

# How to Monitor and Maintain a Running F&R System

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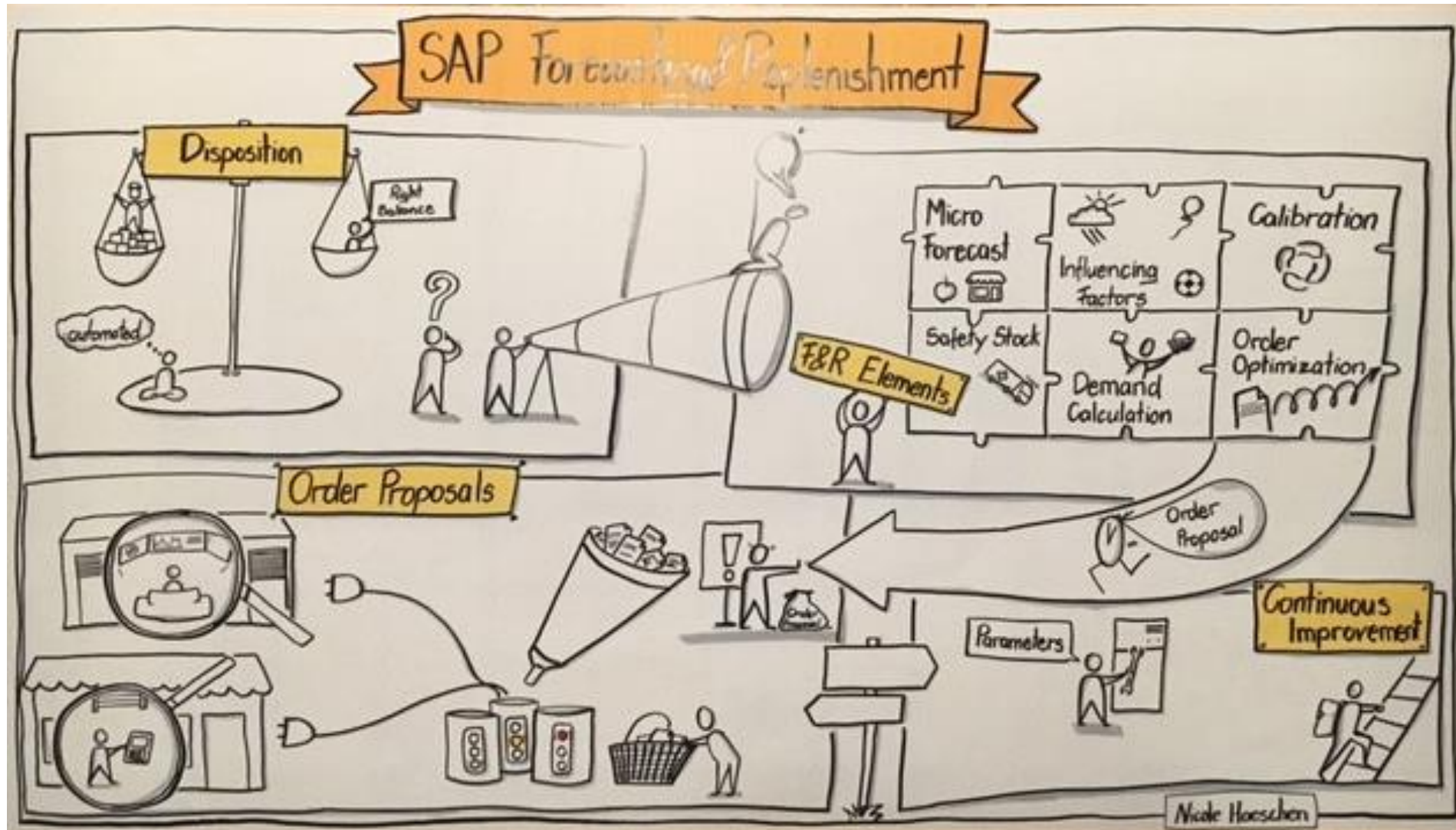
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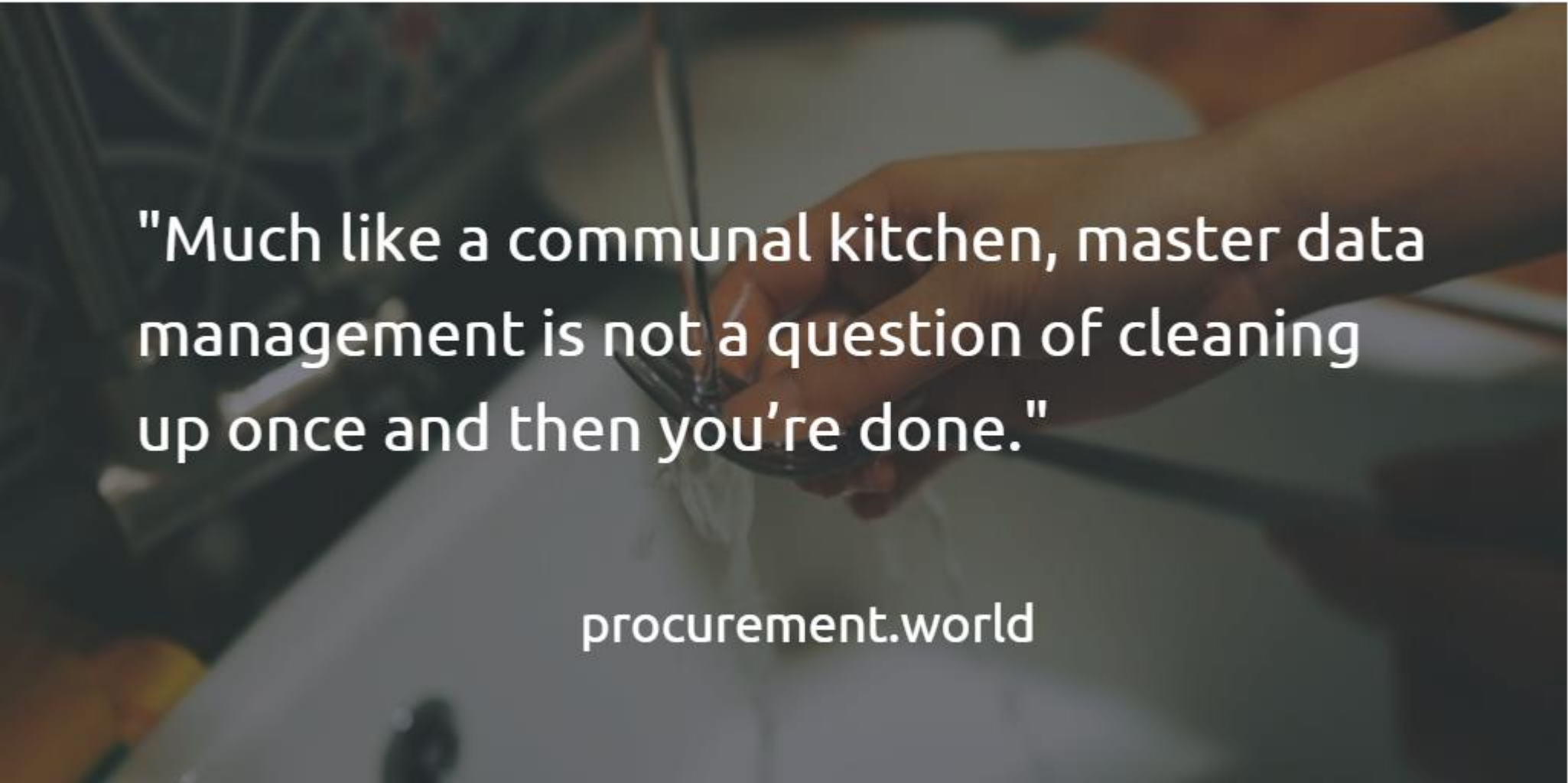


# How to monitor and maintain a running F&R system



# Data input

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A background image showing a hand holding a pair of tongs over a grill, with a quote overlaid in white text.

"Much like a communal kitchen, master data management is not a question of cleaning up once and then you're done."

procurement.world

Data source: <https://www.pool4tool.com>

# Proactive vs. Reactive

## Business drives master data!

The **master data quality** needed for SAP F&R

The **different data models** between SAP ERP for Retail and SAP F&R

The need of **ongoing quality check** to ensure the expected results in SAP F&R

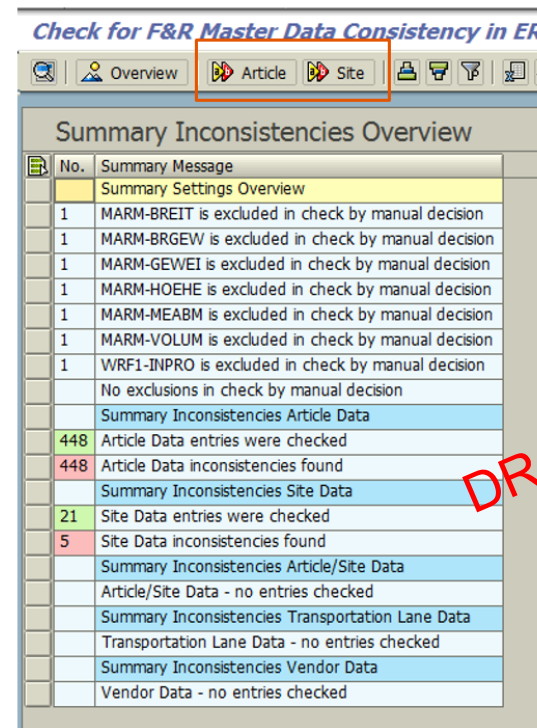
A **standardized** check process

A **guaranteed** master data quality

As a preparation for go –live

As an ongoing process

**Reusable**



The screenshot shows the 'Check for F&R Master Data Consistency in EK' report. The 'Article' button is highlighted with a red box. The main table, 'Summary Inconsistencies Overview', lists various data objects and their consistency status. A red 'DRAFT' watermark is visible across the table.

No.	Summary Message
	Summary Settings Overview
1	MARM-BREIT is excluded in check by manual decision
1	MARM-BRGEW is excluded in check by manual decision
1	MARM-GEWEI is excluded in check by manual decision
1	MARM-HOEHE is excluded in check by manual decision
1	MARM-MEABM is excluded in check by manual decision
1	MARM-VOLUM is excluded in check by manual decision
1	WRF1-INPRO is excluded in check by manual decision
	No exclusions in check by manual decision
	Summary Inconsistencies Article Data
448	Article Data entries were checked
448	Article Data inconsistencies found
	Summary Inconsistencies Site Data
21	Site Data entries were checked
5	Site Data inconsistencies found
	Summary Inconsistencies Article/Site Data
	Article/Site Data - no entries checked
	Summary Inconsistencies Transportation Lane Data
	Transportation Lane Data - no entries checked
	Summary Inconsistencies Vendor Data
	Vendor Data - no entries checked

- Navigation to detailed results of each master data object checked via button

- Summarized view of results will be displayed if flagged in „Main selection“ of check report

- Fields excluded from checking will be displayed

- For master data objected checked number of checked records and number of inconsistent records will be displayed

- Master data objects not checked will be included in summary for completeness

# Proactive vs. Reactive

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Measure and monitor the quality of master data

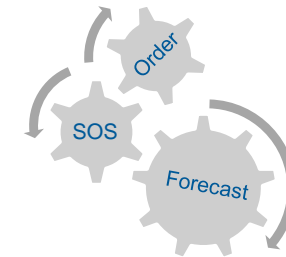
# Proactive vs. Reactive

## Input Process Master Data

## Input Process Transactional Data

### ▼ Monitor in ERP System

- ⚙ FRE\_UI - User Interface for Messages after Transfer of Data to SAP F&R
- ⚙ FRE\_C5 - Reorganization F&R Control Tables
- ⚙ FRE\_C1 - Check Master Data
- ⚙ FRE\_C2 - Check Supply Net Data
- ⚙ FRE\_C3 - Check Layout Module and stock related parameters
- ⚙ FRE\_C4 - Check Purchase Order/Order Proposal Data
- ⚙ FRE\_C6 - Check Sales Order Data



new  
article

new  
store

changed  
data

consumption

stock

promotion

- RP type
- Listing
- Min./Max. stock
- Like item
- Lead time
- Source of Supply
- ...

A screenshot of the SAP FRE\_MESSAGE\_UI interface. The title bar shows the SAP logo and the text 'FRE\_MESSAGE\_UI'. Below the title bar, there are tabs for 'Program Documentation', 'Save as Variant...', and 'More'. The main area is titled 'Selection Preferences' and contains a section 'Show Messages / Exceptions'. This section has a grid of input fields for various parameters: Interface, Transmission Date, Transmission Time, Object, Object Key, Message Type, Message Class, and Message Number. Each field has a corresponding 'to' field and a search icon.

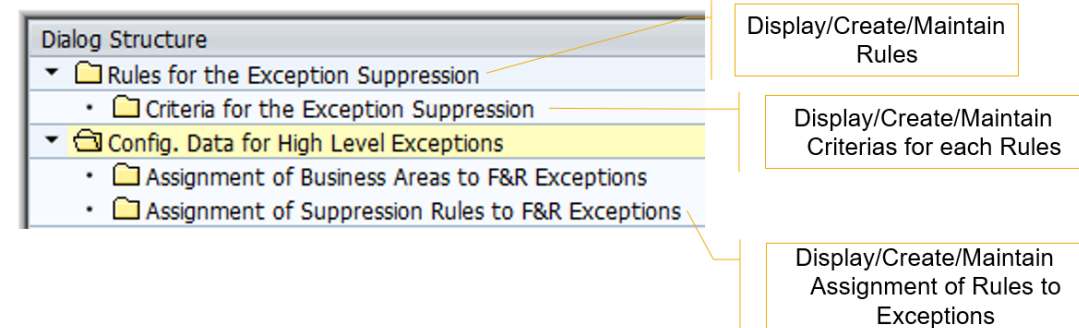
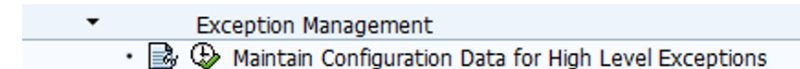


# From a technical point of view

Who... When... What...



- Job monitoring
- Interface Workbench
- Exception Workbench
  - Exception configuration
  - Less is more

A screenshot of the SAP 'Simple Job Selection' interface. It includes fields for 'Job Name' and 'User Name' (REICHARDTJ). Under 'Job Status', there are checkboxes for 'Sched.', 'Released' (checked), 'Ready' (checked), 'Active' (checked), 'Finished' (checked), and 'Canceled' (checked). Under 'Job Start Condition', there are date pickers for 'From' and 'To' (both set to 29.06.2016) and a dropdown for 'Or after event:'.

- Copy FRP environment
  - e.g. retention period seven days



## A black silhouette of a person jumping with a parachute. The person is shown from the waist up, with their arms raised and holding the parachute. The parachute is a large, dark, oval shape above the person's head. The entire figure is set against a white background.

- Display: Worklist of Order Proposals

**Replenishment Workbench**

User: REICHARDT  
 Selection Variant:  
 Currency: EUR

Exception Subscription    Application Log

Distribution Center	PCS-V201	COCA-COLA ERFRISCHUNGSGETRÄNKE	Distribution Center	M002	Rawdat Al Khail
Delivery Date	15.07.2016		Order Proposal No	0000159076	
OP Reference Doc No.			Ref Doc Type		
Purchasing Group	E01		Purchasing Organization	E001	
Procurement Method		Not defined	Consolidation	0	No

Order Proposal Number 0000159076

Focus	OP Status	Product Number	Prod.Desc.	OP Qty Uom	Fact. BUOM	Stock Quant.	Base Unit	Rd. Status	ROC fr 1st Aval Dat	ROC Status	Calc. Det.	MO	Cause Det.	Order Date
		FRE-ART-021	R2 Nurofen	1 PC	1,000000	5 PC	PC		0	000				30.06.2016
		FRE-ART-024	024 game, nemo	1,00 CAR	10,000000	5 PC	PC		0	000				30.06.2016
		FRE-ART-026	026 game, item	2 PC	1,000000	5 PC	PC		0	000				30.06.2016
		FRE-ART-029	029 game, Ice A	1 PC	1,000000	5 PC	PC		0	000				30.06.2016

Vendor / Goods Receipt / Pl...

	O.	D.	E.	Rel. to...	N.	e.	Purchasing	Salesval	A.	T.
Order Proposals										
D000							0,000	0,000		
V229							0,000	0,000		
WE 29.06.2016							0,000	0,000		
0000159038				0 / 1	1 / 1		0,000	0,000		
TH 30.06.2016							0,000	0,000		
0000159070				0 / 1	1 / 1		0,000	0,000		
PCS-W10							89,600	11,200		
M007							89,600	11,200		
WE 29.06.2016							44,800	5,600		
0000159061				0 / 1	1 / 1		44,800	5,600		
TH 30.06.2016							44,800	5,600		
0000159090				0 / 1	1 / 1		44,800	5,600		
PCS-V201							4,642,000	7,776,370		
M002							467,000	541,720		
WE 29.06.2016							370,000	429,200		
0000159047				0 / 3	3 / 3		370,000	429,200		
TH 30.06.2016							97,000	112,520		
0000159076				0 / 4	4 / 4		97,000	112,520		
M003							157,000	182,120		

# Tools and Services - IDR

## Root cause analysis on transactional data

- Was the last delivery fulfilled in time and quantity?
- Was the forecast generated by the system too low?
- Was the order proposal changed or deleted by a user?
- ...



## Inventory Issue

Detection of Out of Stock (OoS) or Overstock (OvS)

- Was the stock = 0 for article x in store y at day z?
- Were the days of supply of the stock higher than the configured acceptable threshold?

## Prioritization – How important is the issue?

Calculate the Lost Revenue (Out of Stocks) and Capital lock up costs or spoilage (Overstocks) per inventory issue.  
Assign the costs to the detected root cause.



\$1.5 M



\$0.2 M



\$11.8 M



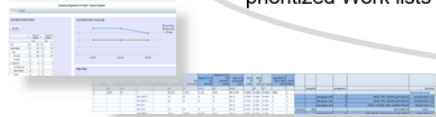
\$1.8 M



\$0.8 M

## Visualization

Visualize results in Dashboards and prioritized Work lists



## Actionable result

Addresses the results to roles according to their responsibilities

- address On Hand issues to store people etc.

Out of Stock Over Stock Benchmark

## Lost Sales by Root Causes

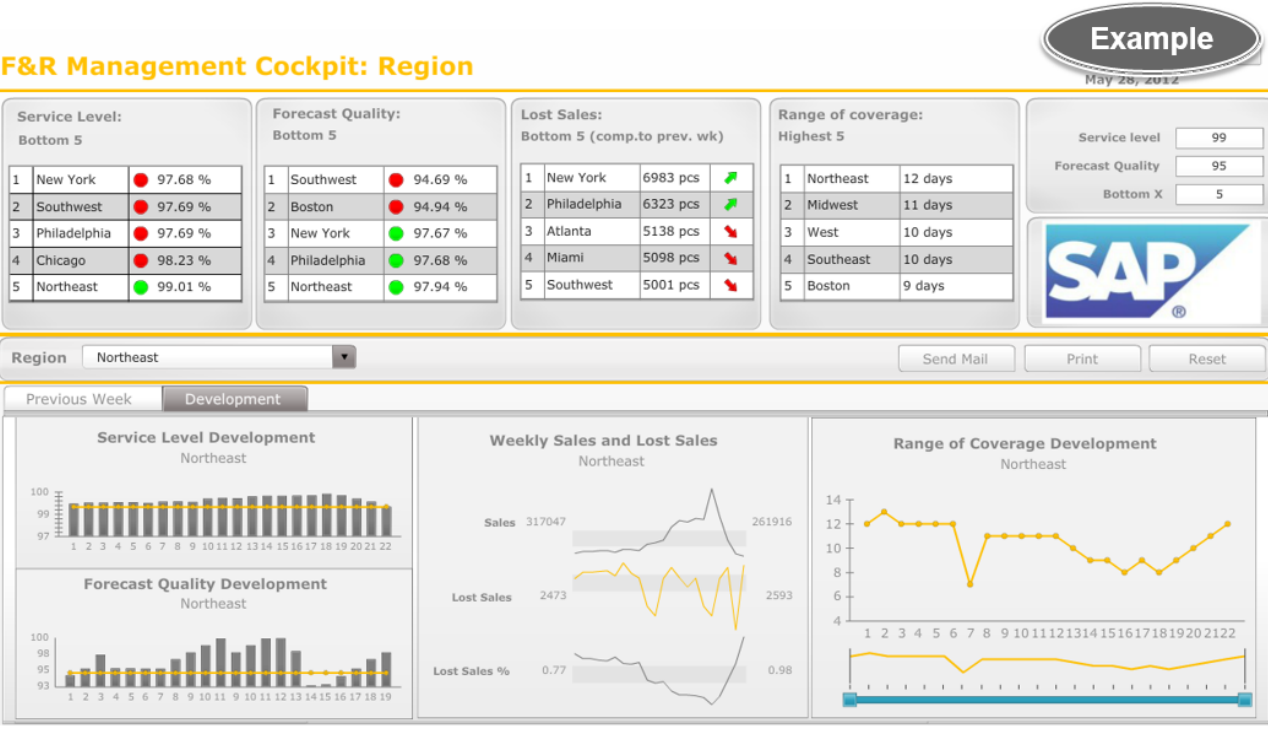
Show by Repl. Type

Prioritization Order

	%	Primary OOS Contribution	%	Secondary OOS Contribution
		CAD		CAD
Total	100.0	2,991	100.0	2,899
Supplier Reliability	6.5	194	3.4	100
Stores	18.8	562	32.2	934
OH Accuracy	18.8	562	32.2	934
OP Changes	0.0	0	0.0	0
Central Team	7.2	215	19.6	567
Low Forecast by User	0.0	0	0.0	0
Master Data C	0.0	0	0.0	0
Promotion	7.2	215	19.6	567
System	50.9	1,521	27.6	799
Low Forecast by System	21.4	639	14.3	415
Tolerated OO	0.0	0	0.0	0
OP Suppressi	29.5	882	13.2	384
Unidentified	16.7	499	17.2	499

# Tools and Services – F&R content BW

## F&R Management Cockpit: Region



Automation of the Implementation  
Order Proposal Level of Automation  
Quality of the Implementation  
Forecast Quality

Automation of the Implementation  
History of manual Order Proposal Changes

Fulfillment & Inventories  
Out of Stocks and Lost Sales

Fulfillment & Inventories  
Overstocks

$$MFE = \frac{1}{n} \sum_{t=1}^n (x_t - y_t)$$

t = Historical Period  
n = Maximum number of periods  
 $x_t$  = Actual demand (by period)  
 $y_t$  = Forecasted demand (by period)

- Mean Forecast Error or Bias**
- Mean error on forecast vs. sales values
  - Positive and negative deviations cancel each other
  - Large positive and negative values indicates systematic deviations
  - Available without unit of measure to evaluate a group of products

$$MAPE = \frac{100}{n} \sum_{t=1}^n \left| \frac{x_t - y_t}{x_t} \right|$$

t = Historical Period  
n = Maximum number of periods  
 $x_t$  = Actual demand (by period)  
 $y_t$  = Forecasted demand (by period)

- Mean Absolute Percentage Error**
- Mean of the single % deviations of all periods
  - Positive and negative deviations do not cancel out

$$WMAPE = 100 \frac{\sum_{t=1}^n |x_t - y_t|}{\sum_{t=1}^n x_t}$$

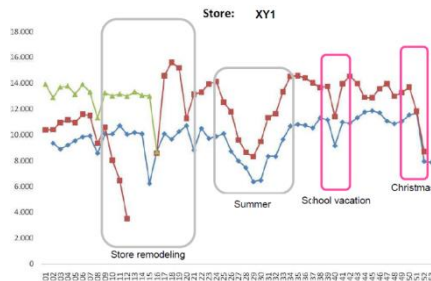
t = Historical Period  
n = Maximum number of periods  
 $x_t$  = Actual demand (by period)  
 $y_t$  = Forecasted demand (by period)

- Weighted Mean Absolute Percentage Error**
- Sum of single deviations of all periods in relation to the sum of all historical sales values of all periods
  - Positive and negative deviations do not cancel out
  - Gives more weight to lower % deviations on relatively high absolute numbers than to higher % deviations on relatively low absolute numbers.
  - No overestimation with little actual values, high errors on low actual level are hidden if items with high and low level are

The **modeling** of location DIFs, like *Christmas, Easter and summer holidays* is **essential** for optimal orders!

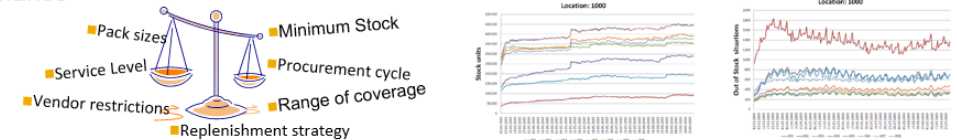
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graph LR
    A[Data validation] --> B[Analysis]
    B --> C[Final report]
  
```



Store	XY2																												
	CW 50							CW 51							CW 52							CW 53/01							
	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	
7	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	
	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	
CW 49								CW 50							CW 51							CW 52							
6	7	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
						7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
							7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
								7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

- (1) Run SAP F&R processor with real **historical** data for 3-6 months for **every day**
- (2) **Vary parameter** settings (ABC) and master data and **calculate KPIs** of the different scenarios



### (5) Transfer parameter settings to QA system and production

# What-If-Analyzer

- A tool for **F&R experts**
- In depths analysis on location/SKU level
- What-if analysis on location/day level

The diagram illustrates the F&R analysis process. On the left, a blue box represents 'SAP Systems (ERP, SCM, ...)' containing 'F&R Production' and 'F&R Distribution'. On the right, an orange box represents the 'F&R analyst - PC' containing 'F&R What-if-Analyzer' and 'F&R Production'. The process follows four steps: 1. Select Location, 2. Run, 3. Analyze, and 4. Change and rerun. A feedback loop labeled 'Change Parameter' connects the analyst back to the SAP systems.

- Check effect of parameter changes before the change in production
- Improve the knowledge of the F&R experts
- Continuous improvement of parameter settings
- In depth analysis, e.g. seasonal model





**Thank you**

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# The Grid

Headline area

White space

Drawing area