</li> </ul>
Temp/Seasonal	<ul style="list-style-type: none"> <li>• Non-Union Hourly</li> <li>• Union Hourly</li> <li>• Salaried-Exempt</li> </ul>
External	Contractor

**Potential Impact** The configuration is unnecessary and should not be included in the template.

**Recommendation** Adjust Employee Group and Sub-Group to closer reflect the example listed above.

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

**Utility Program Access and Termination Action**

- Finding**
- Issue 1: HR power users do not have access to several of the SAP utility programs for correcting HR master data issues.
    - PU00 - Delete Personnel Numbers
    - PU03 - Changing Payroll Status
    - PA41 - Change Entry/Leaving Date
  - Issue 2: When the user enters a Terminated employee, the system passes the wrong date under PA40 in the Termination Action. A change in the process of terminating employees from the system





is required.

**Potential Impact** Issue 1 – Corrections cannot be made to keying errors under the HR master data, which leaves unwanted and incorrect data in the system.

Issue 2 – This is currently causing a problem with the Finance postings.

**Recommendation**

- Issue 1 – Allow key users access to transaction codes PU00, PU03 and PA41 as needed.
- Issue 2- When keying a termination, key the last day worked on the first screen of the PA40 action screen where you select the Termination action. The correct date will populate on all the Infotypes as the action is processed.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### **MSS (Manager Self-Service) Access to Master Data (Structural Authorization)**

**Finding** Structural Authorization is currently not turned on and Omnitrans is not currently using MSS because the proper security is not setup for managers. There is currently a lack of confidence within the HR department regarding security.

**Potential Impact** Managers could have unauthorized access to HR master data for all employees in the system.

Due to the lack of confidence by the HR Department in the current security setup in the system, certain departments are not getting access to required HR master data, which is having an impact on the other department's jobs and responsibilities.

**Recommendation** Turn on Structural Authorization and thoroughly test it. This will fix this problem and give the HR department the confidence they need to ensure that employees only see authorized HR master data.



**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### Additional Training

**Finding** HR personnel need additional training in the OM and PA modules. HR personnel received initial training prior to setting the system up and minimal knowledge transfer prior to the previous consultants rolloff. Omnitrans needs additional hands-on training from a Senior SAP HR consultant.

HR personnel also need additional training on reporting within OM and PA, using standard reports and queries.

**Potential Impact** HR personnel will constantly need support from consultant as changes and break-fixes occur. This additional training will help make Omnitrans self-sufficient with major changes and running/creating reports as needed.

**Recommendation** Engage a Senior SAP OM / PA consultant for a short period to dig deeper into the configuration and work with the Omnitrans personnel in resolving additional issues and providing the required expertise.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### Time Management and Payroll

#### Accruals

- Finding**
- There are several issues occurring within the Time Management module that must be addressed, which would improve the performance of the system and lessen the burden on the Payroll and HR departments while putting more of the ownership on employees to manage their leave requests. Issues requiring in-depth research are as follows:



- Accruals continue to accumulate for laid-off/terminated employees. When an employee is rehired their accruals pick-up as if they were never withdrawn for a specific period in the system.
- Employee accrual calculations are occurring by day and not week or pay-period. Processing time is getting exponentially longer each pay-period due to how the system is calculating an employee's time off.
- When leave requests are entered with a future effective date either from the back-end SAP system or via Employee Self-Service (ESS), the system is determining what an employee has accrued as of the current date, not what may accrue by that future date. If the employee has not accrued enough time by the current date, the system is not allowing them enter their request on that future date. In addition, if the employee has accrued enough time and can enter it for a future date. The system is subtracting the accrued hours during the current payroll and not when the time is actually being taking on that future date.



**Potential Impact** Employees could earn too much accrued time-off or not receive their time off at all. Omnitrans currently has a workaround for the time issues, but they require manual intervention and these could potentially be missed causing an employee not to receive their time off and not receive a full paycheck.

The system is slowing down while it is currently updating accruals by day. This is slowly causing delays in payroll being processed and completed.

**Recommendation** Modify configuration for accruals to meet the needs of Omnitrans. A Senior level consultant is needed to research all issues with accruals.

This will also allow employees to use ESS (Employee Self-Service) to enter leave requests and take the burden off the payroll department from remembering to key this information in the back-end system when the time off request occurs.

**Finding Risk Level** High

**Address-By Date** Within 30 days

### **Terminated Employees / Transfers between Payroll Areas / Re-issuing Paychecks**

- Finding**
- Several re-occurring issues within the payroll module of SAP must be resolved. Issues requiring in-depth research are as follows:
  - Terminated Employees: In the State of California, companies are required to produce a check immediately after an employee terminates. Omnitrans is having a problem when they are in the middle of running their current payroll and need to produce an off-cycle run in the middle of their normal payroll process. When payroll has been released but not exited, they can't run a simulation or an off-cycle payroll for the terminated employee.
  - Omnitrans is also having a problem re-issuing a check for an employee who receives both a check and has part of their earnings going into a direct



deposit. They have already paid the direct deposit portion of the earning when the original payroll was run and just need to resubmit the check portion from that payroll run.

- Omnitrans is having trouble-processing payroll for an employee who changes payroll areas in the middle of a payroll period.

**Potential Impact**

Employees could experience a delay in receiving their paycheck when they terminate, which violates California state law and could result in a fine by the State of California.

Employees could end up getting too much money deposited into their savings account whenever a paycheck must be reissued.

**Recommendation**

- A Senior SAP Payroll consultant is required to come and work with Omnitrans to research and resolve open payroll issues.
- Some of the issues will require configuration changes and some will just be changes in the current process. A payroll consultant would be able to solve these issues quickly and provide the proper knowledge transfer to the Payroll department.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### Step Report/Bucket Program

**Finding**

Union members get a step up in pay when they meet a specific number of hours. There are currently two reports (Step Report and Bucket Program) that calculate these hours when a union employee should go to the next level. The systems shows that these two programs should be in sync and the numbers should match. Currently they do not match.

**Potential Impact**

Union employees may not get an increase when they



are supposed to or might get it too soon.

**Recommendation** A Senior SAP ABAP Programmer, along with a Senior SAP Payroll consultant is required to come in, work with Omnitrans and research the two programs to determine the cause.

Omnitrans will need to supply the consultant with a functional specification document for each program so there is a valid starting point when reviewing the code.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

### Additional Training

**Finding** HR and Payroll personnel need additional training in the Time Management and Payroll modules. HR personnel received initial training prior to setting the system up and minimal knowledge transfer prior to the previous consultants leaving. They need additional hands-on training from a Senior SAP Time and Payroll consultant.

HR personnel also need additional training on reporting within the Time Management and Payroll modules, using standard reports (including Wage Type Reporter) and queries.

**Potential Impact** HR personnel will consistently need support from consultant as changes and break-fixes occur. This additional training will help make Omnitrans more self-sufficient with major changes and running / creating reports as needed.

**Recommendation** Engage a Senior SAP Time and Payroll consultant for a short period to dig deeper into the system configuration and work with the Omnitrans personnel to resolve any additional issues and provide the proper knowledge transfer.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days



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## Benefits

### LTD plan / FSA (Flexible Spending Accounts/Benefit Adjustment Reason)

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#### ***Finding***

- The LTD plan coverage and cost rules need to be reconfigured for the 3 cost grouping that are setup under this plan. The plans were configured incorrectly which were causing the wrong coverage to display for employees and the wrong employer deduction amount was being taken out. Omnitrans currently has a workaround for the deduction issue which finance was handling during the billing process. (Note: This issue was addressed while on-site and HR just needs to make configuration changes and test this issue)
- In 2011, the final deduction of the year was missed for hourly employees enrolled in the Flexible Spending Account. These plans should be reconfigured and the master data requires an adjustment on IT0170. This problem has had a negative impact on employees.
- Benefit adjustment reasons are not being utilized on IT0378 and need to be setup in configuration. This is needed to ensure all benefit rules are being utilized in the system.

#### ***Potential Impact***

- If the LTD plan is not configured properly, employees will show with the incorrect coverage amount for their LTD plan. This will be a problem when Omnitrans decides to use the benefit functionality in ESS. In addition, Omnitrans will continue to not balance when being billed for the LTD plan.
- At the end of 2012, employees can again miss their final FSA deduction in the system.
- By not creating and using adjustment reasons on Infotype 0378 employees could potentially be enrolled in the wrong plans. By using the adjustment reasons on IT0378 and using the Benefits



Enrollment workbench, only the plans an employee is eligible for will be offered.

- Recommendation**
- Make configuration changes to the LTD plan that were presented while on-site and configured in the Sandbox. These configuration changes will need to be thoroughly tested throughout the landscape prior to moving to production.
  - Additional research is needed to fix the FSA issue, but, from the initial review and recommendation while on-site, the FSA plan dates that were setup in configuration will need to be reviewed and adjusted. The dates that were entered on IT0170 for the plans will also need to be adjusted. This should be looked at while a benefit and payroll consultant are both on-site so they can review the payroll deduction model to ensure there are no additional problems.
  - Configure Benefit adjustment reasons that can be used for Initial Enrollment, Qualifying Event changes and Open Enrollment. These adjustment reasons will contain rules for when the plans will take effect and what begin and end dates may appear on the plans when an employee is enrolled.

**Finding Risk Level** High

**Address-By Date** Within 30 days

## Processing Benefits

**Finding** Omnitrans is not using IT0378 adjustment reason or utilizing the Benefits Enrollment Workbench. Benefit





processors are going directly to the benefit Infotypes and enrolling employees in their plans. This is by-passing all the rules that are configured for benefits.

**Potential Impact** Employees have the potential of being enrolled into the wrong plans.

**Recommendation** Create an Infotype 0378 for all benefit changes. A record will be kept on the employee to determine why a change was made to an employee's benefits and the system will perform the proper checks when displaying the plans to the benefits processors. The benefit processor will enroll the employee into their plans using the Benefits Enrollment Workbench, transaction code HRBEN0001.

**Finding Risk Level** Medium

**Address-By Date** Within 30 days

## Additional Training

**Finding** HR personnel need additional training in the Benefits module. They received initial training prior to setting the system up and minimal knowledge transfer prior to the previous consultants leaving. They need additional hands-on training from a senior level consultant.

HR personnel also need additional training on reporting within the Benefits module, using standard reports and queries.

**Potential Impact** HR personnel will consistently need support from consultant as changes and break-fixes occur. This additional training will help make Omnitrans self-sufficient with major changes and running/creating reports as needed.

**Recommendation** Engage a Senior SAP Benefits consultant for a period to dig deeper into the configuration that is currently setup in the system and work with the Omnitrans personnel in resolving any additional issues along with providing the proper knowledge transfer that is needed.

**Finding Risk Level** Medium



**Address-By Date** Within 30 days

## E-Recruitment

### Reports

- Finding** Currently reports are not working within the E-Recruitment module.
- Potential Impact** Reporting needs are not met using the E-Recruitment module and potential candidates could be missed.
- Recommendation** Engage a Senior SAP E-Recruitment consultant in for a short period to dig deeper into the configuration that is currently setup in the system and work with the Omnitrans personnel in resolving any additional issues along with providing the proper knowledge transfer that is needed.
- Finding Risk Level** High
- Address-By Date** Within 30 days

### Rejection Letters

- Finding** Rejection letters are randomly being generated out of the system. This appears to be a configuration problem with how the forms/letters are setup. Since there is a manual work around by the HR Department to manual distribute the rejection letters, the risk is medium opposed to high.
- Potential Impact** Candidates could receive a rejection letter when a follow-up letter was intended for the candidate. This could cause potential candidates to never be contacted and recruited to work for Omnitrans.
- Recommendation** A Senior SAP E-Recruitment consultant would be able to identify what is causing these issues and resolve them for Omnitrans.
- Finding Risk Level** Medium



**Address-By Date** Within 60 days

## Additional Training

**Finding** HR personnel need additional training in the E-Recruitment module. HR personnel received very little initial training prior to setting the system up and minimal knowledge transfer prior to the previous consultants leaving. They need additional hands-on training from a senior level consultant.

HR personnel also need additional training on reporting within the E-Recruitment module, using standard reports and queries.

**Potential Impact** HR personnel will consistently need support from consultant as changes and break-fixes occur. This additional training will help make Omnitrans self-sufficient with major changes and running/creating reports as needed.

**Recommendation** Engage a Senior SAP E-Recruitment consultant in for a short period to dig deeper into the configuration that is currently setup in the system and work with the Omnitrans personnel in resolving any additional issues and providing proper knowledge.

**Finding Risk Level** Medium

**Address-By Date** Within 60 days

## Development

### Landscape

#### Standard System Landscape in Place

**Finding** Standard four-system landscape in place: Sandbox, Development, Quality Assurance and Production. Solution Manager has been implemented to manage the landscape.



**Potential Impact** None.

**Recommendation** None.

**Finding Risk Level** None

**Address-By Date** None

## Reporting

### Reporting

- Finding**
- A lot of time is spent by the IT Team developing custom reports. Most of the reports take two steps to run. Some routines are developed using SAP ABAP and ODBC to get data.
  - There is limited to no use of standard SAP reports across the project team. Currently reporting requirements are given out as hard copies of screen shoots. There were a limited amount of functional specifications and no technical specifications.
  - The documentation on SharePoint is missing key specification requirements such as the report name, how to handle exceptions, data mappings and error handling. There was no visibility of current reports in SharePoint.
  - No well-defined naming Conventions for Reports.
  - ESS leave request report is not working.

**Potential Impact** No history or log of reporting requirements will negatively impact break fixes and changes to custom reports.

The potential for developing the same report multiple times increases where reporting documentation has not been developed.

- Recommendation**
- A quick hit for enhancing reporting would be to use SAP QuickViewer, InfoSet Query and SAP Query for simple reports. Key users can be trained on



using these reporting tools.

- Use table : DD02L, base on field APPLCLASS, to get a list of the tables by function area to build the Queries.
- There are lots of reports delivered by SAP by functional area. These reports can be added as favorites on the area menu, before any report is developed check if existing reports could be used.
- Report Painter can be used to develop most of the Finance reports.
- ABAP query can be interfaces in the future, to decrease or eliminate risks.
- Get an ESS resource to assist with resolving the ESS reporting issues.
- SAP NetWeaver BW can be used to create reports. As an accelerator for these reports SAP delivers content for most functional areas.
- Plan to develop functional and technical specifications for existing RICEFW objects.
- Additional Development recommendations are denoted within Appendix V.
- The following are some classes the IT team should consider:
  - BC402, Advanced ABAP
  - BC405, Programming Report,
  - BC407, Reporting : QuickViewer, InfoSet Query and SAP Query
  - BC481, Creating PDF-Based Print Forms by Adobe



- BW305, Enterprise Reporting, Query & Analysis

**Finding Risk Level** High

**Address-By Date** Prior to template rollout

## Interfaces

### Interface Development

**Finding** Interfaces not developed leveraging current SAP methods for interface development. Examples include the inbound and outbound interfaces for: KRONOS, ADP, Ellipse

**Potential Impact** For inbound interfaces, If screen sequence or layout changes these interfaces will need to be revisited with any enhancement package upgrade .

**Recommendation** SAP recommends use other methods (such as BAPIs or IDoc-based processes) for inbound interfaces in the future, to decrease or eliminate risks.  
Where possible, objects that use BDC should be converted to use BAPI's. This can be planned as a later phase

**Finding Risk Level** Low

**Address-By Date** Prior to template rollout

## Enhancements




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## Enhancement Development

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<b><i>Finding</i></b>	There are currently three enhancements developed using enhancement frame work which is a SAP best practice. Two enhancements for GM exist based on assignment sponsor program and Derivation Rule. The enhancements are active with no code except a breakpoint.
<b><i>Potential Impact</i></b>	None
<b><i>Recommendation</i></b>	<ul style="list-style-type: none"> <li>▪ User exits are developed objects that are executed from within SAP programs at designed-in points. The most prevalent of these are User Exits – segments of program code that are called from within transactions. Others are the enhancements created via transaction CMOD, Business Add-In (BADI) implementations and Business Transaction Events plus field exits.</li> <li>▪ Remove customer exit, which is not needed in current system. Possibilities for creating custom enhancements were greatly extended in ECC 6.0 with the introduction of the Enhancement Framework which allows even more freedom to incorporate own logic without having to do core modifications</li> <li>▪ Thoroughly document any Enhancements developed to date, include test scenarios and object names.</li> <li>• Additional Development recommendations are denoted within Appendix V.</li> </ul>
<b><i>Finding Risk Level</i></b>	<i>Low</i>
<b><i>Address-By Date</i></b>	Prior to template rollout

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## SAPScript / Smartforms

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<b><i>Finding</i></b>	Currently SAPScript and Smartforms are used for printing. Where additional fields were required, the SAP delivered form / program was cloned and updated to
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include the additional requirements. Examples include: Purchase order forms, Invoice statements, Dunning Letters, etc.,.

E-Recruitment rejection letters are being sent regardless of the status.

**Potential Impact**

Errors may exist from the application of support / enhancement packs.

**Recommendation**

- Ensure for objects that are cloned, when notes are applied, the note must be applied to the clones as well.
- For E-Recruitment rejection letter issue, check the configuration to see if the right forms are to be used as default.
- As of SAP Web Application Server (WAS) 6.40, Smartforms and SAPScript will leverage Solution Interactive Forms based on Adobe software. As a result, SAP is encouraging customers to consider Interactive Forms going forward.
- Keep in mind, Interactive Forms based on Adobe software is SAP's new solution for forms development. The first release focuses on the interactive use of forms. High volume printing is supported in principle, but being a new solution, performance has not yet reached the same level as Smartforms and SAPScript.
- Interactive Forms is the solution SAP will enhance with new features. The effort involved in migrating the form logic depends on the complexity of the print program. When or if to move to Interactive depends on if there is a need for any of the new features.





## Appendix I: Persons Contacted

Name	Organization	Area of Specialty
Omar Bryant	Omnitrans	Maintenance
Dan Boyd	Omnitrans	Procurement - Materials
Alex Chen	Omnitrans	IT
James Deskus	Omnitrans	IMPO-SBX
Kiet Dinh	Omnitrans	Project Systems
Jack Dooley	Omnitrans	Director of Maintenance
Marjorie Ewing	Omnitrans	Director of Human Resources
Naomi Garcia	Omnitrans	Payroll
Sam Gibbs	Omnitrans	Quality Advisor
Regina Gonzalez	Omnitrans	HR
Ben Greenber	Omnitrans	IT
Bonnie Judge	Omnitrans	Maintenance
Dennis Lien	Omnitrans	IT
Ben Lin	Omnitrans	IT
Raymond Lopez	Omnitrans	Safety / Security & Regulatory Compliance
John Marks	CIBER	Director of Delivery
Bob Miller	Omnitrans	CFO
Caroljo Mitcham	Omnitrans	Maintenance Analyst
Jackie Mortenson	Omnitrans	Safety
Brian Saunders	CIBER	Consultant
Max Shen	Omnitrans	IT
Jennifer Sims	Omnitrans	Director of Procurement
Mae Sung	Omnitrans	Finance



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Name	Organization	Area of Specialty
Meredith Tshilonda	Omnitrans	HR
Oscar Tostado	Omnitrans	Maintenance
Bill Tsuei	Omnitrans	Director of IT
Krystal Turner	Omnitrans	Procurement
William Velle	Omnitrans	Maintenance
Donald Walkder	Omnitrans	Director of Finance



## Appendix II: Documents Reviewed

Document	Source
Refurbishment Process	Brian Saunders
SRM Phase II Issues Log	Bill Tsuei
Internal Control Issues	Jennifer Sims
WRICEF documents	SharePoint
Blueprint document	SharePoint
Configuration document (only 1)	SharePoint
HR - SAP issues	Bill Tsuei
Final OM Blueprint Document	SharePoint
Final PA Blueprint Document	SharePoint
Final TM Blueprint Document	SharePoint
Final Benefits Document	SharePoint
Current PM Issues List – Prioritized with Notes	CJ
List of Equipment for Facilities Management	CJ
Maintenance User's Business Process Document	CJ
Report ZTM_EMP_ACRL	Alex Chen



## Appendix III: Consultants

Name	Area of Specialty	Email
Bob Barbeiro	Human Capital Management	robert.barbeiro@sap.com
Sharad Chopra	Plant Maintenance	sharad.chopra@sap.com
Elizabeth Eldridge	Project Systems	elizabeth.eldridge@sapns2.com
John Fast	SRM – PPS	john.fast@sap.com
Lynda Kerr	Materials Management	lynda.kerr@sap.com
Rajesh Loyalka	Financial / Controlling	rajesh.loyalka@sap.com
Regismary Omuto	Development	regismary.omuto@sap.com
Mia Snyder	Program Management	mia.snyder@sapns2.com
Hwee Yeo	Funds Management / Grants Management	hwee.yeo@sap.com



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## Appendix IV: Project Systems Functionality

Defining a project clearly and precisely is of central importance for successful project management. Without clarifying the concepts behind project requirements, the user cannot achieve desired or optimal benefits. The multi-faceted functionality within PS supports project management in all phases of the business. The solutions provided by the mySAP.com e-business platform support collaborative business processes.

PS functionality helps the user manage the projects successfully, as the company the user plans, executes, and controls goals in a targeted and cost effective manner.

The integrated Project Systems supports the user and optimizes the business processes during project execution. It helps the user to reduce routine activities and speeds up processes.

Comprehensive project management and optimum combination of business procedures are central to this. The range of functions and the integrated working methods determines the characteristics of the software, which opens the way to a new level of effective, progressive project management.

Project Systems is a total solution that is independent of industry, but which can be adapted to the requirements of individual branches. It aligns with Financial Accounting, Sales and Distribution, Material Management, and Production planning and control.

With Project Systems, SAP provides a product tailored to meet the demands placed on the user at different phases of the project. Project Systems supports the planning, and using and evaluating the project data. During a project, the information system provides a permanent and detailed picture of the status of a project, beyond the functions described in the graphic. In one project, for example, costs may take precedence. In another, the user may place the emphasis on planning and monitoring dates and resources.

The Project Systems architecture allows for the use of a variety of projects, for example:

- Research and Development Projects
- Make-to-Order Production
- Engineering Projects
- Investment Plans
- Maintenance Measures

### Data Processing Projects

The Project System brings together the business processes into an integrated project management, which guarantees interdisciplinary coordination between the specialized areas. It



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thereby brackets together several modules, which provide optimal support for the business processes, in particular, by integration with:

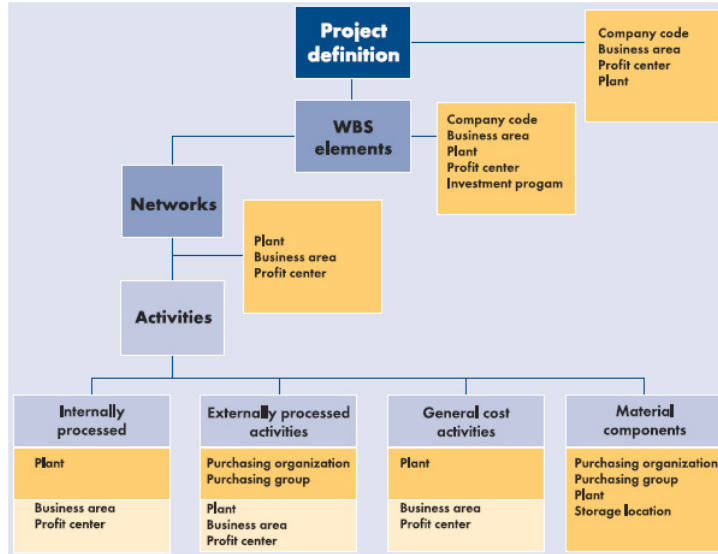
- Sales and Distribution
- Production Planning and Control
- Capacity Planning
- Materials Management
- Internal and External Accounting
- Cash Management
- Investment Management
- Document Management
- Quality Management
- Plant Maintenance
- Product Data Management

SAP Product Data Management (PDM) supports you when creating and managing product data for the entire life cycle of the product. Within PDM, it enables real-time project design and monitoring from the project and plan execution through controlling it after starting. Monitoring and analysis functions provide an alert to problems enabling the corrective measures at any point during a project.

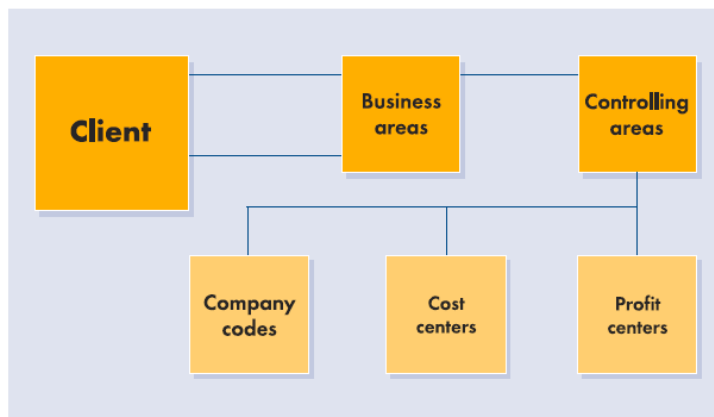
At the beginning of every project, the first step is to define the structures to manage the project and to incorporate these structures into the existing enterprise organization and processes. The Project System does not have organizational structures; the system incorporates makes assignments to the organizational units in Accounting and Logistics. This enables the Project System to present data clearly and in many different ways as depicted below.



### Organizational Structures



The client is the top-level organizational unit. The client corresponds to a group with a number of subsidiaries, for example. The Project System as an application module is positioned at client level from where it is linked with the Accounting organizational structures. As illustrated in the graphic below, this is valid, not only for individual business areas in the enterprise but also for controlling areas with their subordinate levels profit center, cost center, and company code.





A business area is a sharply delineated activity or responsibility area in the enterprise. Each business area draws up internal balance sheets and profit and loss statements. These balance sheets and profit and loss statements do not fulfill all legal requirements for the publication.

### **Controlling Area**

Controlling areas are the organizational units in a group that require their own complete, self-contained cost accounting. The user one controlling area to conduct joint cost accounting for a number of company codes.

### **Company Code**

A company code is an organizational unit within a client for which a separate balance sheet is drawn up. Legislation requires the balance sheets and profit and loss statements at the company code level.

### **Cost Center**

A cost center is an organizational unit within a controlling area. It represents a sharply delineated area in which costs arise. The company can base this on functions, cost settlement techniques, physical location, or responsibility area.

### **Profit Center**

Profit centers divide the business on a management basis. The basic aim of profit center accounting is to manage areas of the company as entities that are operating independently in the market.

### **Capital Investment**

A capital investment program is a hierarchical structure of all the planned or Capital Investment Program budgeted costs for investments in the company or enterprise for a fixed period. The user builds the structure according to organization units or the investment.

The purchasing organization is an organizational unit that procures materials or services for one or more plants and negotiates terms with vendors. It is legally responsible for all purchasing activities and is therefore assigned a company code.

Plants are units within Logistics that split up the enterprise for production, plant procurement, maintenance and materials planning purposes. A plant can be a production site or simply a collection of adjacent locations that manages its own stock.

The user defines storage locations to distinguish between material stocks within a plant.

**Storage Location.** The term “storage location” usually refers to the physical location of the stock.





**Structures.** For successful project management the user must model all the processes in a project and be able to display their structure and the sequence of events. The Project Systems make this possible at all times by providing basic data, standard structures, and templates, which greatly simplify creating and planning projects.

Before the user can run a project in its entirety, the user must first describe the project goals precisely and create a structure for the project activities that are to be carried out. A clear project structure is the basis for successful project planning, monitoring, and control.

Depending on the nature of the project and the emphasis in controlling, the user structures the project using a work breakdown structure (WBS) or a network. The activities in a network can be linked using relationships to activities in the same network or in another network.

The work breakdown structure describes the project from a phase, function or product point of view. Actual project processing is planned using networks.

It contains the individual project tasks and their interdependencies in the form of activities and relationships

**Project Definition.** The project definition is a general description of the project the user to manage. The user employs this to record the concept behind the project. Now there is no need to create a work breakdown structure or activities. Later on, the project definition is the container for all objects that created within a project, for example for WBS elements, network activities. It also contains organizational data that is valid for the whole project such as:

- Controlling Area
- Business Area
- Company Code
- Plant
- Factory Calendar

### Work Breakdown Structure

The work breakdown structure (WBS) is a hierarchical model of the project, providing a view of the phases and functions. It splits the project into manageable parts.

The work breakdown structure

- Forms the basis for planning, coordinating, and controlling the project
- Shows the work, time, and money spent on a project
- Makes the structure of a project transparent and documents responsibilities
- Forms the basis for both budgeting and the planning and analysis of costs in project controlling



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## Network and Activities

The actual processing of a project is planned using networks. Networks describe the sequence in which a project is processed. The main elements of networks are activities and relationships. Networks form the basis for planning, analyzing, and monitoring time schedules, costs and resources.

The user activities in networks to plan personnel resources, other capacities, Activities materials, PRTs, and service requirements. The user adds detail to the planning by using sub networks and activity elements.

The user links activities with the work breakdown structure by assigning activities to WBS elements, which will provide visibility to the user details on costs, dates, and capacities at activity level. The user different activity types, depending on the type of tasks the user desired to carry out in a project.

For tasks that require capacities (machines or personnel) in the business, create internally processed activities.

For tasks that are to be processed by outside contractors, use externally processed activities. Such activities form a link to Purchasing. The user refers to a purchasing info record that contains information such as prices and delivery dates for external processing. The system automatically creates a purchase requisition from the data in an externally processed activity.

The user plans costs without referencing other objects in the system, use general costs activities. An example would be planning travel expenses.

The user adds more details to an activity by creating activity elements. The user details to any activity by using work, external, or costs activity elements.

The user plans materials that the user requires to execute a project by assigning material components to the relevant activity.

The user assigns as many texts or documents as the user like to activities and WBS elements. The user enters texts, for instance minutes of meetings, in an editor in the Project System or in Microsoft Word for Windows. It is possible to send these texts to another user in the system. Documents are managed in the Document Management System, but the user can display and edit them directly in the Project System. Using the Document Management System. The user accesses documents whose original files are not stored in the SAP System. The user displays drawings from a CAD system directly in the Project System.



The user relationships to depict chronological and technical dependencies Relationships between activities. The type of the relationship determines how two activities are linked. There are the following types of relationships in the Project System:

“Finish-Start,” “Start-Start,” “Finish-Finish,” and “Start-Finish”

The user adds relationships to link activities in different networks. This means the user produces a time schedule for a whole project whether the user has one large network or several smaller ones.

### **Milestones**

Milestones are events in a project to which particular importance is attached or which trigger a predefined function. In general, they indicate transitions between different phases or departments. The user assigns milestones to both WBS elements and activities.

In the Project System, milestones are used to:

- Trigger predefined functions in network activities
- Determine the percentage of completion (milestone technique in progress analysis)

The user can use predefined milestone functions in networks to trigger a sequence of steps. Examples include:

- Releasing activities
- Including standard networks
- Creating networks and sub networks
- Triggering workflow tasks

### **PS Integration with Other Planning Tools (i.e. – Primavera)**

Adding another infrastructure component to the architecture affects critical business processes, and has to bridge terminology and conceptual differences between SAP and the other tool. Some considerations that will require planning:

- **Technology**  
How complex are integration solutions? Are they middleware? What is the TOC (total cost of ownership) to support them? Does the user need databases in the middle? What application server does the solution run on?
- **Vendors**  
There are service organizations (including internal IT departments) offering to build integrations; and there are a handful of vendors with packaged solutions. How much are



these solutions "out-of-the-box", and how do they still depend on elaborate services in form of implementations? How can one pick a vendor?

- **Implementation**

How long does it take to get the solution up and running? How much of that time is due to logistical aspects, process design and validation, complexities of the selected solution, a lack of out-of-the-box functionality for SAP-Primavera integration?

- **Support**

How difficult is it to internally support the integration once installed? What is the effort to modify it? What are the expertise requirements? Is global support available? What kind of Service-Level Agreement (SLA) is offered by a vendor (or internal IT department)?

- **Functionality**

What functionality needs to be supported? What functionality is supported by a vendor? How difficult is it to modify (configure, tailor, develop) additional functionality?

- **Features**

How user-friendly is the application and how much does it empower the end-users and IT support staff alike? Here considerations come into play like organizational hierarchy, integration with single sign-on systems (e.g., Portals), configuration, defaults, or log files.

- **Terminology**

How does one best describe and evaluate functionality? What terminology is being used by SAP, Primavera, and the vendor that can be confusing? Budgeting vs. resource planning? Cost planning vs. budgeting? Configuration vs. custom-programming?

Above all, the company has a decision to make on business process design requiring all layers of enterprise project management.

## **PS Planning and Scheduling**

### **Date Planning**

There are various options in the Project System for date planning and scheduling, from initially planning the dates to scheduling using network technology methods. The user The work breakdown structure (WBS) can provide the basis for an initial rough plan of the dates. While this is used to represent the project structure, activities are used to plan the actual course of a project. For detailed planning, the user creates and plan the duration of activities, relationships, and time restrictions.

Scheduling takes place at the level of the activities and their relationships. In the Project System, forwards and backwards scheduling is always available, although users can define which scheduling direction to take into account first.

Using forwards and backwards scheduling, the system automatically determines the earliest (forwards scheduling) and latest (backwards scheduling) start and finish dates of the activities, as well as the requirements dates of materials and production resources and tools.



Afterwards, the user compares the calculated dates of the activities with the manually entered dates of the assigned WBS elements.

## Date Types

There are different date types in the Project System:

- Basic Dates

Fixed dates the user enters manually in the network or WBS element. Basic dates are used in scheduling, for example, as the framework for activity dates or for determining capacity requirements.

- Forecast Dates

The user enters predicted dates manually in the network and WBS element, which are used for variances.

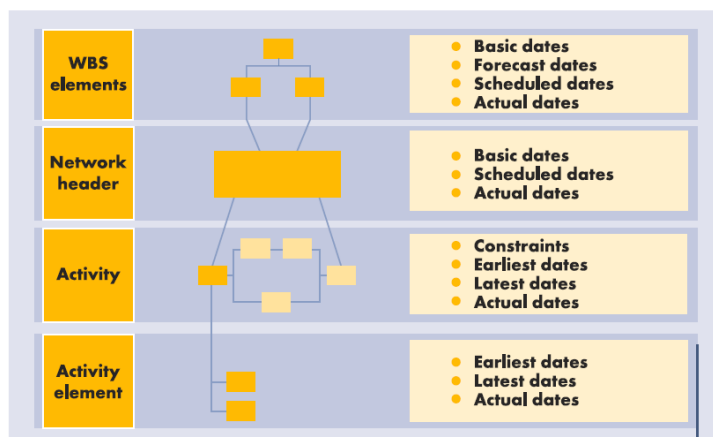
- Actual Dates

These dates mirror the status of a project. The user enters these dates manually or has them transferred automatically from activity confirmations or other confirmations.

- Scheduled Dates

Dates that are calculated by the system from network or WBS scheduling.

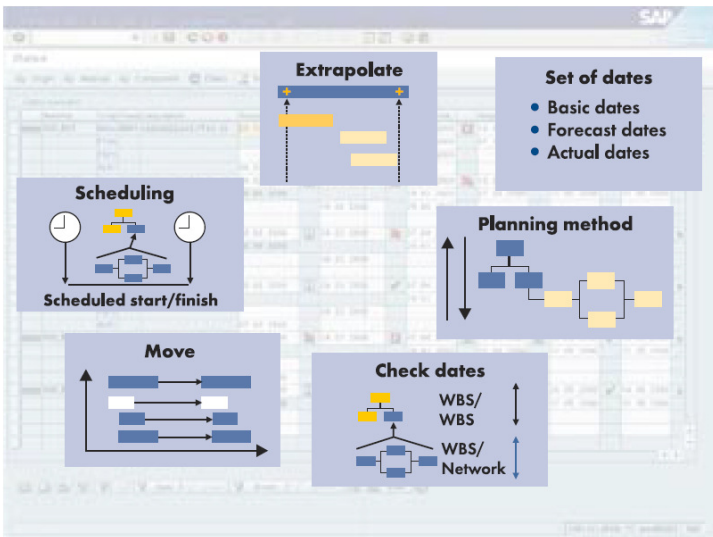
The user works with different date types, according to the requirements, and as well as decide which date type the user use for the different date planning functions. For example, the user schedules a network with forecast values, or transfer the forecast values from the WBS elements to the basic dates and use them as the basis for further planning. The following date types are available for the individual project elements:





## Date Planning in the Work Breakdown Structure

The user schedules dates in the work breakdown structure manually, with the help of consistency checks, date comparison and date reconciliation. The user plans dates in lists and overviews, in a hierarchy graphic, a Gantt chart, or the project planning board. There are different planning methods available for planning dates:



Date planning in the work breakdown structure is distinguished by its extensive functionality.

- In the top-down planning method, the system checks for schedule conflicts.
- If dates change as the project progresses, for example, when actual dates are confirmed, the system automatically updates the dates in the work breakdown structure.
- The system allows the user to compare, pass on or extrapolate the dates of individual WBS elements.

To give the date structure more detail, the system allows the creation of the user activities and assigns them to WBS elements. The user can now transfer these to the WBS elements and link the user relationship and, by doing so, create a network.

## Scheduling

Scheduling always takes place at the level of the activities and their relationships.

During scheduling, the system determines the earliest and latest start and finish dates for executing activities in the network and calculates the capacity requirements.



Floats provide the user with information about time reserves that are available for individual activities. The system allows the use of the user floats calculated in scheduling to move activities, change their duration and display the critical path of the network. The system calculates the entire float and the free float.

In addition, the system allows defining the user time constraints to adjust scheduling to “fixed” dates or basic dates. For example, the user can define that a production operation must be finished on a particular date.

### **Project Scheduling**

In project scheduling, the user can schedule a project or subproject, including all the operations assigned to it. In this case, the system takes into account all dates that the user has entered at the level of the work breakdown structure when the activities are scheduled.

Using a WBS element, a subtree or an entire project as the starting point, the user schedules the project structure with all the assigned activities. The system allows the user to transfer the result, that is, the scheduled dates of the WBS elements, to the basic or forecast dates of the assigned activity. The system then used them as the basis for up-to-date project scheduling. In addition, the user chooses whether only networks are to be scheduled, or maintenance orders and service orders are to be scheduled as well. There are three predefined scheduling scenarios for WBS scheduling in the Project System. The “top-down” and “bottom-up” scenarios developed in the work breakdown structure are predefined scenarios with parameters defined by the system, which cannot be changed. When a user chooses the user one of the two scenarios, the system carries out scheduling in all phases of the project according to these predefined parameters. The user does not need to process or check the scheduling parameters further. In the case of Free Planning, however, the user maintains all scheduling parameters.

The dates for scheduling are passed down from the project definition to the WBS elements and activities. The dates of the activities must lie within the dates of the WBS element to which they are assigned. Similarly, the dates of the WBS elements must lie within the dates of the superior WBS element. All the dates in the project must lie within the period determined by the basic dates of the project definition.

In this case, the system passed dates from the bottom of the hierarchy to the top. The activity dates determined in scheduling are checked against the dates of the WBS element to which the activities are assigned, in order to see whether the planning period of the superior WBS element includes the dates of the subordinate elements.

If this is not the case, the system changes the start date, the finish date or both dates of the superior WBS element or the project definition accordingly.

The user can set up the scheduling parameters in any way the user like. There are different options in the system for doing this.



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## Network Scheduling

The user can also schedule individual activities that are linked to one another by relationships but are not assigned to a work breakdown structure. Scheduling determines the earliest and latest start and finish dates for carrying out activities in the network and calculates the required capacity requirements as well as the floats.

When scheduling the overall network, the system schedules all networks linked by relationships. In this process, the system schedules all linked networks together based on a start and finish date. The result is the coordinated date situation of the entire network.

Of course, the user has the option of scheduling either the entire network or only the networks of individual subprojects.

When scheduling the overall network, the user can also choose whether only networks are scheduled, or maintenance orders and service orders are scheduled as well.

## Confirmation

Another important step when carrying out a project is the entry of actual data. Only if real-time and reliable actual values exist for a project can the user determine at an early stage whether, for example, delays to a schedule have already occurred or are to be expected. The user can then determine how this affects the project costs and whether there is sufficient planned or available capacity for the ongoing processing of an activity. The user enters actual values in the form of confirmations.

Confirmations document the processing status of activities and activity elements in a network and can be used to forecast how further processing will proceed. A confirmation provides the user with an exact overview of the degree of processing or the remaining work. As with capacity planning, the user can enter confirmations with or without direct relation to an employee.

Precise confirmations are very important for realistic and accurate project planning. The following are controlled by confirmations:

- Work center capacity load
- Update of the actual costs
- Update of network activity data (for example, remaining duration and work)

In a confirmation, the user can consider different values, such as the degree of processing, work center, dates, duration, and forecast values.

A confirmation can trigger a one function during a confirmation. For example, when the user confirms an activity that has a milestone assigned to it, then the system releases the activity. The following options are available for entering confirmations:





- Individual Confirmation

The user can enter confirmations individually for activities, activity elements and capacities. When the user does this, the user can also enter details about goods movements. The user can enter individual confirmations directly from the project planning board.

- Collective Confirmation

With this function, the user can confirm activities and activity elements for different networks simultaneously. SAP recommends collective when the user enters confirmations centrally in the organization. The user collects all activities that are to be confirmed in a confirmation pool that the user can be adapted to the requirements.

- Confirmation in the Intranet

The user can also enter decentralized confirmations in the Intranet. There, the user can adapt the confirmation screen template for individual users, without having to modify the SAP Project System. For example, the user can hide data fields that the user do not need, include the own company logo and implement additional functions. The user does not need any knowledge of the SAP System to enter actual data via the Intranet. Access to a PC with an up-to-date web browser is the only requirement.

### **Time Sheet**

The time sheet is a flexible option for entering project data. In the time sheet, individual employees confirm the tasks that they have completed. In addition to the data for the Project System, the user can also enter actual data for the following applications in the user-friendly interface:

- Internal Activity Allocation (CO)
- Attendance and absence (HR)
- Confirmations of Services (MM)
- Confirmations of Plant Maintenance Orders (PM)
- Confirmation of Service Orders (CS)

### **PS Functionality for Capturing Costs**

Actual costs arise in the project from confirmations, postings from financial accounting (such as trip expenses), the internal activity allocation, goods movements, and periodic processing. The system posts the actual costs from Controlling, Financials, and Materials Management to the WBS elements and networks that cause them. For example, if the user requires a particular material from stock for a WBS element in the project, the system automatically charges the actual costs to the WBS element.



If the user orders goods for the project, financial obligations arise. These are called “commitments.” The system automatically enters commitments in the project when the user creates purchase requisitions or purchase orders. If the user later post a goods receipt debited to the WBS element or network, the system clears the commitment and charges actual costs to the WBS element/network.

Commitments and actual costs change the operating conditions for cost planning. SAP has developed the cost forecast so that the user can adapt the cost planning to the changing circumstances. In the cost forecast, the system values remaining activities on the basis of the planned, forecast, and actual values, thereby determining the cost to complete (CTC) for the project. It also calculates the estimated cost at completion (EAC) by adding the commitments and actual costs already recorded to the CTC.

The values so determined are default values that act as the basis for a cost forecast. The user can run the cost forecast at any time for one or more projects. To this end, the system copies the EAC, recalculated because of the scheduling changes or quantity variances, along with the commitments and actual values, into a forecast version the user can evaluate in the information system. If necessary, the user can manage a number of forecast versions in parallel in the system.

### **Periodic Processing and Project Closing**

From a cost accounting and balance sheet point of view, the valuation of plan and actual project data at the end of the project or a period is indispensable.

The tasks that occur regularly in project controlling include the following:

Plan and Actual Values:

- Results Analysis – Work in Process (WIP)
- Periodic Transfers
- Overhead Calculation
- Interest Calculation (see the section on Project Cash Management)
- Progress Determination (see the section on Progress)
- Settlement

Actual Values Only:

Incoming Orders. The system does not tie the tasks for interest calculation, progress determination, and incoming orders to period-end closing. Instead, the user can perform them at any time.



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## Schedule Manager – Tool for Period-End Closing

Periodic processing involves processing a large number of individual objects at a particular time. To make this processing easy to perform and monitor, SAP developed a tool called the Schedule Manager. This tool makes it easier to schedule and carry out the tasks that must be performed at period-end closings and project closings.

The Schedule Manager provides the following features:

- Process Definition - Here the user can link together tasks that are related to each other or specify a worklist in which to use them. The user can schedule the process definition as a task in the Scheduler.
- Scheduler - In the Scheduler, the user can schedule tasks in a structure tree and by using a Drag & Drop function in the daily overview, have the system carry them out at a particular time.
- Monitor - Here the user can monitor the planned tasks during and after processing. There is also a facility for post-processing defective objects in a worklist.
- Worklist - The user can use the generic worklist to combine a number of processing steps into one worklist. After correcting defective objects manually, the user can process them again.

The Schedule Manager allows the user to achieve the best possible runtimes for processes by carrying out certain functions in parallel. In parallel processing, the objects in question are not processed sequentially on one application server, but in parallel on one or more application servers.

### Periodic Tasks

The user carries out periodic tasks during project planning as well as during project execution. This ensures that all project-specific data is determined and made available to enterprise Controlling.

### Results Analysis

The user use the results analysis feature in the Project System to determine the project result. To do so, the system links the costs that have been planned or posted in the WBS elements and networks with the revenues and confirmed quantities. It then values them periodically.

The user can employ planned results analysis to:

- Simulate future results analysis data, i.e., calculate the expected Profitability Analysis and financial account values in light of planned costs and revenues

### Settle the values to Profitability Analysis

With actual results analysis, the user compares the costs incurred as of a key date with the revenues realized by the same date.



Results analysis carries out a period valuation in order to determine:

- The inventory of work in process (WIP) for Financial Accounting
- Reserves for unrealized costs or costs of complaints (the costs caused by complaints)
- Reserves for imminent losses for Financial Accounting and Profitability Analysis
- Cost of sales or a calculated revenue figure for Profitability Analysis. When the user settles the project, the data from results analysis can be passed on to Financial Accounting and Profitability Analysis.

If the user works with transfer prices, i.e., the prices charged by parts of the project to each other, the system can include these in results analysis, in a separate version.

The user can transfer data determined with the Project System to the balance sheet. Doing this repeatedly enables the user not only to set up, but also to analyze, balance, and reserve. As stocks and reserves are displayed per project, the system concurrently carries out concurrent costing and internal valuation of the project when the project executes.

### **Periodic Transfer**

Costs that the system posts to cost collectors (WBS element, internal order, or cost center) during a period are transferred to the cost centers and projects or business processes that are responsible for them at the end of the period.

These periodic transfers are designed to help the user in making corrections if, e.g., actual costs occur in a different period due changes to project dates.

### **Calculating Overhead**

The system allocates planned and actual overhead to work breakdown structure (WBS) elements and networks. The user can have the system carry this out either in proportion to the unit costs or by using templates. If the user chooses the latter, the system distributes the overhead to business processes, or cost centers, or activity types according to what caused them.

In planning, the system automatically determines the overhead in the network as part of costing, and updates it to the network header or activity.

### **Project Settlement**

The planned or actual costs and revenues arising in a network (goods issues or receipts, vendor invoices, customer billing, and so on) are settled, in whole or in part, to one or more receivers. Settlement transfers costs or revenues to Financial Accounting (G/L account), Asset Accounting (asset), Profitability Analysis (profitability segment), and Controlling (order, cost center).

As with overhead calculations, the user can run settlement in live or test mode. By running a test, the user can check data for correctness and completeness, and make any necessary corrections, before making actual postings.



When running settlement in either live or test mode, the user can have the system generate statistics and a log. The log shows the receivers to whom debits were charged, the amounts settled, and a list of any errors.

## **PS Functionality for Budgeting**

### **Budget Management**

The budget represents the approved, binding cost framework for a project. It defines the project costs and stipulates these approved costs for a particular timeframe. The Project System includes a facility for adapting the original budget to the current state of the project by means of the budget update function. The availability control function and the overviews it contains are an important aspect of project control.

### **Budget Allocation**

On completion of the planning phase, a project needs to be approved and budgeted. The budget differs from cost planning in that it is binding. While the user must plan project costs as accurately as possible during the planning phase, it is in the approval phase that funds are allocated, in the form of a the system allocates budget to the WBS elements. The Project System supports the following methods of budget allocation:

- Automatic Allocation

The user distributes the budget automatically by copying it from cost planning. As the Project System allows detailed project cost planning, the user can adopt the values calculated in planning as the project budget.

- Manual Allocation

If the user allocates the budget manually, the user can enter the budget values directly in the WBS elements. As budget distribution is from the top WBS element to the subordinate ones (top-down distribution), the user does not have to distribute the whole budget amount to the subordinate WBS elements. There is no need to allocate budget for every single project subtask either. The user can thus keep funds in reserve to meet unforeseen expenditure. The user can allocate overall and/or annual budgets and budget for as many fiscal years as the user wants.

In spite of all the care and expertise the user brings to bear, unforeseen events, additional requirements, changes in prices, and so on, may mean the user needs to update the budget. To help the user with this, the Project System includes tools for entering budget supplements, returns, or transfer for the overall budget or partial budgets. If the user updates annual budget values, the overall budget can be adapted automatically. The user can cancel budget updates if they later turn out to be unnecessary.



In many businesses, allocating a budget is not the same as actually releasing the funds. For this reason, the Project System distinguishes between the following budget types. Depending on the current situation, the user can allocate the budget as:

- **Current Budget**

The current budget is the original budget, as amended by supplements, transfers, and returns.

- **Releases**

The budget can be released in stages, based on the current budget. The user cannot release more budget in a WBS element than is available in the element.

As with cost planning, the Project System supports the user's budget allocation work with a check function that checks that the budget is distributed consistently in the WBS and displayed it in a WBS overview.

The Project System makes budget allocation and updates even easier with the following additional functions:

- All budget changes and the resulting updates are logged. One document is created for each change. This way, the user can always trace how the budget has been allocated.
- The user can increase or decrease the budget values for selected WBS elements by a percentage or amount in a single step.

### **Availability Control**

Monitoring assigned funds is an important part of project control. In the SAP Project System, the user can call up the funds overview, giving the user an overview of funds assignments, at any time. Particularly in important projects, funds assignments can exceed the available funds at an early stage.

In addition to the funds overview, which acts as "passive" availability control, the Project System includes "active" availability control. For example, when the user enters a purchase order assigned to a WBS element, active availability control checks that the available funds are sufficient to cover the purchase order. This way, the system ensures that excessive funds commitments can be prevented and corrected as soon as they occur.

Active availability control takes account of defined tolerance limits. If a tolerance limit is exceeded, the system can trigger different actions, which the user has defined.

For example, it can display a warning and send an e-mail to the person responsible for the project. The assigned values (actual, commitment, or order request) for networks and orders for the project are also subject to availability control.



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## Actual Costs, Commitments, and Cost Forecast

As the user executes the project, the system posts commitments as they arise and actual costs. This usually leads to variances between the original cost plan and the actual course of the project. Simply moving activities within the floats can be enough to change how costs develop in a project.

For this reason, the user needs to store new information arising from the actual data and commitments for a project. The user can then use it as the basis for further planning.

The integrated nature of the Project System means that data entered in, for example, Controlling or Financials can be recorded automatically in your project.

Actual costs arise in the project from confirmations, postings from financial accounting (such as trip expenses), the internal activity allocation, goods movements, and periodic processing. The system posts the actual costs from Controlling, Financials, and Materials Management to the WBS elements and networks that cause them. For example, if the user requires a particular material from stock for a WBS element in the project, the system automatically charges the actual costs to the WBS element.

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## **PS Functionality for Cost Planning**



## Cost Controlling

Keeping to schedule and monitoring costs are the most important factors governing the success of many projects. However, cost overruns do occur, particularly in long-term projects. This is not always due to unforeseeable economic circumstances. Many such variances can have their roots in project management

For example, in inadequate project definition and planning, accurate cost planning is one of the most important prerequisites for project success.

## Cost Planning

Cost planning has different objectives depending on what phase the project is in:

In the design and rough planning phase, cost planning is a calculation of the costs the user expects to incur on the project.

In the approval phase, cost planning acts as the basis for budget allocation.

During project execution, the system uses cost planning to monitor and control cost variances.

## Planning Forms

The user has the ability to plan costs in various degrees of detail, depending on when the user is planning and what information is available. For this reason, the Project System offers a number of planning forms. The user employs hierarchical cost planning to make a first, rough cost estimate, designed mainly to allocate basic values.

The user uses detailed planning to plan costs by cost element at work breakdown structure (WBS) level. This form of planning makes it easier to agree on cost and activity allocation.

Network costing is the ideal form of planning, if the user is working with networks to plan the resources and dates. In network costing, the system derives the planned costs from the quantities, uses the resources planned in the activities, and distributes them along the time axis.

Whatever planning form the user chooses, the Project System offers a simple, user-friendly way of creating the cost plan. In addition, the user can use the planning forms independently in the WBS and network, or the user can use two or more of them together. This ensures that the user can adapt the cost planning at any time to reflect the most current information.

## Hierarchical Planning

In the early phase of the project, the user does not usually have detailed information for the project.

If the user wants to obtain a first cost estimate for the project at this time, cost element-independent, hierarchical planning is the tool for the user. Either the user can choose whether to





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plan the costs on all WBS elements or only on WBS, elements that the user has indicated are planning elements.

The following apply to hierarchical planning:

It is not dependent on cost elements.

The user can either estimate the expected costs per planning element or take the cost information from comparison objects.

The user enters the plan values hierarchically. To this end, the Project System offers both top-down and bottom-up planning. In top-down planning, the user distributes the plan values manually from the top planning element to those lower down. The system checks that that distribution is correct. In bottom-up planning, the user enters the planned values in the lower-lever planning elements. The system then totals them upward in the hierarchy.

The user can plan overall costs first and then distribute the overall value over the expected lifetime of the project. Conversely, the user can first plan values for the individual years, then have the system total them up to determine an overall value.

The costing structure reflects the WBS, so that the user has a clear overview of the cost planning at all times. The user can divide the costing structure further at any time, without having to add to the project structure.

Integration with the other modules in the SAP System means that the user can access data from cost accounting, purchasing, and materials management when the user carries out the project planning. The job is to enter the factors that give rise to costs for the cost calculation in a predefined planning template. The system automatically calculates the entries, using the prices and rates stored in the system, and distribute the costs so calculated per the basic dates in the respective WBS elements. This link between the planned costs and the basic dates means that any changes to the schedule lead to an automatic adjustment to the cost distribution.

For example, the user can trigger the following processes (called Execution Services) from the costing:

- Purchase Requisition
- Purchase Order
- Material Reservation
- Goods Issue
- Internal Activity Allocation



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As the system carries out the execution services with the help of the data entered for the costing, there is no need to enter data again for further processing. This reduces the risk of errors. If necessary, the user can overwrite the data - it is intended only as default.

### **Detailed Planning**

When detailed project information is available and if the user wants the planning to be consistent with that in Controlling, particularly the cost and activity allocations, the user uses detailed planning to plan the costs.

Here, the user plans primary and secondary costs by cost element, as follows:

Primary costs arise from the goods the business purchases externally. In the SAP Project System, the user can plan costs by value and quantity. In planning by value, the user enters planned costs by cost element. In quantity planning, the user enters the expected consumption with planned prices by unit of measure.

Secondary costs arise from the consumption of internal activities. The user can plan them by quantity, in the form of activity inputs. The system multiplies the planned activity quantity for a work package or WBS element by the price of the relevant activity type. The calculated value is stored under a secondary cost element for the internal activity allocation.

As with the other forms of cost planning, the user can choose any planning timeframe, the user like. Planning can be by year or period.

### **Network Costing**

The user use automatic cost planning in the network at a later stage of planning. By then, the user usually has the project information the user need to be able to plan dates and resources using network activities. The costs are calculated for each activity, using the information stored in the system, as follows:

The costs of goods and services procured externally and planned in “externally processed activities” are calculated by the system, using procurement conditions, such as prices and discounts, stored in the purchasing info record.

The user plans costs for services rendered internally by means of “internally processed activities,” which the user assign to a work center. The system automatically uses the information stored in the work center, such as cost center and activity type, to determine the rate (charge rate for an activity unit). Then it calculates the relevant planned costs for the activities.



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If required, the user assigns materials, whose costs the user plans using “material components,” to internally and externally processed activities. Materials the user has assigned to an activity are divided into:

### **Inventory-Managed Material**

The system creates reservations for inventory-managed material in the warehouse.

The planned costs are calculated based on the prices stored in the material master record.

### **Material Not Managed as Inventory**

The system creates purchase requisitions for material procured directly. The planned costs are calculated using the purchasing info record.

The user can plan the insurance contributions, consulting fees, license fees, or travel expenses as miscellaneous costs, using general costs activities in the project. The system adopts the value the user has entered in the general costs activity in cost planning.

### **Support for Cost Planning**

The system can calculate overhead rates automatically, as part of detailed planning, Easy Cost Planning, or network costing. Automatic calculation of project-planned costs includes an amount for overhead rates, adding them to planned costs as appropriate.

As early as the planning phase, but particularly in the execution phase, it is often necessary to change a project’s structure in light of new information. The Project System supports the user in such work. The user can rearrange subprojects or individual WBS elements, along with their values.

New information on a project, its structure, the planned duration, and the required resources often make it a good idea to have several different cost plan versions. In the Project System, the user can create additional versions based on existing planning. The user can store the individual versions separately, copy and change them, and compare them with each other. In this way, the user can, for example, create and compare best- and worst-case scenarios.

Correct cost planning requires the planned values to be consistent structurally and chronologically. To help the user with this, the Project System includes a check function that points out any inconsistencies in planning. This is particularly important if planning is carried out locally, by different people. As the user can access the check at any point during planning, the user can flexibly adapt planning in light of current data.

## **PS Functionality for Project Oriented Material Management**



## Project-Oriented Material Management

Smooth and efficient material management is essential for the success of projects not only in the construction industry, but also in engineering, research and development, and service industries. The user does not require production facilities to benefit from the integrated procurement processes in the Project System. Its material management functions also enable the user to optimize assembly processes.

Procurement and production with the SAP System provides the user with advantages that are decisive for successful project management. In the earliest stages of a project, the user can plan materials and components for a project and assign them to the project. Later on, the user can start procurement so that the material is delivered on time according as required in the project. Alternatively, the user can plan internal production, using Material Requirements Planning (MRP) for instance, so that the materials are available when needed. The system helps the user choose Make or Buy decisions, to withdraw from stock and process materials in order to produce the finished object or its components. Even if the bill of material (BOM) is still being created and the product structure has not yet been decided upon, the user can still assign material components to a project. These functions enable the user to trigger the procurement or production of parts, which have long lead times.

As soon as the user knows which materials are to be acquired and how the user wants to do so, the normal procurement processes can be started. It is not important whether the materials or components are produced internally or purchased from a vendor. After the components have been procured or assembled, the finished product can be delivered in its entirety, or the components are delivered and the product is assembled on-site. In both cases, there is always a reference to the project. The actual costs that are incurred in this process are posted to the project and can be evaluated at any time. After the components have been procured or assembled, the finished product can be delivered in its entirety or the components are delivered and the product is assembled on-site. In both cases, there is always a reference to the project. The tight integration of the Project System with Controlling means that the demands of controllers and external auditors can always be met:

- The system automatically values projects in process and work in process.
- The user can track project-related stocks at all times.
- The user can evaluate planned and actual costs of components down to line item level.

## Material Planning for Projects

Complex and dynamic product structures are common in project-oriented industries. These structures are developed during the project itself, whereby particularly in plant construction there is little redundancy in the structures. The functions that are available in the Project System for materials management reduce the level of complexity and facilitate working with large numbers of materials. Product structures are linked to projects by assigning material components to network activities and consequently to WBS elements, which can manage costs and stock. The processing of these components in the Purchasing or Production Planning departments is triggered from the Project System. A special group of tools helps the user manage material



assignment. Complete BOMs can be exploded and the individual components assigned to the relevant activity. The user can have changes to the BOMs be reflected immediately in the project. This means that the user not only can assign components from BOMs or product structures, but can also follow and update subsequent changes to BOMs. The user can, of course, assign materials or components directly to activities. Complete BOMs can be exploded and the individual components assigned to the relevant activity.

Once the activities, which have components assigned, have been released, the relevant documents can be generated in Purchasing or Production Planning. These are either planned orders or purchase requisitions, depending on the Make or Buy decision. The user can generate purchase requisitions for external procurement directly or via MRP. If sufficient material is in stock, this material is reserved for the activity. The user can track material costs and stock levels at an aggregate level via the WBS element to which the activity is assigned.

Advance procurement and partial deliveries are processes that are common practice particularly in the plant construction industry. In the Project System, the user can not only procure components in advance but also start the procurement for materials at the best point in time. The user only releases materials when necessary. This gives the user greater flexibility to change details of components.

If the company does not have its own production facilities, some materials are not kept in stock, or the user wants to procure some parts immediately, the user may not want to use MRP. In this case, the user can set up the system to generate purchase requisitions immediately (without reservations). At a later date, Purchasing converts the requisitions to purchase orders.

The requirements dates for the materials are calculated based on the scheduled dates of the activities to which they are assigned. Of course, the user can set the requirements date for each component individually. For instance, the user can set the requirements date for the material to be five days after the start of the activity.

If the user wants to have material delivered directly to a construction site, a subsidiary, or a customer, the user can use third-party orders. The user enters the delivery address in the order and the material is delivered directly without going through one of the plants.

### **Internal Production**

Material requirements planning (MRP) generates independent and dependent requirements: Independent requirements are requirements for the component itself whereas dependent requirements generated when the bill of material (BOM) is exploded, in other words, the assemblies and parts from which the component is built.

If these requirements cannot be covered by material in stock as is generally the case for project stock, MRP produces either planned orders or purchase requisitions (depending on the settings



for the material). In the production process, shop floor control converts planned orders to production orders and releases them.

The material is issued from stock for the production order. The order is processed according to the routing for the material. The system carries out a detailed availability check for all required materials and if necessary, informs the user about missing parts.

The system distinguishes between two types of stock for materials or components that are required during production.

- Material that is to be procured and used just for this one project (project stock).
- Material that does not have to be procured with reference to the project and that therefore can be withdrawn from normal plant stock.

The quantities and values of material in project stock are assigned to the project and can be followed and evaluated at all times. Thus, the user can reserve “special components” in a separate stock that only is available for the project. On the other hand, material in plant stock is not assigned to the project, is generally available and does not appear in stock cost evaluations until it is issued.

In general, the planned values for materials and components can be seen in a project, as long as a price can be determined using price control.

### **Delivery to Stock**

After the operations in the production order have been confirmed and the material has been consumed, the resulting assembly is delivered to stock.

### **External Procurement**

There are two scenarios for external material procurement in the Project System:

- Generate purchase requisitions in MRP
- Generate purchase requisitions directly in the project

In both cases, the purchase requisitions are consequently converted to purchase orders, which are then sent to the vendor. The user can use the Monitoring Dates function to check up on dates that are relevant to a particular delivery. When the material is delivered, it is posted to the relevant stock segment. This can also be either project stock or plant stock. When the material is withdrawn from stock for use in the relevant activity, the system automatically posts a goods issue to the relevant project. The user can use third-party orders, advance procurement, and requirements grouping for external procurement as described above.

Some materials are not managed in stock, for instance very large parts. For these materials the user triggers direct procurement from the project. Purchasing orders the material as usual, but the material is delivered directly to assembly and is used immediately. No records of the



material are kept in stock management. The costs of such a material are assigned directly to the network (network header or activity).

### Monitoring Dates

The user utilizes Monitoring Dates to follow orders for materials in the procurement process. This is helpful when the date on which a component is required for an activity is critical for the rest of a project. As a project manager, the user needs to commit to an assembly begin date, however the user can only guarantee this date, if purchase order is issued on time. In many cases, vendors submit quotes and the purchasing department evaluates them before they issue a purchase order. The monitoring dates function makes it easier for a project manager to keep an eye on such important dates for one or more components.

Monitoring Dates is based on events, such as the creation of a request for quotation, of a purchase order, goods receipt, or the requirements date from the reservation. The user can compare the planned dates with the actual or forecast dates for each event. The user can define events as the user likes and reference dates from other objects in the system in these events.

The user can predefine traffic lights for variances. For example, if the forecast date is after the planned date, the light changes to yellow for that component. When the actual date or today's date is after the planned date, the system displays it in red. The user filters or sorts the date overview according to personal criteria. In the overview, the user can edit individual dates or highlight variances.

The user can also indicate how important a date variance is for the project by setting the own pre-defined status which appears as an icon in the dates overview. For instance, if a traffic light shows the user that, a delivery is late; the user can contact the vendor. They tell the user that the parts have been produced and will be delivered in the next few days. At the same time, there are other delays in the project so that this delay is no longer critical but still needs to be monitored.

The user can now set a self-defined status for this date that appears as an icon in the date overview. This status informs other users that the delay is no longer important.

Within the Monitoring Dates function, the user can also schedule the events for the materials. This scheduling is completely independent of other scheduling in the SAP System. For instance, the user know that

- It generally takes 30 days for a vendor to produce and deliver a particular item
- The user needs two days to process the order internally
- The user needs another 10 days to obtain the necessary quotations.

The user enters these offsets, a start or finish date manually or by referencing a date in the system, for example the requirements date. The user then schedules the dates and can see in



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the date overview on which date the user must issue a purchase order to make sure the delivery arrives on time.

### Services and Projects

The user can commission services for an order directly in a project as for a material. To do this, use a service activity. This is an external activity with additional fields for details of the services to be performed. A purchase requisition is generated for a service activity as for an external activity. When defining services, the user can make use of standard service catalogs.

After the user creates a service activity in the Project System, the user can use service processing in Purchasing. Services can be planned or unplanned. The nature and scope of planned services is known at the start of procurement.

The individual specifications are entered either with the help of a service master record or standard service catalogs, or directly as short and long texts. Price and quantity are specified in both cases.

Unplanned services are services that cannot be specified in detail for various reasons. Therefore, they can have no description. The user enters them in the form of monetary limits. The system allows services to be performed up to a value not exceeding these limits. This allows a certain degree of cost control.

The system follows the progress of a service activity by using service entry sheets. The user enters exactly the services that have been performed and then the responsible person accepts the services. After all the individual services in the activity have been entered and approved, the invoicing process can be triggered.





## Appendix V: Additional Development Recommendations

### REPORTS – Code Review

- ZBUCKETT\_UPDATE
  - REPORT ZEMP\_STEPINCREASE\_HR.
1. Use CASE.Encase instead of **IF..ELSEIF...ENDIF**. Always code **WHEN OTHERS** as part of Case
  2. Whenever possible, use statements that have an explicit work area. For example, "APPEND wa-time TO it\_time." is approximately twice as fast as "wa-time = it\_time. The same applies to COLLECT and INSERT. The runtime of a COLLECT increases with the width of the table key and the number of numeric fields whose contents are summated.
  3. Modularization: Code broken into logical modules. List modules in greatest use order, the guide line should be generally no more than 50 lines.
  4. It is better to avoid ORs and to replace them with IN operator and argument list (if possible)
  5. IF: specify the most likely elimination criteria first when using AND / OR operators.
  6. Database Optimization/ Coding Standards
    - Transaction SLIN, extended syntax check
    - Transaction ST05, Trace Request(SQL Trace)
    - Transaction SAT, Runtime Analysis
    - Use Transaction SE30 to evaluate the hit lists of the top CPU consumers, table accesses, and develop a general idea of where bottlenecks exists. **Capture results before and after update.**
    - Keep the number of accesses to the database at a minimum Check whether a required record is already in the work area
    - use SORT / BINARY SEARCH for mass accesses, and try to SORT Only once. Avoid unnecessary copying of data
    - Use LOOP AT / READ ... ASSIGNING <field symbol>, Especially in nested tables
    - The Code Inspector is a tool for checking Repository objects regarding performance, security, syntax, and adherence to name conventions.  
[http://help.sap.com/saphelp\\_nw70/helpdata/EN/56/fd3b87d203064aa925256f88d931b/frameset.htm](http://help.sap.com/saphelp_nw70/helpdata/EN/56/fd3b87d203064aa925256f88d931b/frameset.htm)
    - Avoid unnecessary database access



- Reduce the number of data records that have to be read
- Reduce the amount of data that has to be searched by the database using appropriate indices and where clauses

## Report ZTM\_EMP\_ACRL

```
Select single TRFGR from PA0008 into temp_TRFGR where pernr eq
wa_time-pernr and
subty eq '0' and
endda eq '99991231'.
```

```
*hrs2 = temp_hrs2.
```

```
hrs3 = wa_time-hrs.
```

```
Select single TRFGR from PA0008 into temp_TRFGR where pernr eq
wa_time-pernr and
subty eq '0' and
endda eq '99991231'.
If sy-subrc eq 0. " insert
*hrs2 = temp_hrs2.
hrs3 = wa_time-hrs.
endif. " insert
```

```
elseif ( hrs4....
```

```
If ( wa_time_temp-sb_area eq '04' or wa_time_temp-sb_area eq '12' ).
```

```
If ( hrs3 GE '1040.00' and hrs3 LE '1140.00' ) or
( hrs3 GE '2080.00' and hrs3 LE '2180.00' ) or
( hrs3 GE '4160.00' and hrs3 LE '4260.00' ) or
( hrs3 GE '6240.00' and hrs3 LE '6340.00' ) or
( hrs3 GE '8320.00' and hrs3 LE '8420.00' ).
```

Insert

\*replace with case

When you use statement: IF:  
specify the most likely  
elimination criteria first when  
using AND / OR operators.\*