Supply Chain Improvements
SAP TSW Global Standard

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TSW plays a significant role in Chevron’s fuels supply chain processes

SAP TSW - Key tool for Chevron’s supply chain management
- How did we implement TSW?
- Where do we derive value?

Process Area
- Supply and Transport Products
  - Exchange and Term Supply Planning
  - Replenishment Planning
  - Product Scheduling
  - Product Primary Transportation

Process

Tool
- SAP Custom App
- SAP TSW (Trader’s & Scheduler’s Workbench)
- SPW (Stock Projection Worksheet)

Visibility
- Reporting / Data Warehouse
While fuels supply chains appear to be fairly straight-forward....

Replenishment Planning requires that we understand the timing/location of inventory ownership and manage accordingly.
Supply Chain Management in the Oil & Gas Industry is complicated

- Refinery LP Planning
- Refinery Blending
- Raw Material Optimization
- Product Scheduling
- Replenishment Planning
- Terminal and Fleet Ops
- Sales and Operations Planning
- Demand Forecasting
- Price Forecasting
- Pricing
- Order to Cash
- Customer / Sales Management
- Risk / Exposure Management

Replenishment Planning & Products Scheduling is an important part of the bigger puzzle of Supply Chain Management in the Oil & Gas Industry
Asia/Africa regions had a very manual process prior to SAP TSW (2008-2010)

- Demand Forecast
  - Marketing
  - Supply
  - 3rd Party

- Physical Inventory
  Daily Stock Report (from Terminals)

- Ship Scheduling Changes

Import Planning

Scheduling Spreadsheet (Planning)

Data Warehouse

SAP Create Nomination

Inventory Projection Report

Vessel Schedule & Distribution Schedule Report

Reports
  - Movements
  - Variance
  - Etc.

Manual Input
Automated transfer
With a major ERP initiative already in progress in the US, the Supply Chain project had a choice

1. ERP standardization effort
   - Enhancements in US – 2002-2006
   - Deployment in Asia/Africa – 2007-2008

2. Supply Chain tools effort – 2005 onward
   - Demand Forecasting
   - Refinery Blending
   - Product Scheduling
   - Replenishment Planning
   - Sales and Operations Planning

Integration choices: 1) Single vendor
2) Best of breed
3) Hybrid

For Product Scheduling & Replenishment Planning, we chose “Best of breed” approach → SAP TSW
What were our business goals when choosing a Products Scheduling tool?

**Goals**

1. Single global standard
2. Multi-product view for marine activity
3. Inventory management by valuation type
4. Integrated scheduling, financial, reporting system
5. Robust reporting

**Ultimate Goal**

Better business decision making through better data visibility

**Considerations**

- Integration
  - Technologies
  - Processes
  - Customization
- Data
  - Quality
  - Governance
  - Sustainability
- Application
  - Performance
  - Functionality
1. Integration – Tools must be integrated for good decision making in each function

Integration within SAP modules

Single vendor solution provides seamless integration:

1. TSW Product Scheduling
2. SPW Replenishment Planning
3. Exchange and Term Supply
4. Inventory – O4 TIGER Tank Management
5. Finance/Accounting
6. Order to Cash – Truck Actuals

SAP Integration to other tools

Best of breed solution also needs to provide seamless integration with:

1. Refinery Production
2. Demand Forecasting

A TSW tool integrated with other parts of SAP and interfaced to outside tools is key to gaining efficiencies and utilizing good data.
1. Integration – Tool characteristics that help achieve integration vision

Effective integration requires the tool to have the following characteristics:

1. Standard interfaces
2. Scheduled jobs within SAP to update/extract data
3. File drop/create and pickup – interfaces to other programs
4. Data flows in/out have to be scheduled and on-demand

"IT began in the back office of business, it moved to the front office, and now it has deeply penetrated all aspects of the business,"
"Everything is connected to everything. You have to be integrated."
- Louie Ehrlich, Chevron CIO

Seamless integration of TSW to other Supply Chain apps → achieve the total package to provide best available data for decision making.
2. Customization - Key to meet global marine planning & JV terminal requirements

**Display**

1. SPW separated into two tabs:
   - Replenishment Planning
   - Demand Forecast

2. Information Panel

**Master Data**

1. Tank parameters – Valuation type level
2. Inventory maintenance
3. Upload capability

We needed a tool for Replenishment Planning that would meet our specific around inventory management and marine movements.
2. Customization - TSW was key to achieve better user adoption

What do users want with replenishment planning tools?

1. Easy to manipulate movements – “Drag and Drop”
2. Easy to decipher/discern inventory rundown – Color Coding Logic
3. Easy to customize look and feel – Layouts / Double-click material in focus
4. Easy to see all the data when and how they want to see it - Reporting
5. Performance – Fast and accurate data
6. EDI Interfaces and integration – South Africa EDI capabilities industry std

Something that looks and feels like Excel

→ TSW SPW grid has these features

The Chevron solution is a 'complete' package. From planning, to scheduling, to actualizations and then reporting. End-to-end it is a complete functioning package.
2. Customization – Iterative deployments help meet global needs through flexibility

**Tool Flexibility** - Tools need to be flexible to handle the subtle differences between marine and pipeline movements

- Marine – multiple products, destinations – single vessel view
- Pipeline – single products, multiple destinations – single terminal view

**We learn by doing – Continuous Improvement**

Solutions to complex problems often require multiple passes to solve for multiple regions/transport

- The more we “do”, the more we learn, the more changes we make
- Tools need to be intuitive - an extension of the scheduler’s thoughts & activities.

The success or failure of some projects can be significantly impacted by how well the solutions (tools) are integrated into the bigger picture of process and adopted by the business.
3. Reporting – Robust reporting, data quality, & visibility → Better decisions

Most workarounds that exist address a deficiency in reporting or access to data:

- Spreadsheet kept to create inventory projection graphs because of lack of graphing capability
- Spreadsheet kept separately due to ease of access to the “scheduler’s” data

Tools have to be modified to address those gaps:

- 15 minute interface to data warehouse
- SAP master data mapped to other tool’s data structures
- Graphing in SAP enhanced to show “saw tooth” replenishment plan
- Simulated movements in 2 clicks
- Nomination change button
- Data quality reporting interfaces

Helped us achieve our vision of supply chain excellence
Visibility – Reliability – Efficiency – Alignment - Agility
3. Reporting - Robust reporting leads to significant insights \(\rightarrow\) Process improvements

**Data and Reporting Insights**

- Good tool use promotes good quality data
- Good data warehousing and reporting tools promotes new discoveries
- Business insights can be derived from accurate data mapping and end-to-end business process and end-to-end data reviews

**Examples**

1. Demand Forecast Override vs. Actual
2. Inventory Projection vs. Physical Inventory
3. Objective vs. Schedule vs. Actual for term contracts
4. Inventory Average by Country, region, state, terminal, product

Reporting is the key to communicating *one* version of the truth \(\rightarrow\) available to everyone at anytime.
1. Integration of Tools → User Adoption
   - Tool customization allows new capabilities and changes user behavior
   - Strong application foundation is critical to successful enhancements
   - Automatic flow of inputs into the tool is essential
   - Strong design, development and testing teams required to be successful

2. Customized Global Standard → Simplifies Support Model
   - Multiple tools serving the same purpose complicates support
   - Iterative technology enhancements may be required to address all global problems

3. Reporting & Data Visibility → Better Decisions
   - Good reporting from data in tools is required for a competitive advantage
   - Derivative result from the goal as seen on the next page
GOAL: Integrated Supply Chain solution
Reaping the benefits

Enterprise Channel Management (SAP BI)

Product Scheduling (SAP TSW)

Exchange Planning (SAP custom app)

Risk/Exposure Management

Demand Forecasting

Sales & Operations Planning

Data Warehouse

Refinery

Refinery Scheduling

Refinery Blending

Price Forecasting

Supply Chain Visibility (Reporting)
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