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Automated Maintenance of Planning Parameters for Parts using SAP  
marcus evans, Berlin 28.01.2014

# **Ammann Schweiz AG**

## Challenges for a mid sized Company



# Business Unit Construction Machines



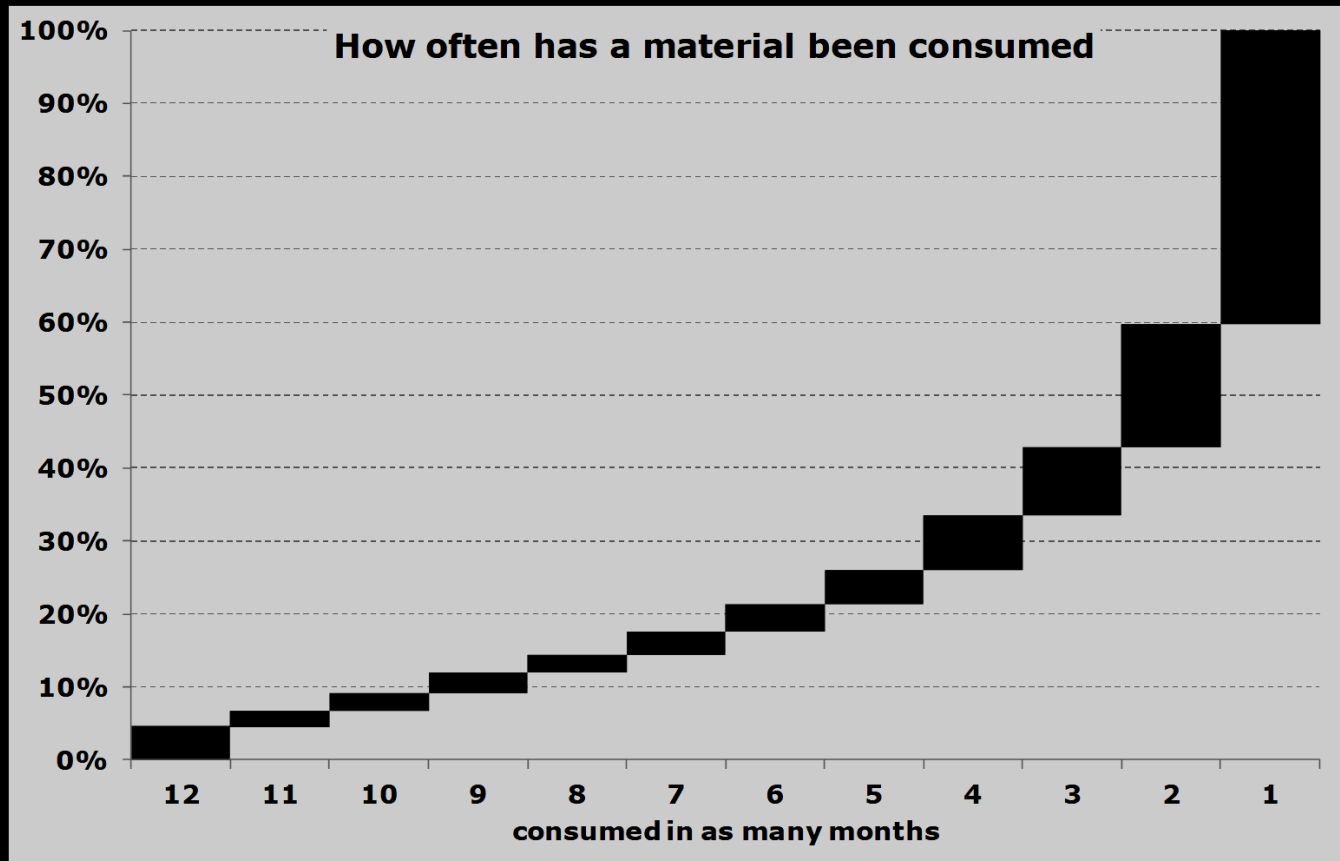
**Poor availability met  
lead times + overstocking**



**When?**

# Parts Demand Pattern

## Lots of stochastic Demands



**Fritz Wilfried Pareto,**  
later  
**Vilfredo Frederico Damaso**  
**Pareto Marchese di Parigi**



# Every Planners Conflict Stock ./ . Availability

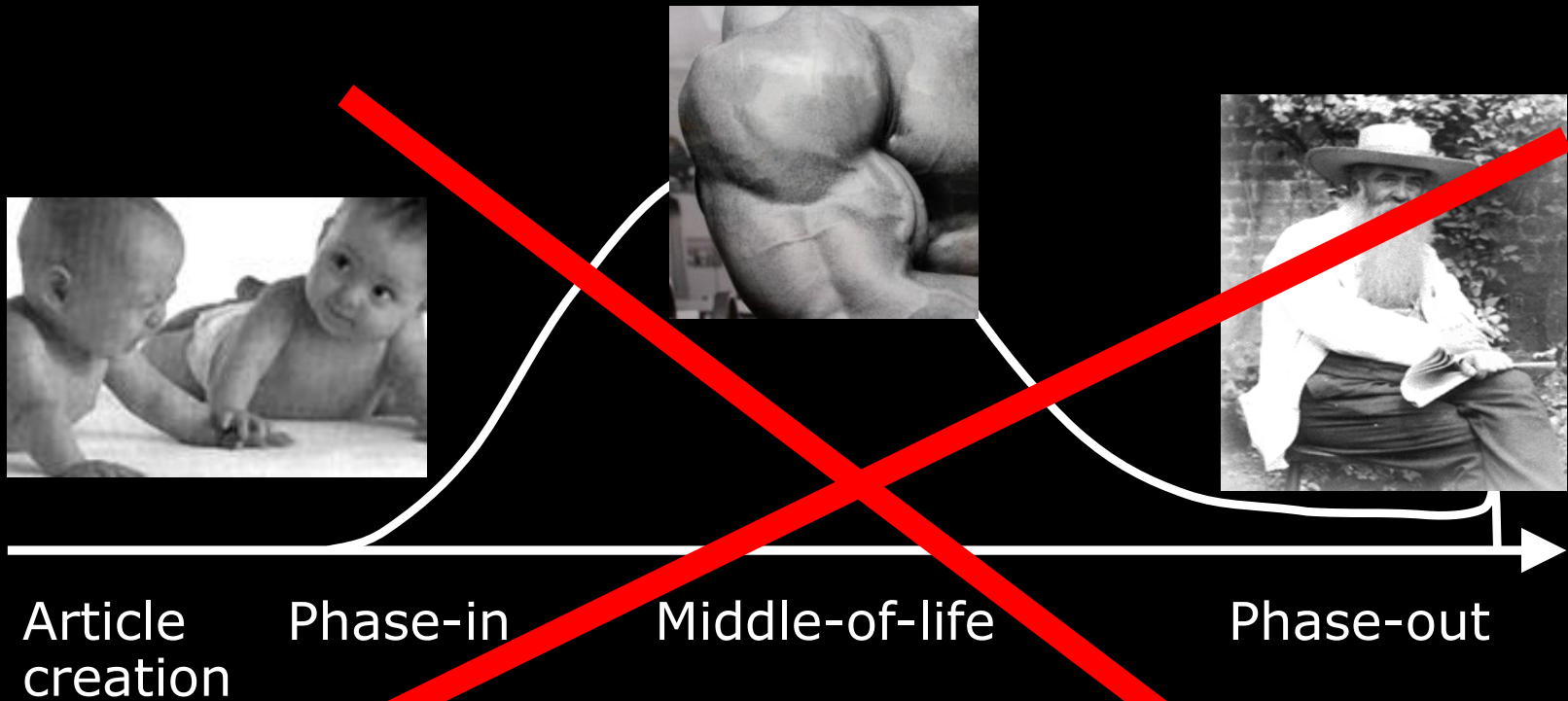
Can't find what  
you're looking for?  
Please ask at the  
Entertainment Desk

Can't find what  
you're looking for?  
Please ask at the  
Entertainment Desk

Can't find what  
you're looking for?  
Please ask at the  
Entertainment Desk



# No such thing like automated Lify-Cycle-Management

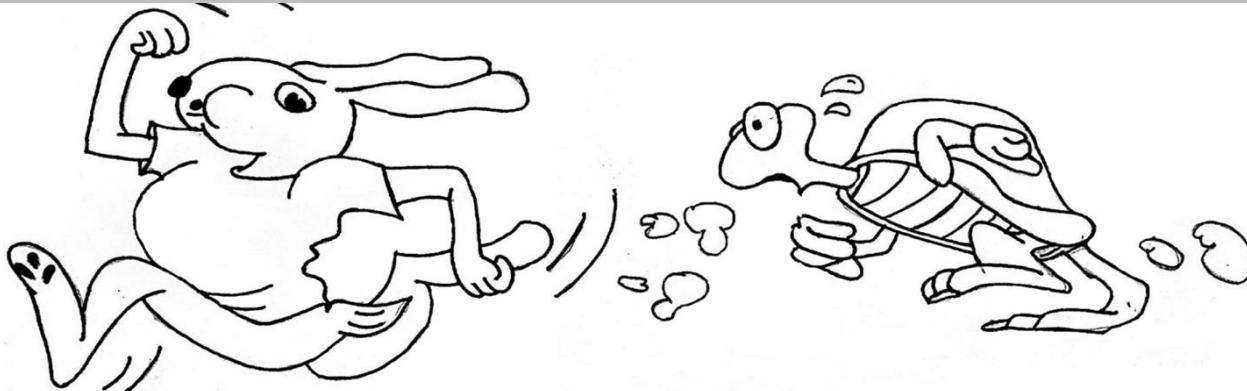


# **The next best thing to a glass ball**

# Classification: Sales Frequency

Readable, understandable, in a sequence

<b>F</b> ast	<b>G</b> ood	<b>M</b> iddle	<b>S</b> low	<b>U</b> nique	<b>W</b> ithout	
<b>&gt;=50</b>	<b>&gt;=12</b>	<b>&gt;=4</b>	<b>&gt;=2</b>	<b>1</b>	<b>0</b>	Sales orders per 12 Months



# Classification: Value

Readable, understandable, in a sequence

<b>E</b> xtreme	>	1.000 €
<b>H</b> igh	>	100 €
<b>I</b> ntermediate	>	10 €
<b>L</b> ow	>	1 €
<b>P</b> enny	<	1 €



# Planning Idea Customer View

**F**ast

**G**ood

**M**iddle

**S**low

**U**nique

**W**

Availability high

Availability low

High Security

No security

High planning effort

Low planning effort

Adapted lot sizes

Lot size as demanded

No scrapping risk

High scrapping risk

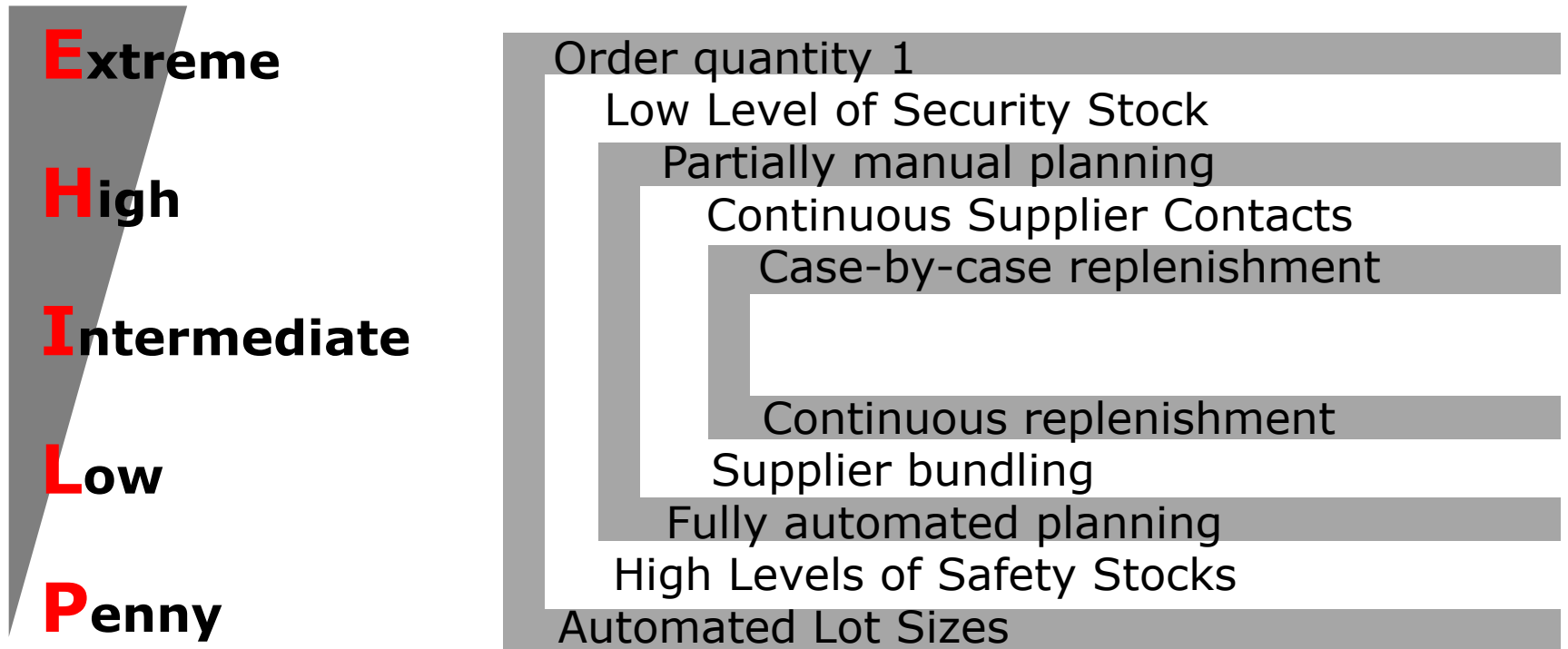
Forecast-based

Customer Order based

Regular Supplier Contact

Search for Supplier if needed

# Planning Idea Parts ' Cost View





**Plan**

**Do**

**Check**

**Act**





# The Cockpit

3-step-approach in  
one Z-transaction

**Classification and Planning Cockpit Program**

Overall Selection Settings

Maintenance of Planning Par.

**1. Define Classes  
Define Parameter by Class**

Plant  
Plant-sp.matl status to  
Material to

Run Classification Preparation and Substitution History Transfer

Classification Preparation

Selection Criterias for History Transfer of Material Subst

VKORG for Material Subst  
Horizon for Material Subst 01.06.2012 to 30.06.2013

Selection criterias for sales frequency

Sales Document Typ to  
Sales Organization to  
Division to  
Created on 01.06.2012 to 30.06.2013  
Reason for rejection to

**2. Create Class  
for each Material**

Run Classification Evaluation

Classification Preparation Run  
 Simulation

Month/Year 01.06.2012 to 30.06.2013

**3. Create Material Planning  
Parameters from Class**

Run Planning and Update

Planning Run  
 Simulation

Ab Indicator to  
Date for Getting History 01.06.2012 to 30.06.2013  
Date for Forecast 01.08.2013 to 31.08.2014  
Requirements type VSF

# Cockpit

## From Class to Parameters

per Class

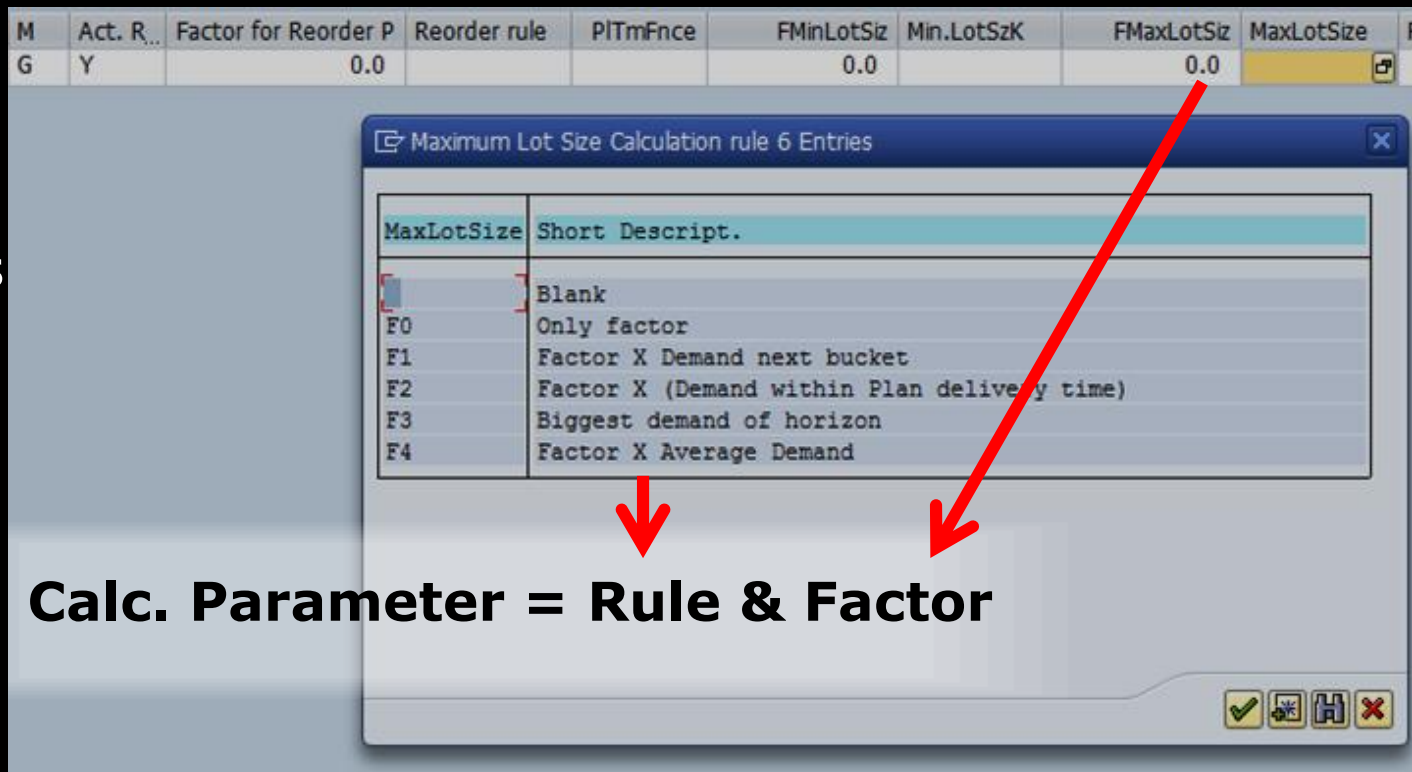
1. MRP Profile
2. Parameter Calculations

M	Act. R...	Factor for Reorder P	Reorder rule	PITmFnce	FMinLotSiz	Min.LotSzk	FMaxLotSiz	MaxLotSize
G	Y	0.0			0.0		0.0	

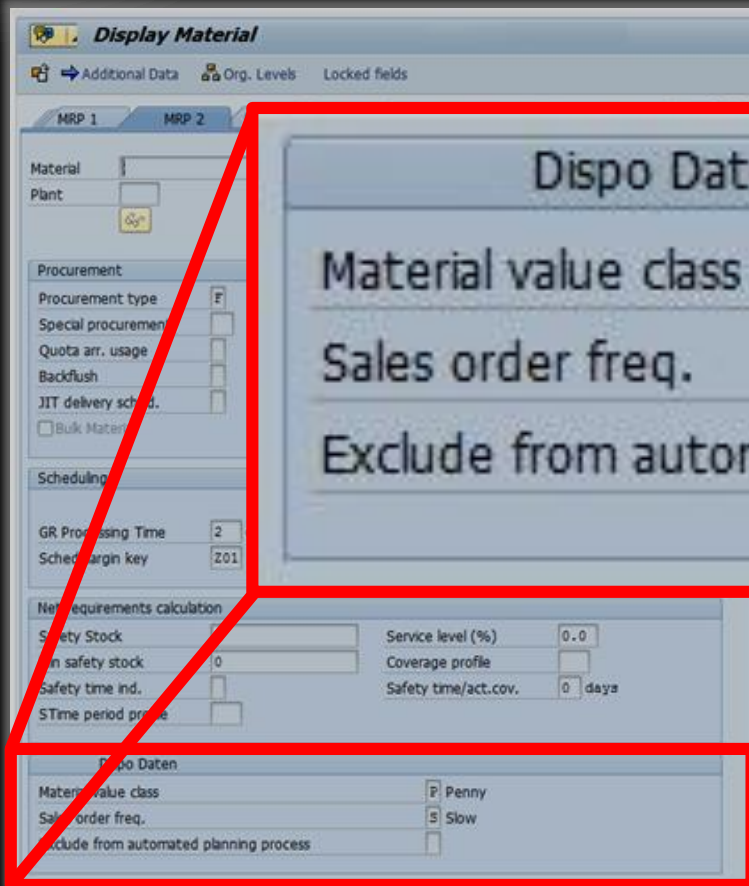
MaxLotSize	Short Descript.
	Blank
F0	Only factor
F1	Factor X Demand next bucket
F2	Factor X (Demand within Plan delivery time)
F3	Biggest demand of horizon
F4	Factor X Average Demand

**Calc. Parameter = Rule & Factor**



# SAP

## Classes stored in MARC (MRP2)



### Dispo Daten

Material value class

P Penny

Sales order freq.

S Slow

Exclude from automated planning process

### Dispo Daten

Material value class P Penny

Sales order freq. S Slow

Exclude from automated planning process

# SAP Availability stored in VBAP

**Display Standard order** **Item Data**

Navigation icons: Back, Forward, Print, Copy, Paste, Refresh, Help

Sales Document Item: 10      Item category:

Material:       Compressor

Conditions    Account assignment    Schedule lines    Partner

**Allgemein**    Classification Valuation

Sales order freq.	W
Material value class	H
Exclude from automated planning process	<input type="checkbox"/>
ABC Indicator	K
Order quantity	1
Confirmed Quantity	1
Unrestricted	1.000
Available at creation	Y

**Allgemein**    **Classification Valuation**

Sales order freq.	W
Material value class	H
Exclude from automated planning process	<input type="checkbox"/>
ABC Indicator	K
Order quantity	1
Confirmed Quantity	1
Unrestricted	1.0
Available at creation	Y

# Change Management



# Reaching common understanding on Stock

Stock Breakdown by Items stored								
Orders per year		F(ast)	G(ood)	M(iddle)	S(low)	U(nique)	W(ithout)	total
Value per 1		>50	>12	>4	>1	1	0	
E xtrem	>1000 €		0%	0,1%	0,2%	0,2%	0,9%	1,4%
H igh	>100 €	0,1%	0,6%	1,6%	1,8%	2,1%	7,0%	13,1%
I ntermediate	>10 €	0,6%	2,5%	4,6%	4,6%	5,8%	17,3%	35,4%
L ow	>1 €	0,7%	2,5%	3,9%	4,4%	5,0%	15,0%	31,5%
P enny	<1 €	0,3%	1,3%	2,6%	2,9%	3,4%	8,0%	18,5%
W ithout	0 €							0,2%
total		1,7%	6,9%	12,8%	13,9%	16,6%	48,1%	100%

Stock Value Breakdown								
Orders per year		F(ast)	G(ood)	M(iddle)	S(low)	U(nique)	W(ithout)	total
Value per 1		>50	>12	>4	>1	1	0	
E xtrem	>1000 €		0,2%	1,1%	1,7%	2,6%	12,1%	17,8%
H igh	>100 €	0,6%	5,0%	7,8%	5,1%	5,4%	16,6%	40,5%
I ntermediate	>10 €	2,9%	7,0%	5,3%	4,0%	3,7%	9,8%	32,8%
L ow	>1 €	1,2%	1,5%	1,1%	0,9%	0,9%	2,4%	7,9%
P enny	<1 €	0,1%	0,1%	0,2%	0,2%	0,2%	0,4%	1,1%
W ithout	0 €							
total		4,7%	13,8%	15,5%	11,9%	12,7%	41,3%	100%

# Settings- Middle

### Stock Breakdown by Items stored

F(ast)	G(ood)	M(iddle)	S(low)	U(nique)
>50	>12	>4	>1	>0
0,1%	0%	0,1%	0,2%	0
0,6%	0,6%	1,6%	4,4%	0
0,7%	2,5%	4,6%	2,9%	0
0,3%	0,5%	3,9%	2,6%	0
1,7%	6,9%	12,8%	13,9%	0

### Orders per year

Value per 1	Orders per year
Extrem	>1000 €
High	>100 €
Intermediate	>1 €
Low	<1 €
Penny	0 €
Without	0 €
total	

key problem: huge stock reach

We set Low / Penny automated lot size (see later paper)

Safety stock is

Known to consume

today

- 1.200 V1 and
- 6.000 m ... of only
- planning ... safety stock
- adding up to 7.200 items on stock

but actually we have that (at least the vast majority of it)

You have special parts? you can stop the pro

Details - X ausgeschlossene Dispoartikel pro Disponent



new assortment  
to be explained

## SAP now does forecasting for material with regular sales

- for every regularly sold part SAP forecasts the average of last 12 months into the future
- a monthly demand can be seen in MD06
- order requisitions are created
- in far distant future no order requisitions but PL-Auf are created
- thereby orders can and should be placed to dates that are far from today, especially for long lead time materials (i.e. supplier forecast)
- this applies for kits as well, creating secondary demand for the components. Safety stock then is on the kits, not on components (unless they are sold separately)

Material  
Dispobereich  
Werk  
Material 0

Disponent  
BeschArt  
Losgröße  
DispoGr.  
StratGr

22 StdPres 0,00 Preserheit 1

Please tell Materials for which the forecasting must be switched off in MD62

Z...	Datum	Dispo...	Daten zum Dispoelem.	Umktern...	A. Zugang/Bedarf	Verfügbare Menge	La...
	14.09.2013	ShBest	Sicherheitsbestand				17
	25.10.2013	BS-En	4500639835/00010			8-	9
	04.11.2013	VP-Bed	VSF				4
	02.12.2013	VP-Bed	VSF			20	19
	02.01.2014	VP-Bed	VSF			5-	24 2002
	03.03.2014	PI-Auf	0100371684/3B			5-	14
	01.04.2014	PI-Auf	0100371685/3B			1	9
	01.04.2014	VP-Bed	VSF			5	4
	02.05.2014	PI-Auf	0100371686/3B			5	5 2002
	02.05.2014	VP-Bed	VSF			5-	0
	02.06.2014	PI-Auf	0100371687/3B			5-	0
	02.06.2014	VP-Bed	VSF			5-	5 2002
	01.07.2014	PI-Auf	0100371688/3B			5-	0
	01.07.2014	VP-Bed	VSF			5-	5 2002
	01.08.2014	PI-Auf	0100371689/3B			5-	0
	01.08.2014	VP-Bed	VSF			5-	5 2002
	01.09.2014	PI-Auf	0100371690/3B			5-	0
	01.09.2014	VP-Bed	VSF			5-	0

ts not y

# Controlling





# Glitch: Parts' Value sometimes tricky

## Value zero

from Standard Price Parts

## Value < 0,01

## Value > 1,00 and < 1,01

both from Value Unit 100 or 1.000



# **Glitch: S spoiled by the division trick**

**Forecast based  
on average  
Consumption**

$$5 : 12 = 0$$

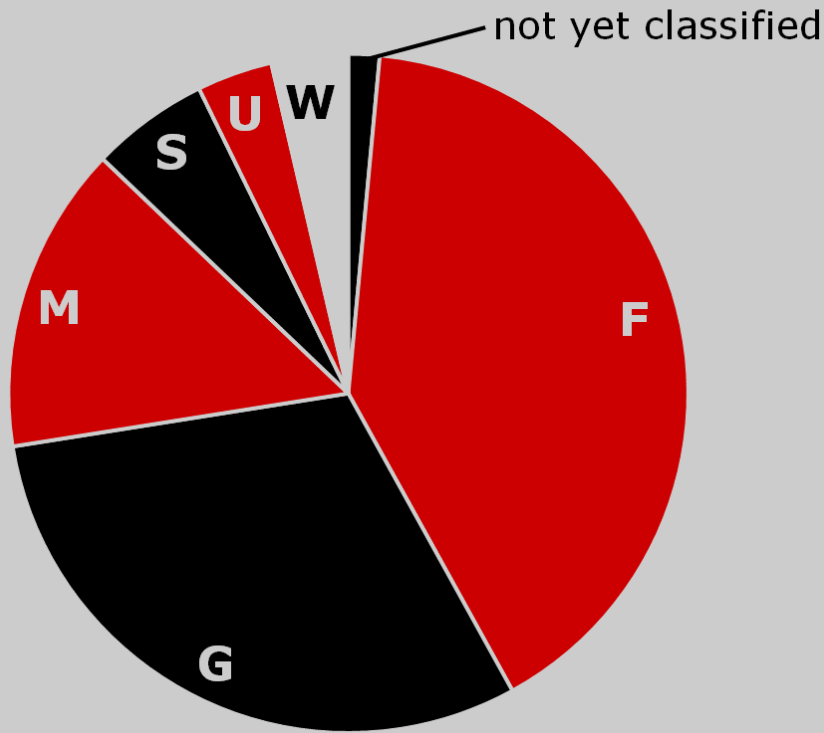
$$6 : 12 = 1$$



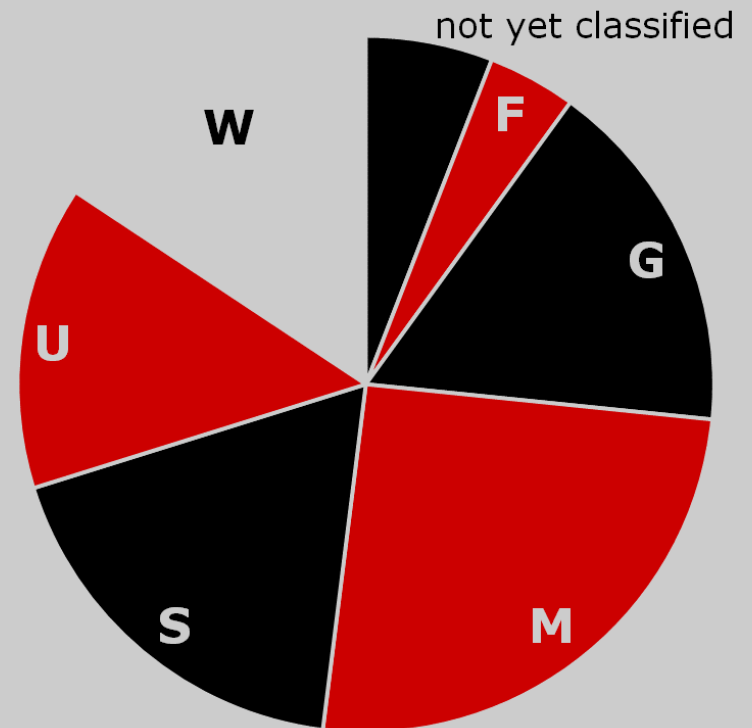
**don't ever use integer  
variables while calculating  
with single digit figures**

# F & G define sales volume S,U, W define data work

## Order Lines



## Materials sold

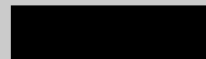


# Availability per Class offers room for improvement

	no class	Fast	Good	Middle	Slow	Unique	Without
no class	0%						
Extreme			65,0%	69,0%	<b>100,0%</b>	<b>100,0%</b>	<b>100,0%</b>
High		99,3%	96,3%	<b>95,0%</b>	<b>90,3%</b>	<b>84,9%</b>	<b>90,5%</b>
Intermediate		98,9%	98,5%	<b>97,1%</b>	<b>91,1%</b>	<b>91,8%</b>	<b>94,7%</b>
Low		99,1%	98,7%	98,0%	95,6%	<b>80,1%</b>	<b>99,0%</b>
Penny		100,0%	100,0%	97,8%	98,8%	<b>92,0%</b>	<b>96,5%</b>
(W)					50,0%	37,8%	19,8%
total	0%	<b>99,2%</b>	<b>98,6%</b>	<b>97,2%</b>	<b>93,0%</b>	<b>85,0%</b>	<b>77,3%</b>



field of action for purchasing



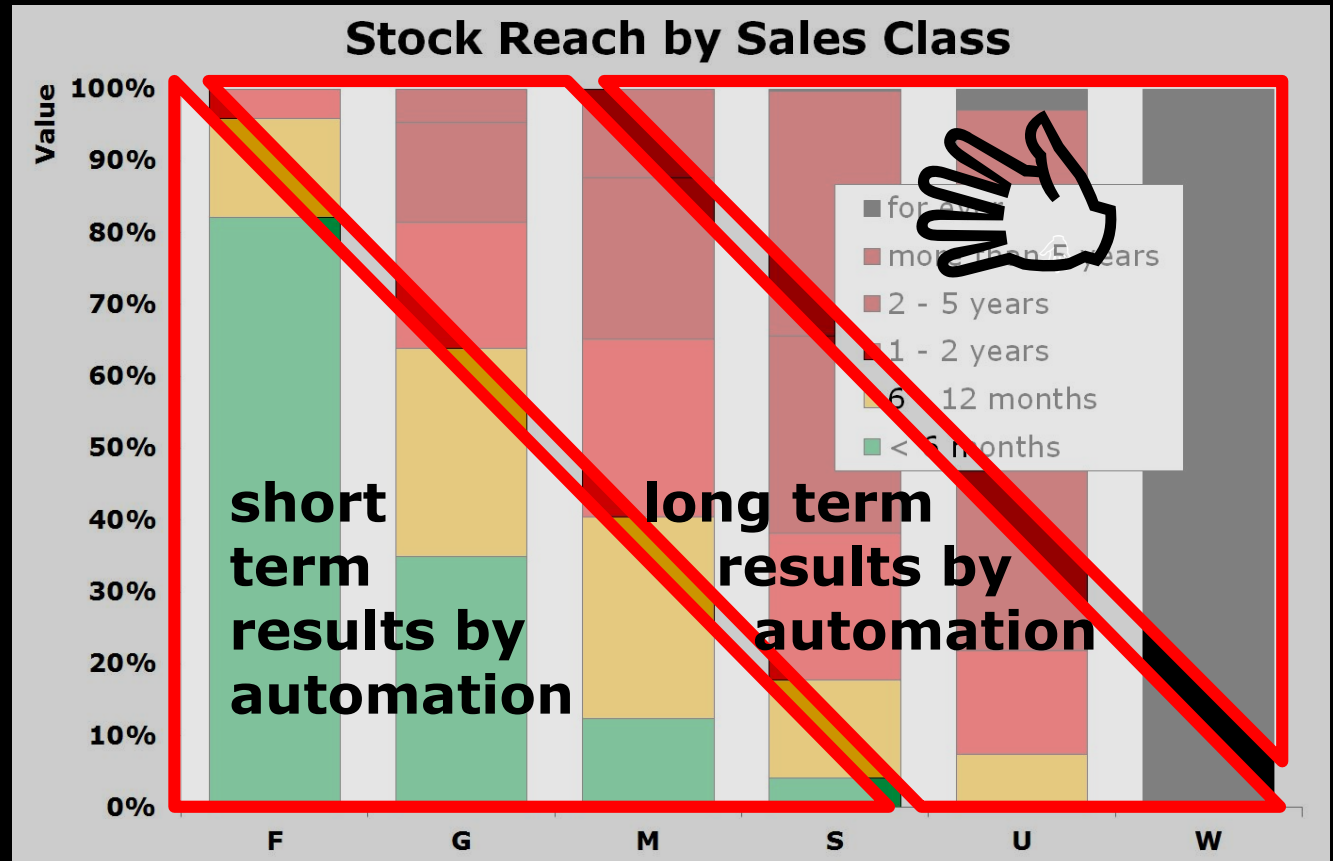
too high

# Effects on Stock

Implementation Outcome:

1. Stock Increase later
2. Availability up

but:  
dead Parts still need manual efforts item by item





# Photos flickr, Creative Commons

## Thanks to all contributors

axb500, Perjovschi: Tragedy vs. Statistics

N-Sai: Question Mark

Images Money: Money

Aud1073ch: Pro Control 24

katerha: Isn't it funny how day by day nothing changes, but when we look back everything's different?

crosatorian: Scream

K.Kendall: Surprise

torbackhopper: walking on the razor's edge in the underground train world: manhattan (2007)