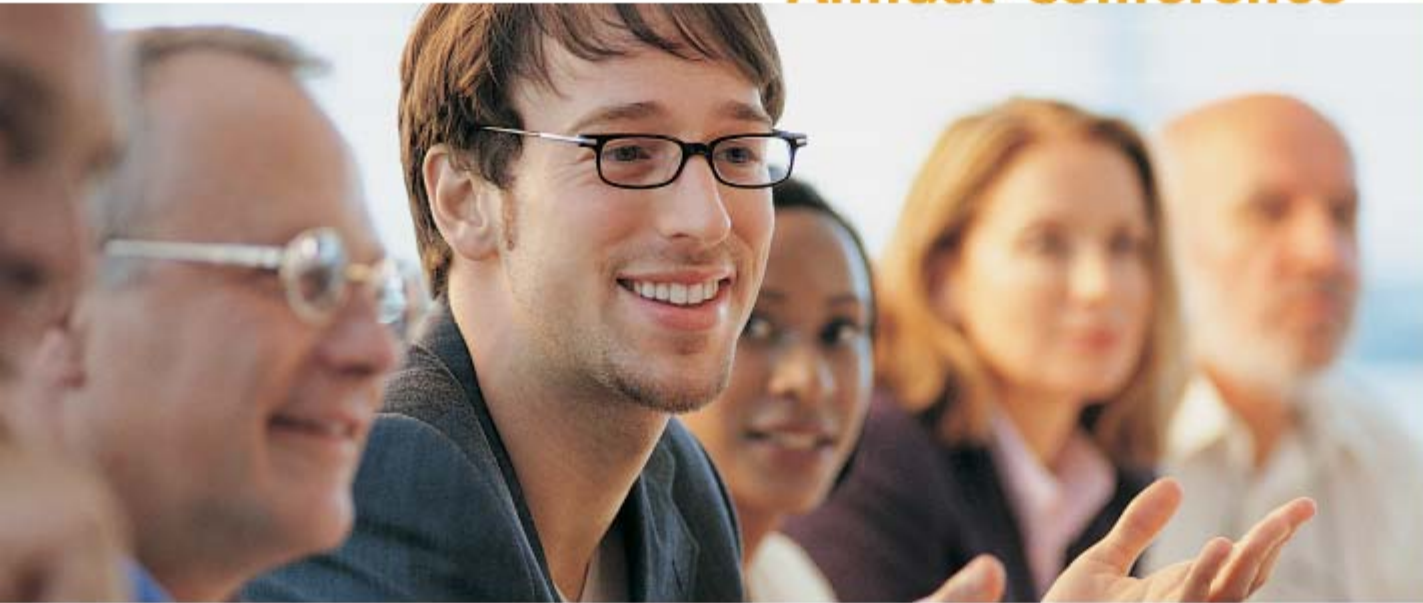


2006 ASUG Annual Conference



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Orlando, Florida, USA

Budget-constrained Inventory Planning

Richard Heimburger, Dickinson + Associates



EDUCATING

NETWORKING

INFLUENCING

Learning Points

- Simple and quick master data changes can completely change the way procurement proposals are executed.
- Standard SAP does not provide availability control on inventory purchases, which presents a conflict with government agencies since all procurement is budget constrained.
- The key task is to organize material procurement according to the characteristics most important in the decision-making process, for the Navy this was demand.

Key Supply Chain Accomplishments at SMART

- ROI - Fiscal Year 2004:
 - NADEP North Island - \$26.8 million (pre-SAP \$45 million)
- Key metrics, Effectiveness and Sales/Obs slightly higher than pre-Go Live within one year.
- Common business process established
- User group created
- More precise requirements – forecast and MRP run more frequently due to increased productivity

Key Terms

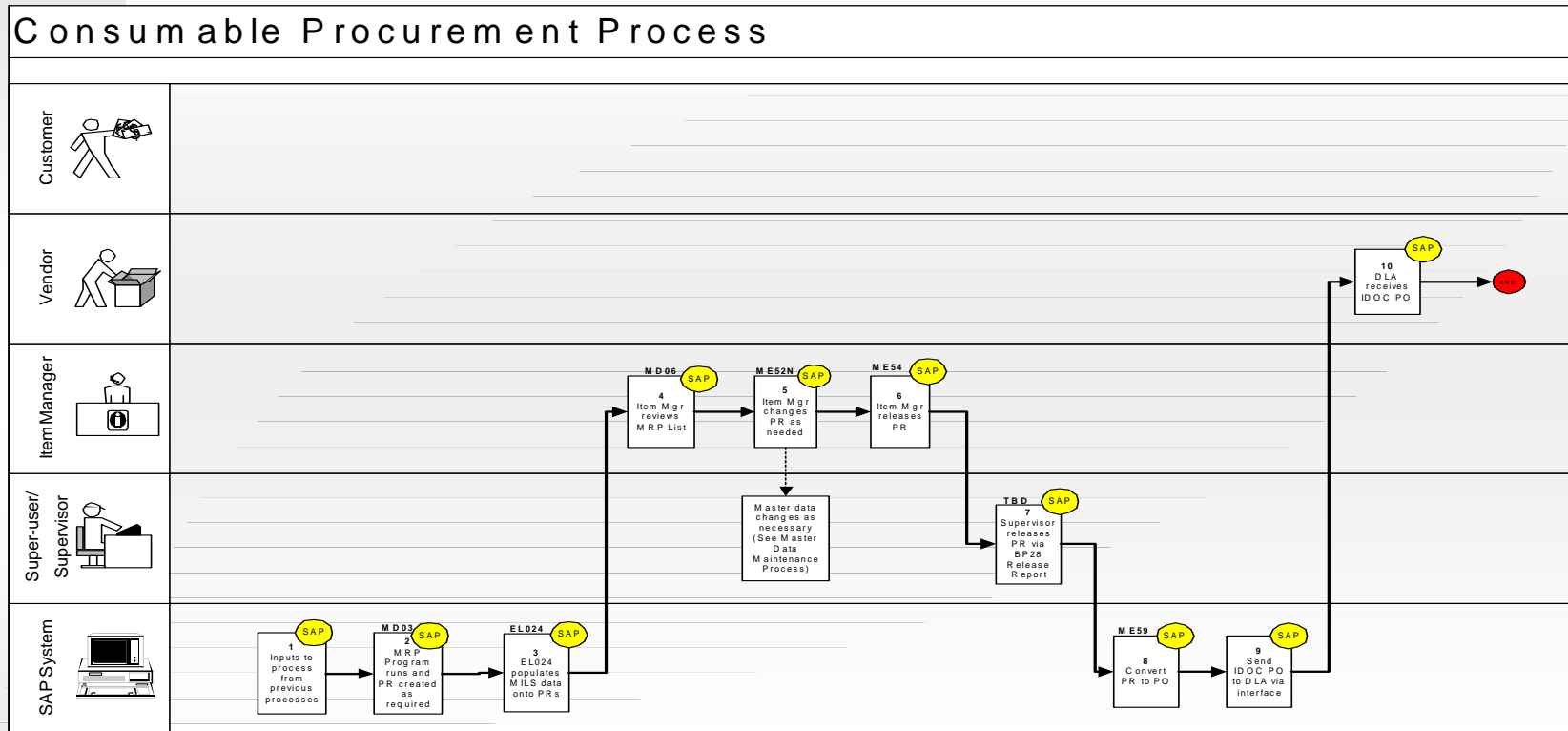
- **Consumable Item**
A material that is intended for one-time use, i.e. an air filter.
- **Repairable Item**
A material that can be restored to its original state through maintenance, i.e. an engine starter.

NAVSUP Inventory Management Major Processes



| NAVSUP Inventory Management Process | | | | |
|-------------------------------------|----------------------------|--|--|----------------------|
| DAILY | Consumable Replenishment | Repairable Replenishment | Customer Fulfillment | BP28 Status of Funds |
| WEEKLY | Stock Posturing | | | |
| MONTHLY | Demand Forecasting | Range-add/Withdraw | Change Notice | |
| QUARTERLY | Material Re-categorization | Customer Forecast Processing for Consumables | Customer Forecast Processing for Repairables | Excess Inventory |
| AD HOC | Manual PR Processing | Master Data Maintenance | LLND to NIIN | |

NAVSUP Consumable Procurement Process



Consumable Replenishment Process

Is a daily process that encompasses planning and procurement processing for consumable materials. In the beginning of the process, SAP's MRP program runs and generates purchase requisitions based on inventory shortages. The Item Manager and Supervisor release the purchase requisition. It is then automatically converted into a purchase order.

Problem & Solution

Problem

The SAP System was producing procurement proposals that far exceeded available budget.

Solution (immediate-term)

1. Using mainly master data, provided a model for prioritizing buys for those materials with high demand. The model and associated master data gave the users the ability to focus their efforts on stocking the most important materials.
2. Gave tool to supervisors to allow them to release buys according to available budget.

Optimization (long-term)

Automation of master data maintenance and tool for automatically adding and deleting materials from range of coverage

Key SAP Functionality

- Gave users ability to focus on the most important procurement proposals
 - MRP Categorization organized materials according to demand. Updated material master with MRP Controller.
 - Proper customization of the Stock Requirements List allowed users to be more productive.
- Gave users the ability to forecast and plan materials differently based on demand.
 - MRP Categorization updated material master with MRP and forecast profiles.
- Gave users tools to compare the recommended buy against available budget
 - Release strategies and PR Release Report gave supervisor ability to control which PRs converted to POs.
- Automated the process of adding or withdrawing materials from the range of coverage

Demand-based Procurement Model



| Stock Status | 12 mo demand | 3 mo demand | Material Category |
|----------------------------------|----------------------------------|-------------------------------|-------------------|
| STOCKED | 8-12 periods of demand in 12 | 2 or more demands in last 3 | HV1 |
| | | Less than 2 demands in last 3 | HV2 |
| | 5-7 periods of demand in 12 | 2 or more demands in last 3 | MV1 |
| | | Less than 2 demands in last 3 | MV2 |
| | 2-4 periods of demand in last 12 | 2 or more demands in last 3 | LV1 |
| | | Less than 2 demands in last 3 | LV2 |
| 0-1 periods of demand in last 12 | N/A | | |
| Non-Stock ed | 0 periods of demand in last 12 | N/A | 001 |

- Non-stocked means that MRP is deactivated and that material is no longer procured (out of the range of coverage)
- Item Managers prioritize purchase requisitions according to these material categories
- Gave the ability to segregate materials in order to treat them differently

Material Master Data Control



MRP & Forecast Profiles controlled the population of important fields

Change MRP Profile: Selection Screen

Data screen 1 | Data screen 2

MRP1 Profile description: MRP for Consumables - North Island

Checkboxes for MRP profile

| Selected fields will be copied to the profile | Write-protected in matl maintenance | Only default value in matl maintenance |
|---|-------------------------------------|--|
| MRP type | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| MRP controller | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| ABC indicator | <input type="checkbox"/> | <input type="checkbox"/> |
| Planned delivery time in days | <input type="checkbox"/> | <input type="checkbox"/> |
| In-house production time | <input type="checkbox"/> | <input type="checkbox"/> |
| Scheduling Margin Key for Floa | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Dependent requirements ind. fo | <input type="checkbox"/> | <input type="checkbox"/> |
| Indicator for Requirements Gro | <input type="checkbox"/> | <input type="checkbox"/> |
| Safety stock | <input type="checkbox"/> | <input type="checkbox"/> |
| Reorder point | <input type="checkbox"/> | <input type="checkbox"/> |
| Lot size (materials planning) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Rounding value for purchase or | <input type="checkbox"/> | <input type="checkbox"/> |

Purchase order text | MRP 1 | MRP 2 | MRP 3 | MRP 4 | Planning/Local Data

Material: 00000213623 BOLT, MACHINE
Plant: CA01 Regional Supply Office Norfolk

General data

Base unit of measure: EA each MRP group:
Purchasing group: A00 ABC indicator:
Plant-sp.matl status: Valid from:

MRP procedure

MRP type: VM Automatic reorder point plng
Reorder point: 1,105 Planning time fence:
Planning cycle: MRP controller: 001

Lot size data

Lot size: DY Dynamic lot size creation
Minimum lot size: Maximum lot size:
Fixed lot size: Maximum stock level:
Ordering costs: 262.42 Storage costs ind.: 1

The fields highlighted in gray are write-protected

Item Manager Cockpit



Stock/Requirements List: Material List

Selected stock/requirements lists | Define traffic light | Exception groups

Plant: CB05 FISC NADEP N.I.
MRP controller: HV2 High Volume 2

| Light | Material | MRP area | Material description | A. | Supply | 1stR... | 2nd | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Plan... | B... | MTyp | P... | S... | A. | M... | C... | C... |
|-------|-------------|----------|----------------------|--------------------------|--------|---------|------|---|---|---|---|---|---|---|---|---------|------|------|------|------|----|------|-------------------------------------|-------------------------------------|
| | 00001010971 | CB05 | BEARING,BALL,ANNULA | <input type="checkbox"/> | 1.0- | 1.0- | 1.0- | | | 2 | | | | | | 0 | EA | NIIN | F | A | PD | 999 | <input checked="" type="checkbox"/> | |
| | 00010978562 | CB05 | CATCH,FLUSH | <input type="checkbox"/> | 1.0- | 1.0- | 1.0- | | | | | | 1 | | | 0 | EA | NIIN | F | B | PD | 999 | <input checked="" type="checkbox"/> | |
| | 00011232992 | CB05 | SEMICONDUCTOR DEV... | <input type="checkbox"/> | 1.0- | 1.0- | 1.0- | | | 1 | | 1 | 1 | | | 0 | EA | NIIN | F | A | PD | 999 | <input checked="" type="checkbox"/> | |
| | 00011839768 | CB05 | BAG,PLASTIC | <input type="checkbox"/> | 1.0- | 1.0- | 1.0- | | | 3 | | | | | | 5 | BX | NIIN | F | B | PD | 999 | <input checked="" type="checkbox"/> | |
| | 00012887650 | CB05 | SEAL ASSEMBLY | <input type="checkbox"/> | 1.0- | 1.0- | 1.0- | | | 2 | | | 1 | 1 | | 0 | AY | NIIN | F | B | PD | 999 | <input checked="" type="checkbox"/> | |
| | 00005202289 | CB05 | POINTER,DIAL | <input type="checkbox"/> | 1.0- | 999.9 | 1.0- | | | | | | | 1 | 2 | | 0 | EA | NIIN | F | C | PD | 999 | <input checked="" type="checkbox"/> |

- Traffic Lights alert to inventory shortages
- Receipt Days' Supply indicates how long inventory will last
- Exception Messages explain status of procurement

- Ability to run MRP, release PRs, and run the PR Release Report from buttons through the use of a navigation profile

Stock/Requirements List as of 10:41 Hrs

Show overview tree | MRP | Indep Req | PR Release | BP28 Rel Rpt | EM002

Material: 00001010971 BEARING,BALL,ANNULA
MRP area: CB05 FISC San Diego
Plant: CB05 MRP type: PD Material type: NIIN Unit: EA

| Date | MRP ... | MRP element data | Reschedul... | E... | Rec./reqd.qty | Available qty | Sto... |
|------------|---------|------------------|--------------|------|---------------|---------------|----------|
| 12/13/2004 | Stock | | | 96 | | | 0 |
| 12/13/2004 | SafeSt | Safety stock | | | 5- | | 5- |
| 10/08/2004 | PRsupp | 0011090215/00010 | | 10 | 44 | | 39 AST6 |
| 11/01/2004 | PRsupp | 0011090216/00010 | | 07 | 39 | | 78 AST6 |
| 12/01/2004 | PRsupp | 0011090217/00010 | | 07 | 39 | | 117 AST6 |
| 12/13/2004 | ForReq | M 12/2004 | | | 39- | | 78 |

PR Release Report

BP28 Release Report

Release and Convert PR Select All Deselect All Sort ascending Sort Descending

BP-28 RELEASE REPORT

PRs to be released for CA01 Total value of selected PRs \$ 37,105.22 Balance of Avail. Funds \$ 962,894.78

| Sel | PR No. | Item | Material | Description | COG | FSC | Quan | Price | Value |
|-------------------------------------|----------|-------|-----------|-----------------|-----|------|--------|--------|----------|
| <input checked="" type="checkbox"/> | 10003008 | 00010 | 000011548 | PARKA,WET WEATH | 9D | 8405 | 2.000 | 35.65 | 71.30 |
| <input type="checkbox"/> | 10010402 | 00010 | 000011549 | PARKA,WET WEATH | 9D | 8405 | 1.000 | 35.65 | 35.65 |
| <input type="checkbox"/> | 10011152 | 00010 | 000019590 | WIRE ROPE ASSEM | 96 | 4010 | 78.000 | 125.39 | 9,780.42 |
| <input checked="" type="checkbox"/> | 10003093 | 00010 | 000036640 | SWITCH,PUSH | 9N | 5930 | 4.000 | 385.77 | 1,543.08 |

Supervisor selects PRs and presses release button

Funds Available

1. The final release of the PR is set
2. The PR is converted into a Purchase Order

Optimization

MRP Re-categorization Program

| Previous 12 Months Demand | Previous 3 Months Demand | MRP Contrlr | Forecst Profile | MRP Profile |
|---------------------------|--------------------------|-------------|-----------------|-------------|
| 8 | 2 | HV1 | 9NI | MRP1 |
| 8 | 0 | HV2 | WA1 | MRP1 |
| 5 | 2 | MV1 | LOW1 | MRP1 |
| 5 | 0 | MV2 | WA1 | MRP1 |
| 2 | 2 | LV1 | LOW1 | MRP1 |
| 0 | 0 | LV2 | WA1 | MRP1 |

- Automated master data maintenance according to a material's demand
- MRP Controller is changed on the material master record according to demand
- Both Forecast and MRP Profile is updated on the material master

Optimization

Range-add/Withdraw

- MRP Re-categorization amended to include range-withdraw function (-> 001)
- Added Range-add Report/Program giving the supervisor a utility through which to evaluate those materials meeting specific criteria that were candidates to be added to the range of coverage.

Key Learnings

- Simple master data changes and a couple of automation tools can produce drastic results
- Standard SAP does not provide availability control on inventory purchases, which presents a conflict with government agencies since all procurement is budget constrained.
- The key task is to organize material procurement according to the characteristics most important in the decision-making process, for the Navy this was demand.

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