

REAL-TIME PERFORMANCE MANAGEMENT FOR THE ENTERPRISE

RtPM



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RtPM



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Driving value by integrating SAP xApp Emissions Management and OSI RtPM

Overview

Business Processes

Core Processes and Functions

TechniData and SAP – Our Relationship

Since 1985 providing leadership for IT-based environmental management

Developed the first integrated environmental information systems (Hoechst and BMW)

350 employees fully dedicated to compliance solutions for EH&S

- Established **partnership with SAP 1995** for the **development** of an environment, health and safety module (now known as **SAP EH&S**)
- Enlarged partnership with SAP 2001 for development and **maintenance, pre-sales, marketing, training and services**
- Enlarged partnership with SAP 2003 for development and maintenance, **Audit Management** and **Recipe Management**
- Enlarged partnership with SAP 2003 for development and Roll-Out **SAP xApp Emissions Management**
- Enlarged partnership with SAP 2004 for Powered by SAP NetWeaver program with **Environmental Performance Management**



SAP xApp Emissions Management



- **xEM is the Solution for Environmental Compliance and Emissions Management**
- **xEM supports the Alignment of Business Processes to Regulatory Requirements**
- **xEM provides Tools for Risk Mitigation and Opportunity Identification.**



Compliance: Situation and Trends



- Increasing complexity of regulation frameworks
- Rising frequency of change
- Increasing number of deviation events
- Expanding effort for management and reporting
- Resource limitations
- Violation risks
- Direct operational and financial impacts

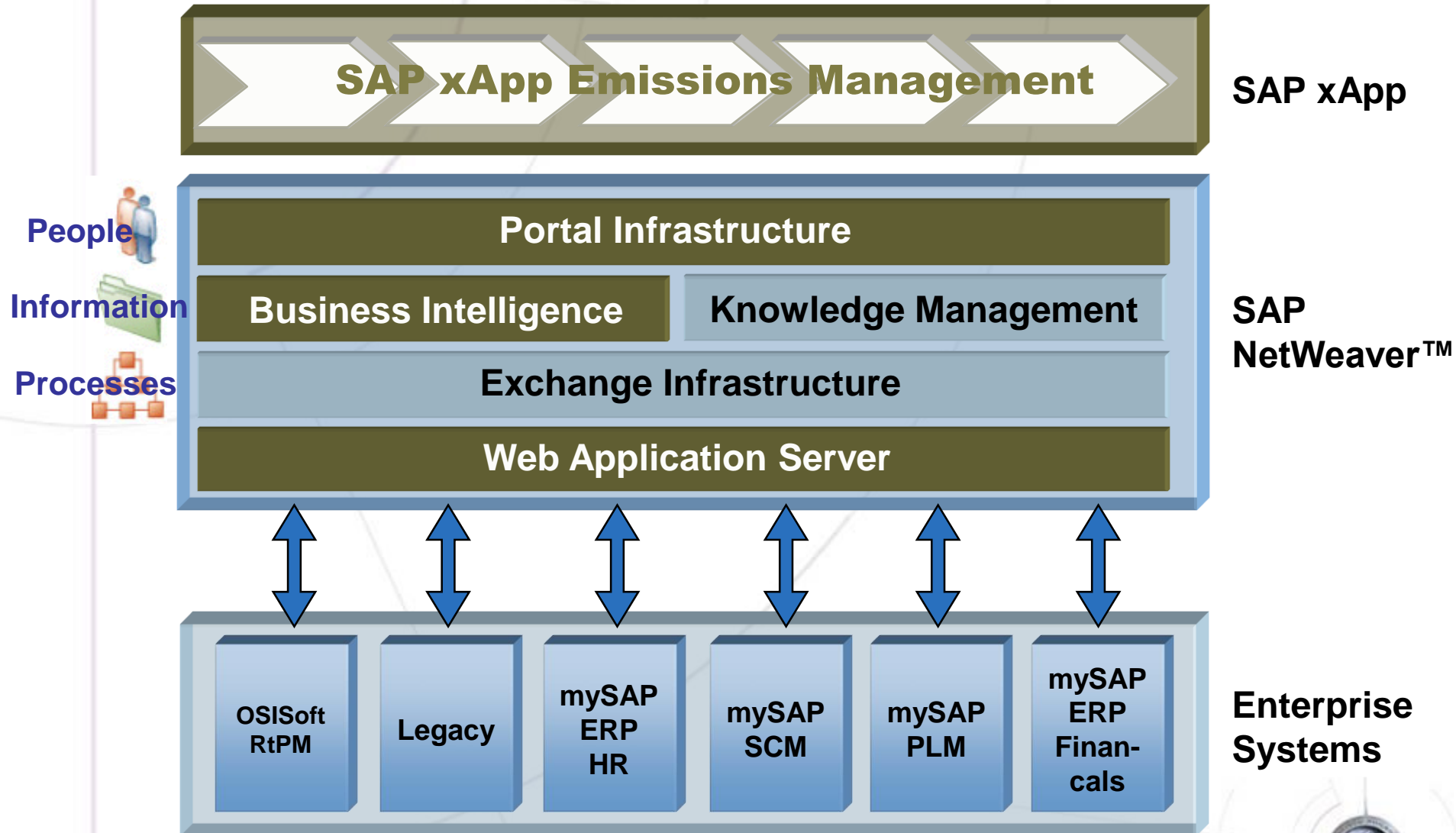


Typical Applications



- **Management of operating permits**
- **Compliance Tracking**
- **Handling of exceptions**
- **Regulatory and ad hoc reporting**
- **Sophisticated data analytics**
- **Alignment to emission trading schemes**
- **Evaluation of forecast and planning scenarios**

SAP xEM comes with SAP NetWeaver



SAP xEM User Roles

System Access by Role

Power User: Emissions Expert

- All Read and Write Rights
- Control all Functions
- System Configuration
- System Update
- Analysis and Reporting



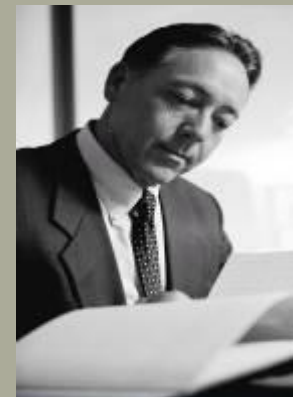
Data Entry User: Facility Operator

- Limited Read/Write Rights
- Data Entry only
- Uses Simplified Dialogues
- See Report Data

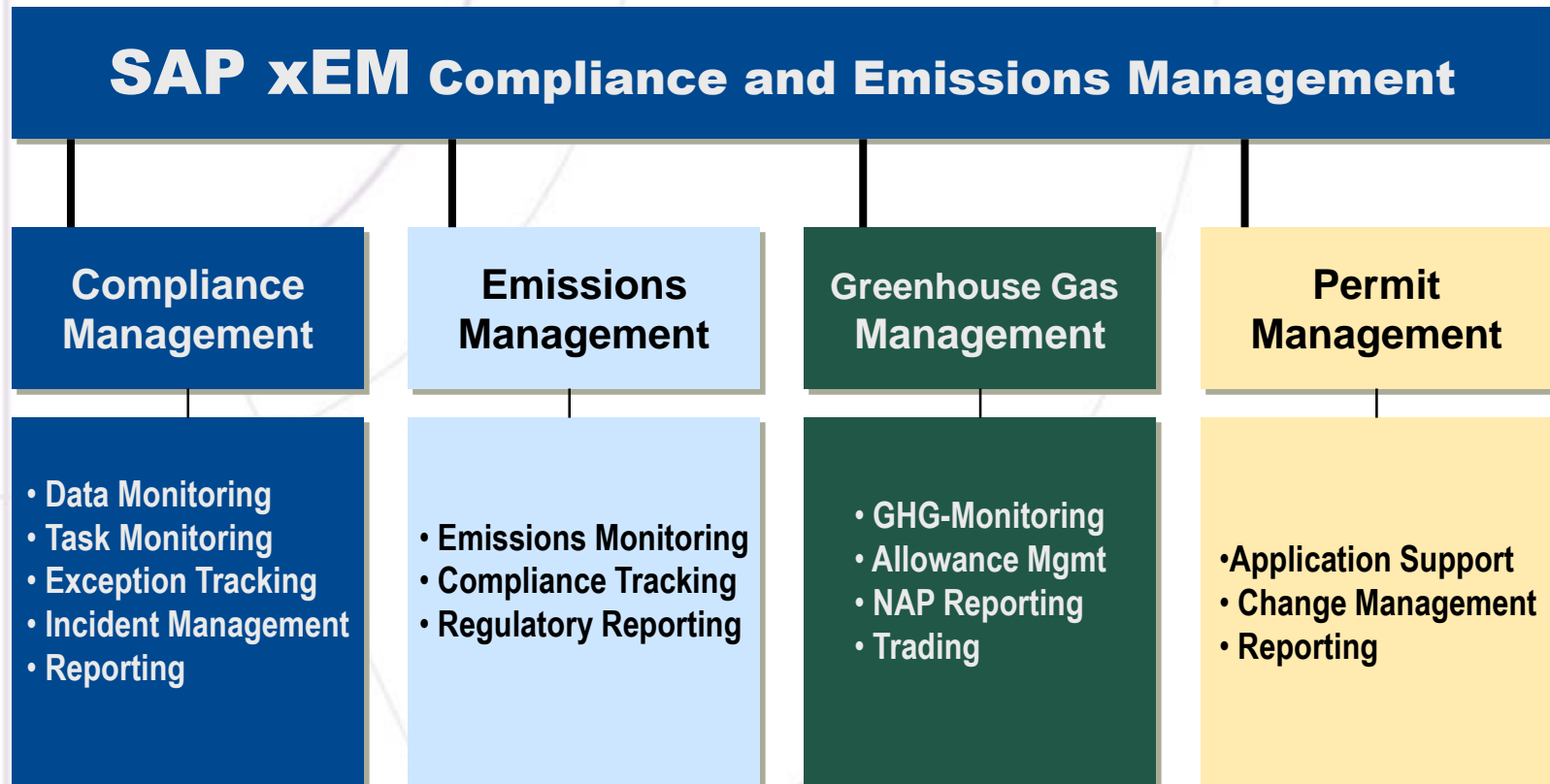


Supervisor User Compliance Manager

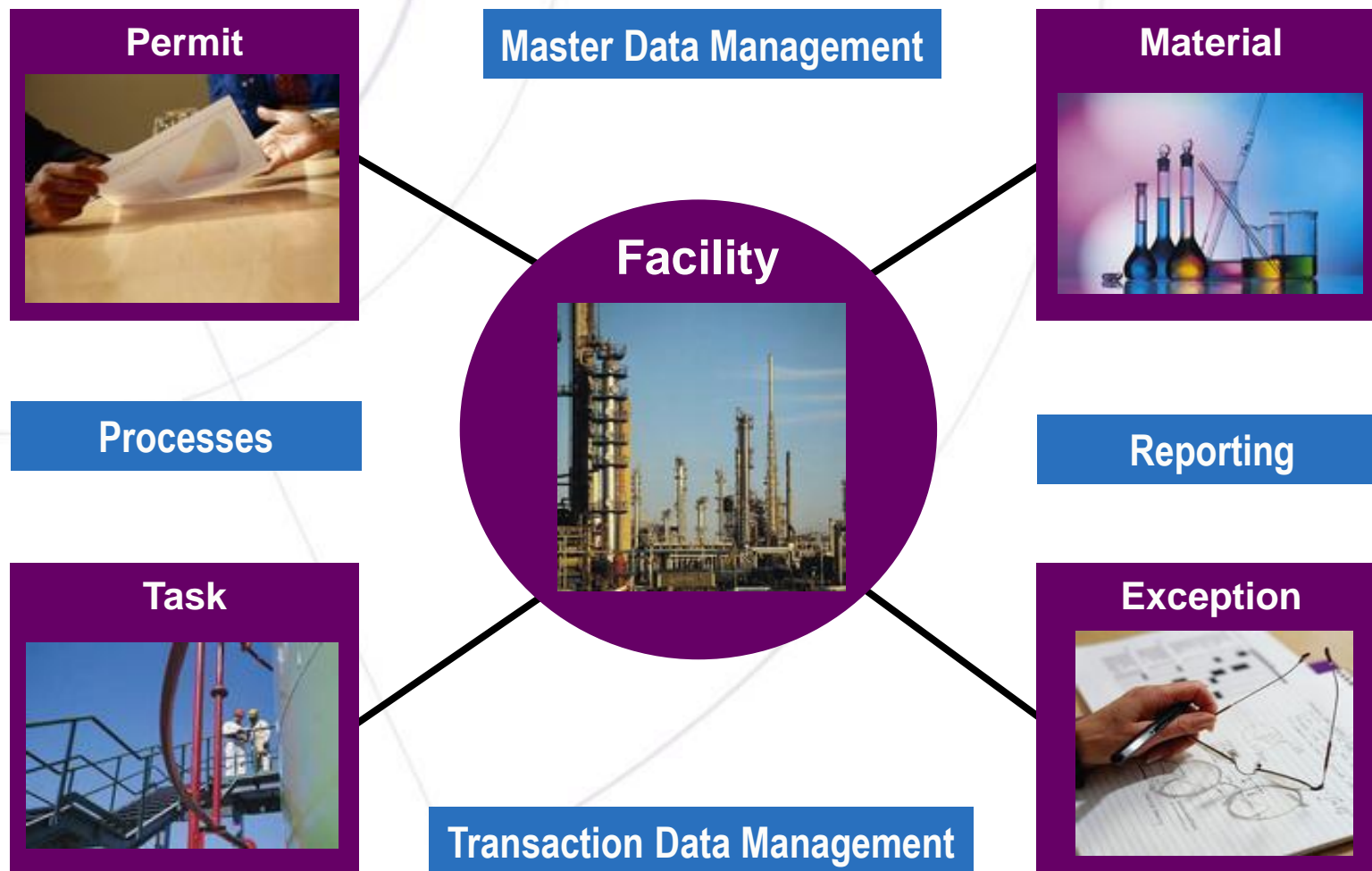
- Read and Write Rights
- Control Selected Functions
- Data Analysis
- Reporting



SAP xEM: Solution Components



SAP xEM Objects and Processes for Compliance



SAP xEM Objects and Processes

Integration

SAP ERP

EHS

ALM

MM

Permit



Material



Facility



Task



Exception



SAP xEM Objects and Processes

SAP ERP

QM

PP

MM

Permit



Material



Facility



Control Systems

PI

Task



Exception



PM

SAP ERP

SAP xEM Objects and Processes

Reporting

Integration

Permit



SAP ERP

Facility



Material



BW

Reporting

- Adobe
- SAP BW

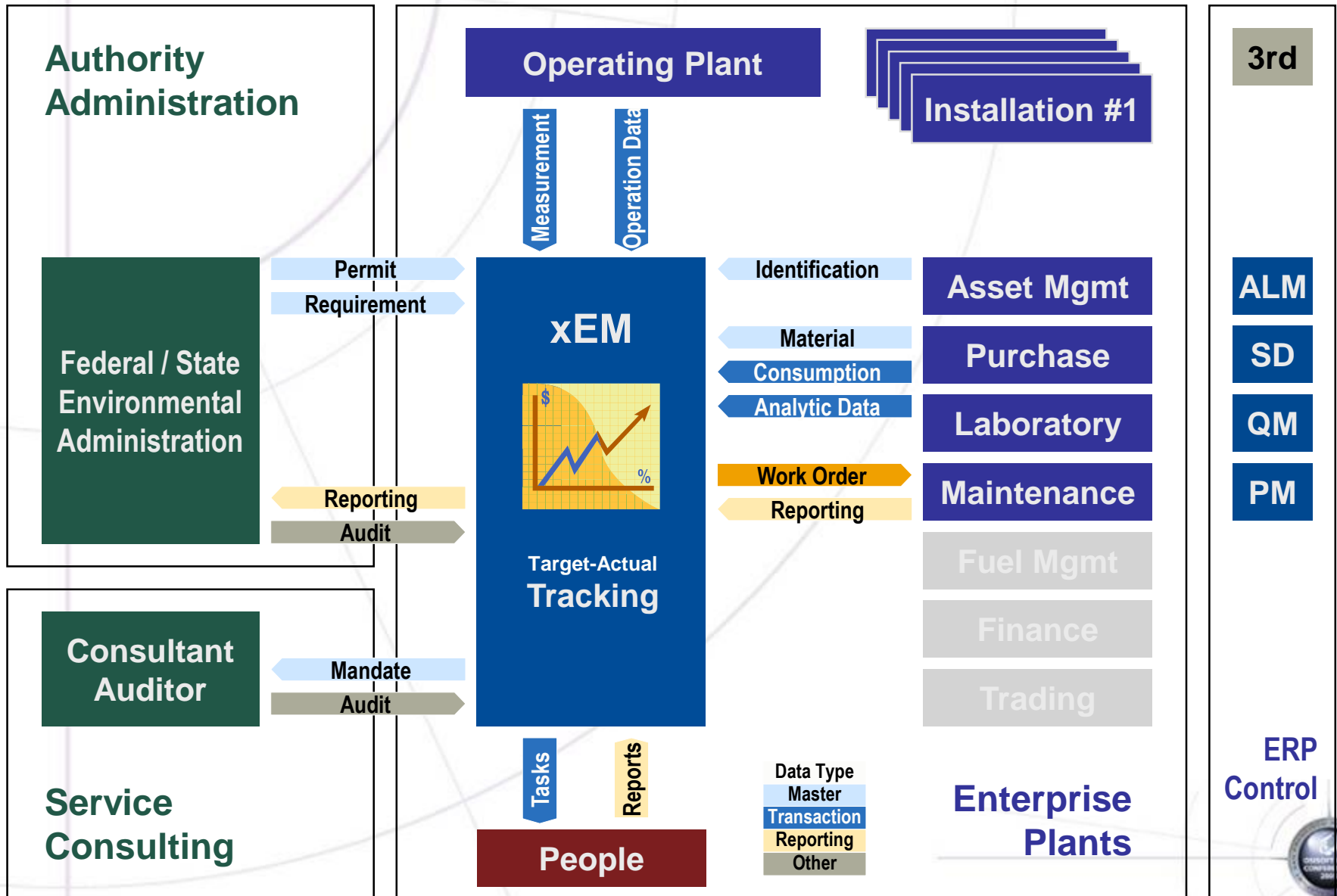
Task



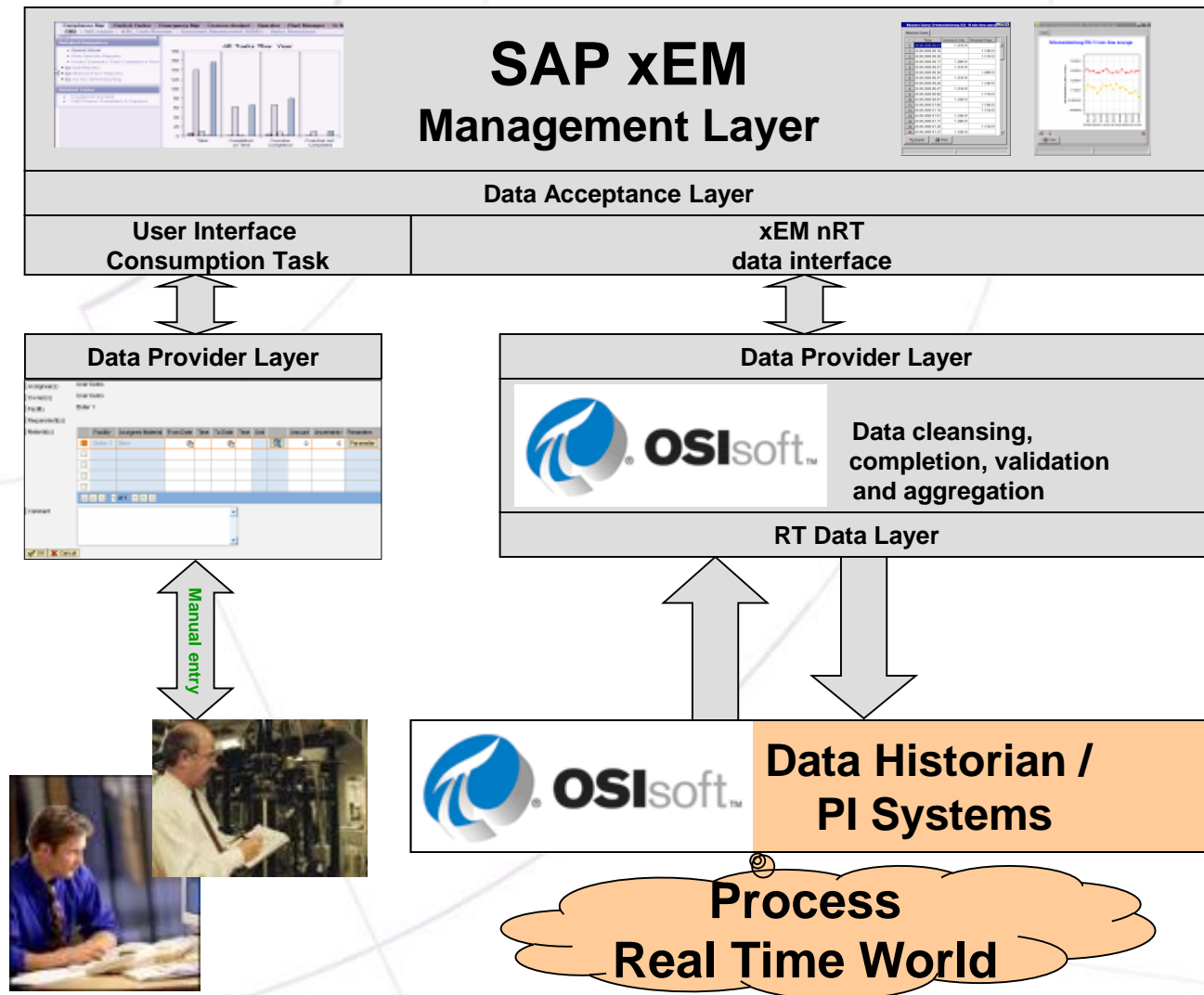
Exception



Emissions Management



SAP xEM with OSIsoft RtPM – the concept



Purpose of xEM data interface

- **Define standard Interfaces to accept incoming data from Real Time systems such as data historians directly**
- **Provide Mechanism to be able to handle continuous data-loads of the following data-items into xEM:**
 - **Measurement data**
 - **Consumption and Consumption parameter data**
 - **Rolled-Up Emission values**
 - **Exceptions**
- **Mapping of Master Data**
 - **E.g. Facilities, Limits**



Data Averaging / Cleansing requirements

Data being delivered to the xEM data interface needs to comply to certain aspects:

- Data flowing from process system to management system needs to be consistent, valid and auditable**
- Mechanisms to trigger exceptions based on limit violations**
- Scalable Architecture to support data loads ranging from only a few data items in a bigger timeframe up to hundreds of data-points in a higher frequency**



Permit and Requirements Management

The screenshot displays the TechniData Permit Manager web application. The interface includes a top navigation bar with links for Help, Personalize, and Log Off. Below this is a main menu with options like Demo Management, Administration, Emissions Management, Dashboard, Facility Builder, Permit Manager (selected), Task Manager, Exception Log, Materials Management, and Library Manager. The central area is titled 'Permit Manager' and features a sidebar for 'Authority and Permit Hierarchy' on the left and a main content area on the right. The sidebar lists various categories such as Favorites, Carbon Dioxide, Authority and Permit Hierarchy, LUA - Landesumweltamt Nordrhein-Westfalen, State Environmental Department, Environmental Impact Studies, Offshore Complex Operating Permits, Eagle Refinery Operating Permit, Fugitive Emissions, Green House Gases, Carbon Dioxide (selected), External Combustion Units, Waste Water Treatment Refineries, Emergency Plans, Exception Report Templates, Storage Vessels, Onshore Complex Operating Permits, Corporate Regulations Oil & Gas Corp., Corporate Regulations Automotive Corp. Deutschland, Alabama Department of Environmental, Environmental Protection Agency, Environment Canada, and US Federal Register. The main content area shows a form for 'Carbon Dioxide' with fields for Name, Valid from (10/31/2004), and Valid to (10/31/2005). Below the form are tabs for Text, Facilities (1), Limits (1), Tasks (0) (selected), Citations (0), Notes, and Documents. The 'Tasks of selected Requirement' section includes a table with columns for Function, Name, Due Date, and Description, and a 'Create' button. The table is currently empty, showing 0 of 0 items.

Welcome TechniData Demo-User

Help | Personalize | Log Off

TechniData

Demo Management | Administration | Emissions Management

Dashboard | Facility Builder | Permit Manager | Task Manager | Exception Log | Materials Management | Library Manager

Permit Manager

History | Back | Forward

Advanced Search

Show Last Search Result

Authority and Permit Hierarchy

- Favorites
 - Carbon Dioxide
- Authority and Permit Hierarchy
 - LUA - Landesumweltamt Nordrhein-Westfalen
 - State Environmental Department
 - Environmental Impact Studies
 - Offshore Complex Operating Permits
 - Eagle Refinery Operating Permit
 - Fugitive Emissions
 - Green House Gases
 - Carbon Dioxide
 - External Combustion Units
 - Waste Water Treatment Refineries
 - Emergency Plans
 - Exception Report Templates
 - Storage Vessels
 - Onshore Complex Operating Permits
 - Corporate Regulations Oil & Gas Corp.
 - Corporate Regulations Automotive Corp. Deutschland
 - Alabama Department of Environmental
 - Environmental Protection Agency
 - Environment Canada
 - US Federal Register

Name: Carbon Dioxide

Valid from: 10/31/2004

Valid to: 10/31/2005

Text | Facilities (1) | Limits (1) | Tasks (0) | Citations (0) | Notes | Documents

Tasks of selected Requirement

Create | Assign

Function	Name	Due Date	Description

0 of 0

Emissions Inventory

Welcome Demo User
[Help](#) [User Admin](#) [Log off](#)

[Dashboard](#) [Facility Builder](#) [Permit Manager](#) [Task Manager](#) [Exception Log](#) [Material Manager](#) [Equation Manager](#) [B/V - Reports](#) [Configuration](#) [Administration](#)

Equipment Detail

Save Cancel Delete Split validity period Copy to Scenario

Equipment * Source 04 Cooling Tower
 Validity period Infinite
 Show Detail Emissions Go

Classifiers Contacts Tasks Material Consumption Data Emissions Measurements

Emissions

(Re)Calculate Debug Show Emissions of Material Time from Beginning Go Mat. Table

Create

Calc. Freq	Rollup Type	Date From	Date To	Emission	Amount UnCont.	Amount Cont.	Unit	Uncertainty (%)	Info			
Monthly	Normalized Emission	1/1/2004	1/31/2004	Total Dissolved Solids	0.00076	0.00076	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Toluene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Propylene	0.0001	0.0001	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Petroleum Hydrocarbons (C1 + C5)	0.00015	0.00015	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Propane	0.00005	0.00005	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	o Xylene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Ethylene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	m+p Xylene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Benzene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Normalized Emission	1/1/2004	1/31/2004	Ethylbenzene	0	0	kg/kg	0	✓	🔍	📄	🗑️
Monthly	Actual Emission	1/1/2004	1/31/2004	Total Dissolved Solids	6,084.5994	6,084.5994	kg	0	✓	🔍	📄	🗑️
Monthly	Actual Emission	1/1/2004	1/31/2004	Toluene	6.138	6.138	kg	0	✓	🔍	📄	🗑️
Monthly	Actual Emission	1/1/2004	1/31/2004	Propylene	805.3056	805.3056	kg	0	✓	🔍	📄	🗑️
Monthly	Actual Emission	1/1/2004	1/31/2004	Petroleum Hydrocarbons (C1 + C5)	1,227.6	1,227.6	kg	0	✓	🔍	📄	🗑️
Monthly	Actual Emission	1/1/2004	1/31/2004	Propane	373.1904	373.1904	kg	0	✓	🔍	📄	🗑️

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The Emissions Compliance Management Solution

Process Improvement, risk reduction and compliance achievement

- Improvement of productivity by aligning business processes with fulfillment of required environmental regulations
- consistent information tracking for all processes and trusted data for enterprise planning and risk management
- transparency for shareholders, investors and public
- fulfillment of required regulations (state, federal, international) – license to operate
- early identification of deviations and critical issues to maintain plant productivity

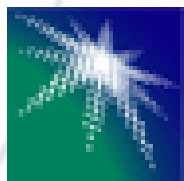
Capabilities you need

- Emissions estimation and analysis supported by scenarios, calculations and presentation of emissions data
- Compliance management with task supervision, schedules, defined information flows and procedures and roles
- Compliance reporting via automated report generation and delivery
- Emissions trading and collaborative scenarios, including forecasting and transaction support



Selected Customers

أرامكو السعودية
Saudi Aramco



NOVA Chemicals®



TESORO



Boehringer
Ingelheim



BG Group



PACIFICORP



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