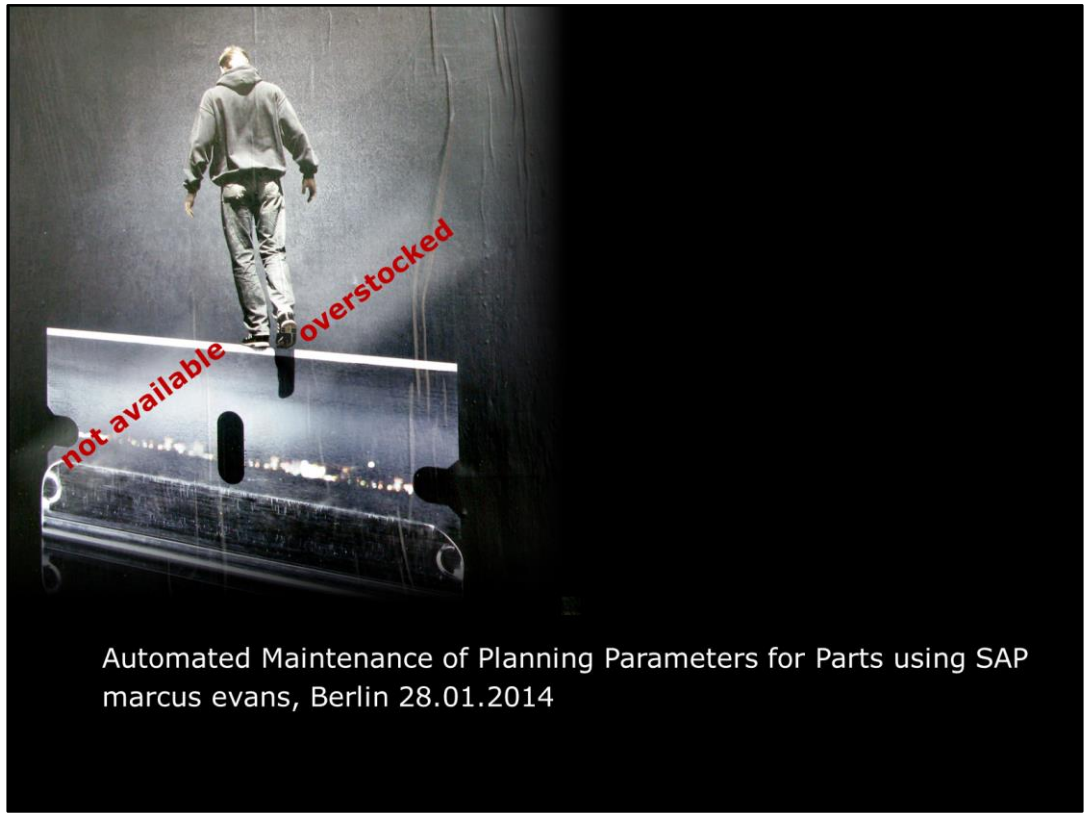


Automated Maintenance of Planning Parameters for Parts using SAP
marcus evans, Berlin 28.01.2014

I joined Ammann in 2011 as Head of Spare Part´s Sales for the Business Area Machines. I left Ammann as Head of Spare Parts Service of mentions BU end of 2013

Some backgrund on Ammann Parts:
- centralized in middle of 2010 from 4 factories
- starting point 15.000 parts on stock
- international business driven out of Switzerland
- international team in Switzerland, dotted lines into Czech & Germany
- warehouse in Dortmund, operated by Panopa
- EU business !
- from same warehouse Germany as biggest market is being served as well

Right from the beginning I did quite some data digging to get an understanding of the business.
Background as Consultant helped understanding figures, but it had been starting from scatch.

All data to follow are realistic, but not real

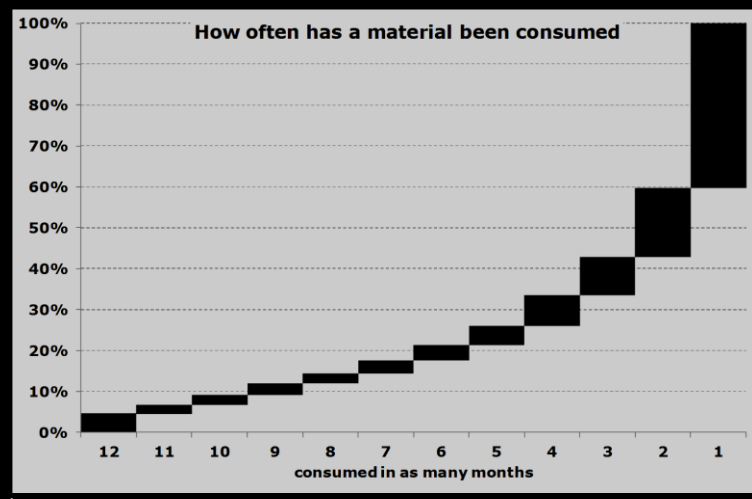
Business Unit
Construction Machines

Andreas E. Noll, no-stop.de

At my very start availability measurement had been no topic at all. So I started with measuring on-time-delivery, just to find out that acting as customers demanded spoiled the figure pretty much. Customer Pick Up and shipping according to customer request did not correspond with the general shipping promise by Ammann.

Poorly maintained material master data were the hardest to solve topic my Directs mentioned. Every day several materials ordered that were either unknown or not maintained in purchasing and sales.

Parts Demand Pattern
Lots of stochastic Demands



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Findings of data digging (with standard transactions like VA05):
Stock & Customer Demand hardly fit. Stock transfer + following stock build up activities showed room for improvement.

Replenishing Metod:
„one is none“ (Einer ist keiner), i.e. method to buy „just one more“ than needed, which is not SAP supported. So the depreciation topic would be on my agenda was on my agenda for the following 2 years.
more that to come later on

But the newly established centralized Parts Organization had been set up within SAP pretty fine:
1 plant, 1 operative storage location
1 purchasing org
2 sales org (Germany being served by cross company process)
sales order = vast majority of consumption

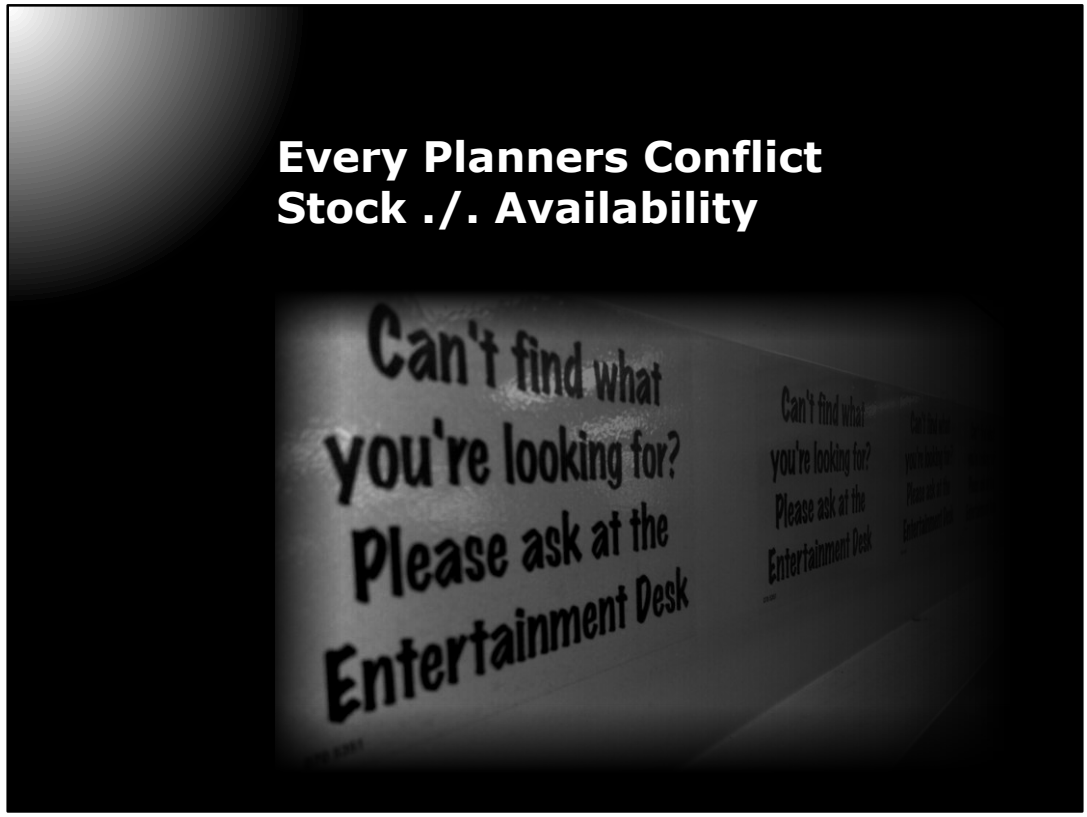
Fritz Wilfried Pareto,
later
Vilfredo Frederico Damaso Pareto Marchese di Parigi

You can´t always get what you want. Things had to be changed fast.

The consultant I was offered to work with had implemented quite some of the overstocked items, so I would not take that „opportunity“.

The goal to have some simple tool that
-every one of my distributed planners would understand
-used standard plannning
-would be affordable

In parallel the last outstanding Parts Business of one of the factories had to be taken over. Plus the ramp up of 10 new machines.

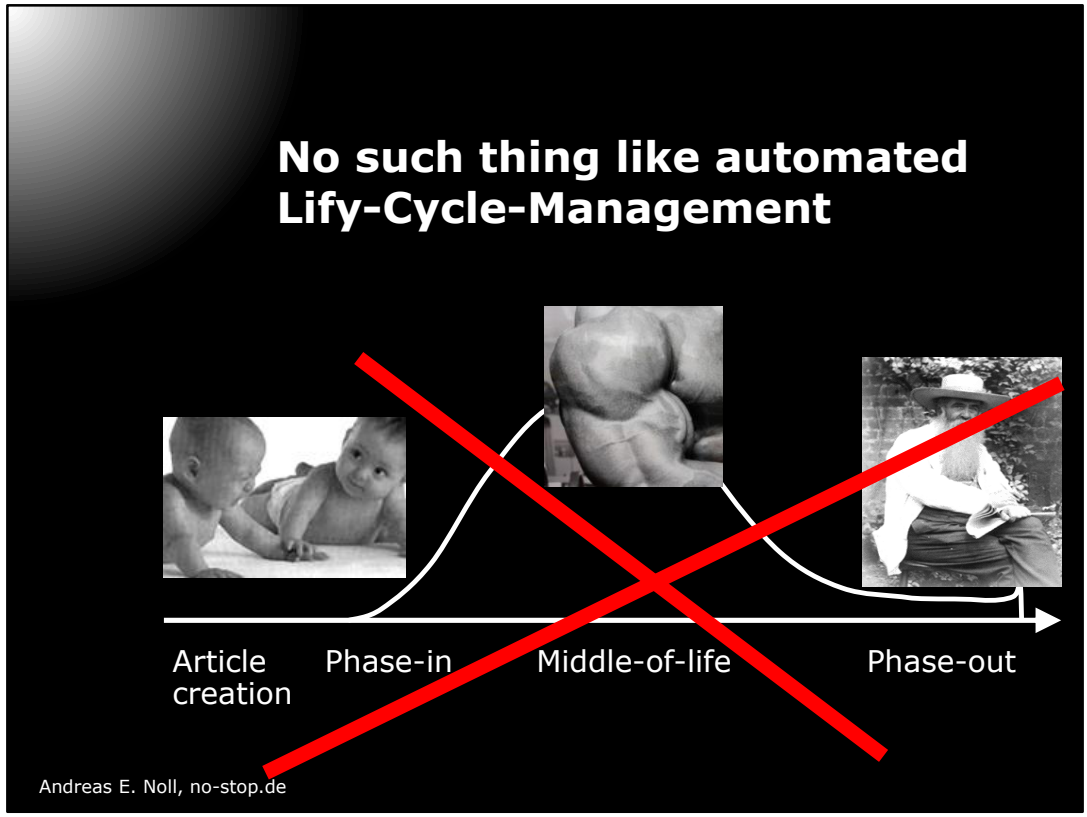


We needed a clear understanding where the two conflicting goals of
- low capital fixed in stock
and
- availability confirmed as ok by customers
could be set.

Measuring Stock is standard. MB52. But how to measure availability?
Again, it should be understandable by everybody, plus
-readible any time
-hard to be manipulated
For sure we did not want to take On-Time-Delivery as a measure, which was in place for a while then. We knew about the glitches that customers created on that measurement.

So we decided on comparing available stock on storage location level to
- complete order volume
- at time of order entry (later changes should not be taken into account)
to allow a Yes/No decision on order line level.
Pareto-Principle: not caring for the last per cent

To be mentioned:
- very few orders to date, so availability in future was no option to count as ok
- hardly any two open orders for the same part at the same time
(automated delivery creation every 15 minutes / immediate delivery creation for manually entered orders)



One of the nice-to-have topics not to be considered had been life-cycle-management.

With a rich history to serve long living machines (>20 years) phase out had meant
- taking over all stock from production that was useless in case of product changes
- lots of machines in parallel in active series
- lots of common parts among various machines

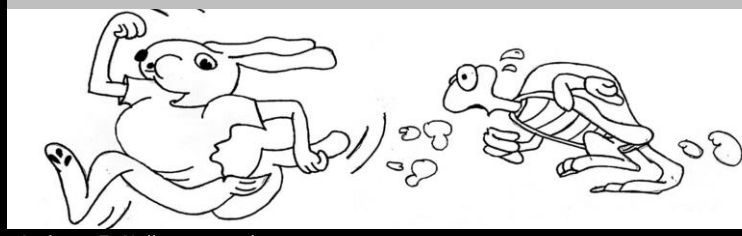
yes, it is the back mirror. As often in life: if you look back there is more light than looking forward

12 months rolling consumption was just enough to expand into future. But only, if expectation of repetition was good enough. The „good enough“ ought to be topic of a classification.

Classification: Sales Frequency

Readable, understandable, in a sequence

Fast	Good	Middle	Slow	Unique	Without	
>=50	>=12	>=4	>=2	1	0	Sales orders per 12 Months



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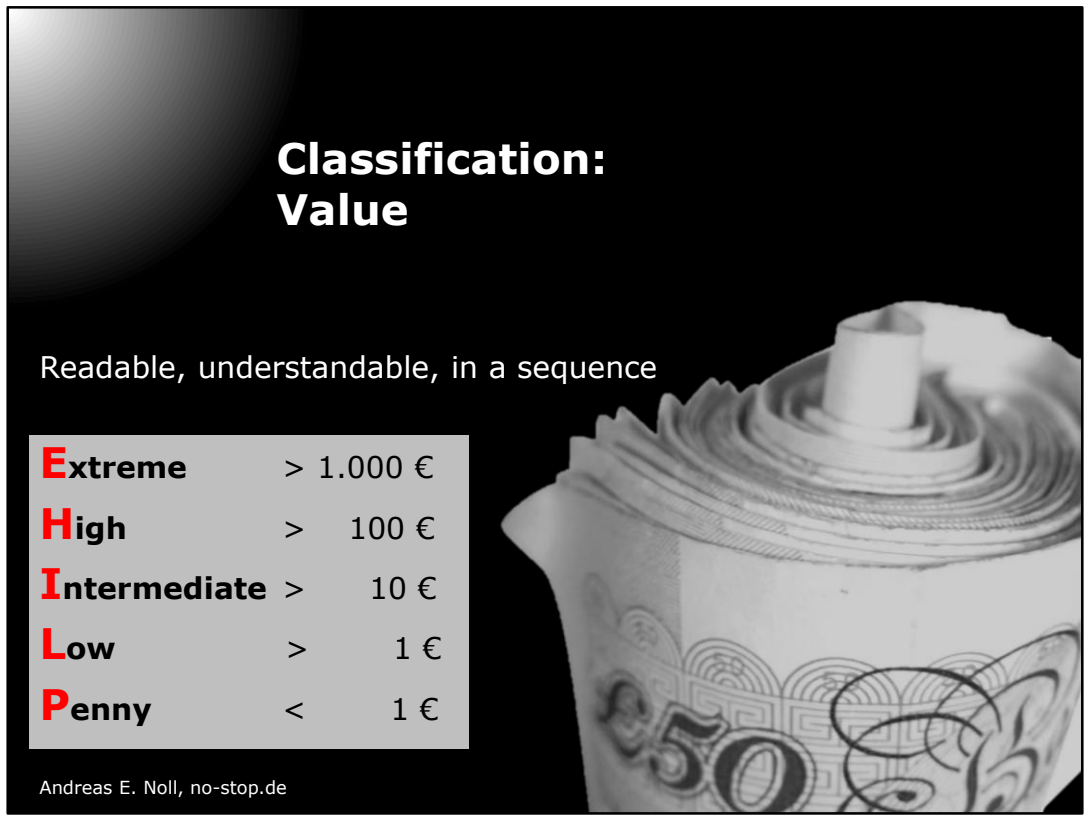
key message: the more often sold - the better the quality of prognosis

on a 12 month basis, taken from the calendar

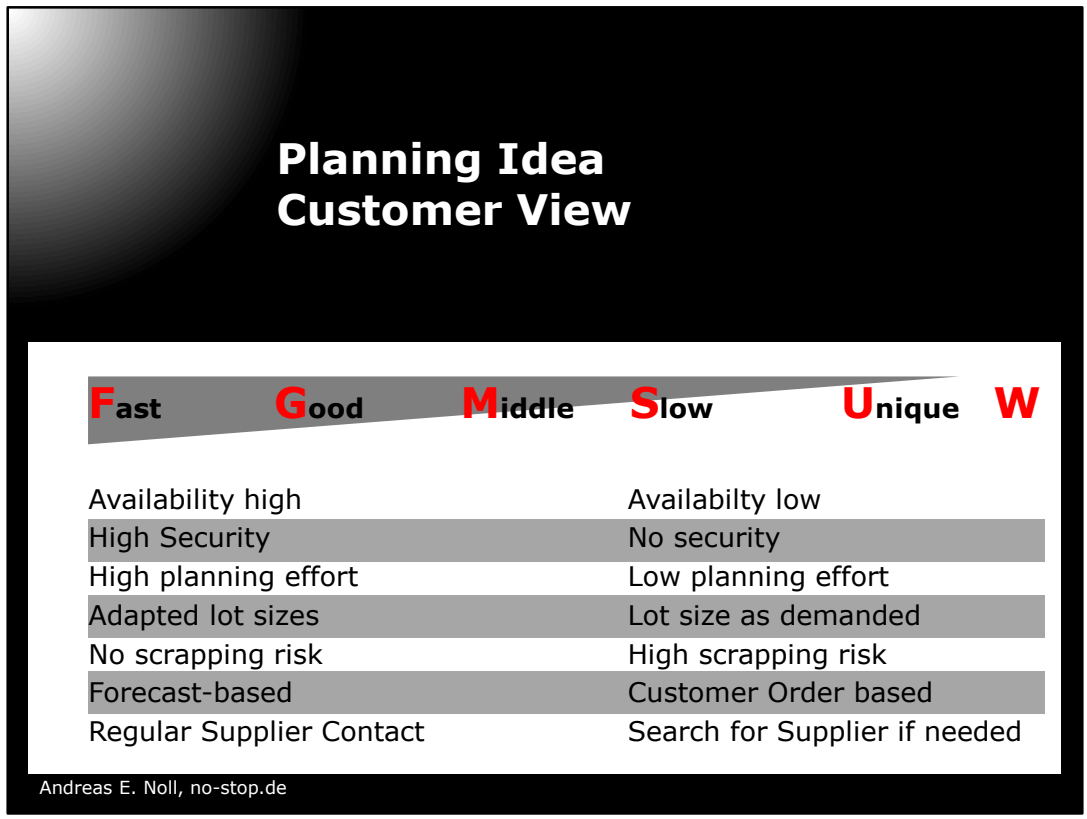
Fast	>50 sales = weekly
Good	> 12 sales = monthly
Middle	> 4 sales = quarterly
Slow:	> 1 sale
Unique	= 1 sale
Without	not sold at all

to make one thing clear: this is not volume. Volume is handled by SAP MRP.



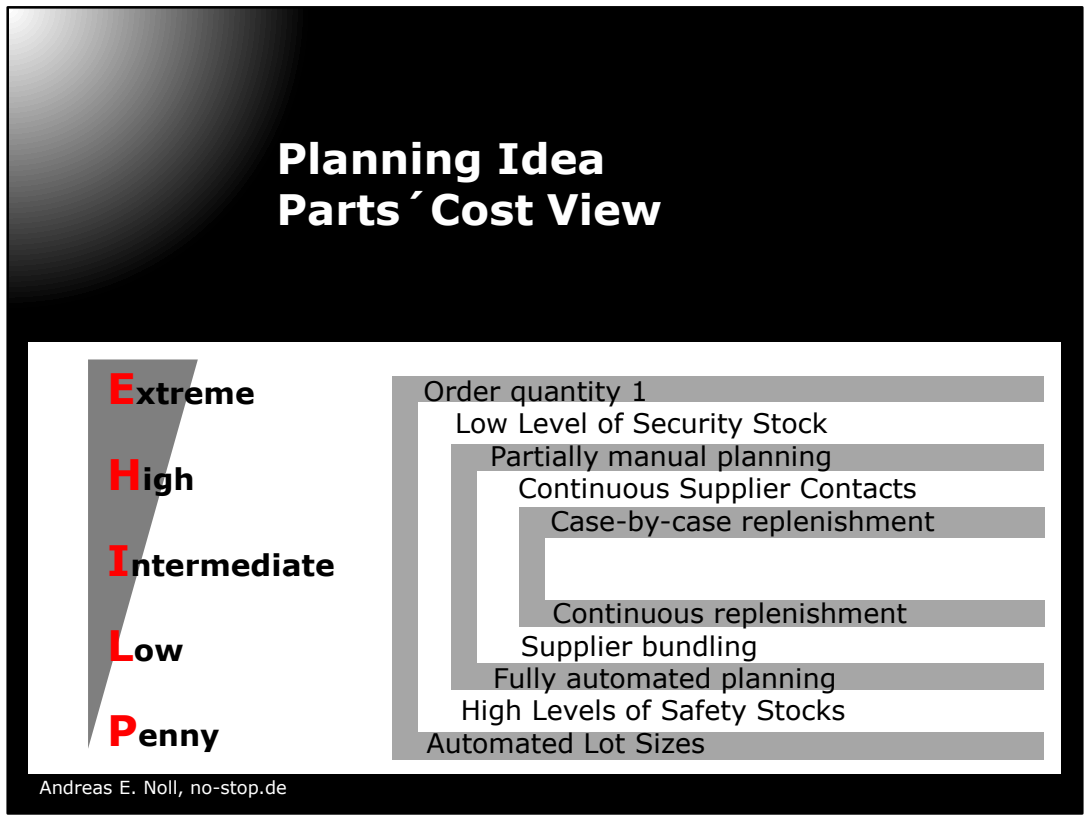
this is where stock meets P&L

actually Low & Penny could be merged, since the effect on stock/cash flow can hardly be measured

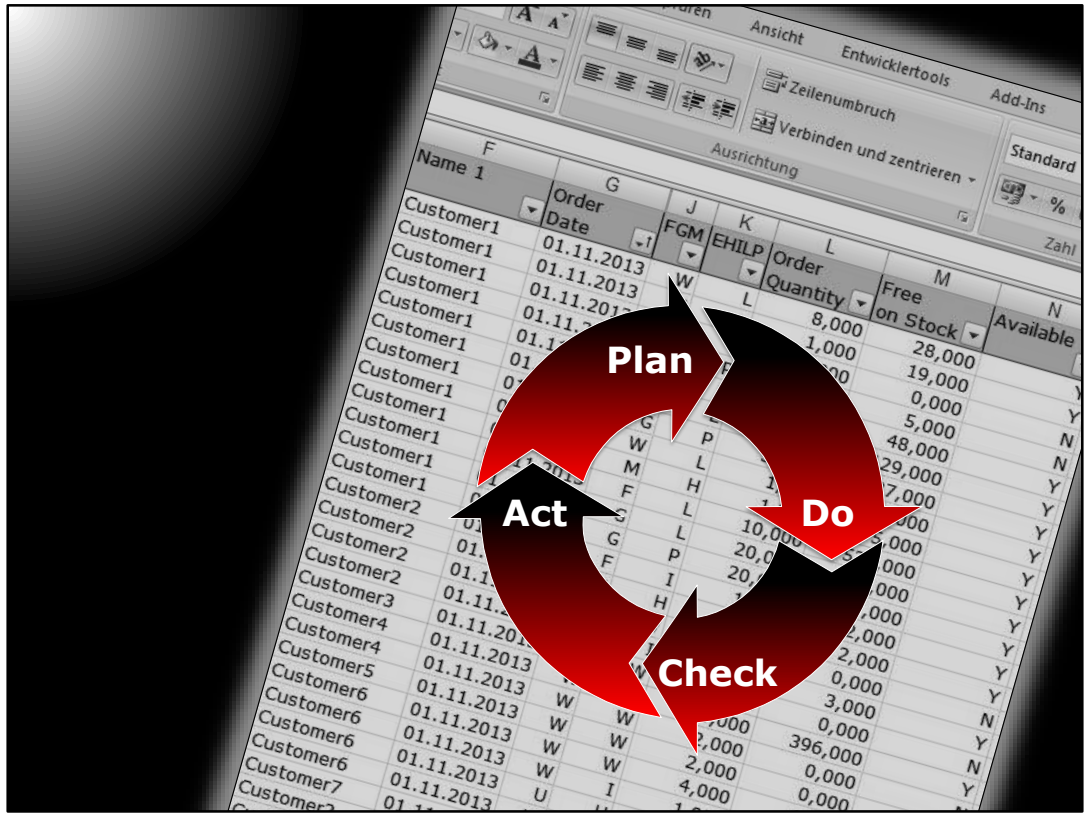


High number of sales order lines equals high quality of prognosis. Just to mention again: this is neither consumption nor is it the number of consumption postings (as in MB51).

We have to realize that this is not FMCG. The „best“ class is just more than 50 sales or more in 12 months. Don´t ask a mathematicians about such statistics



Key idea for any planner:
Spend your time on high prized items, don´t care for the Pennies. Just avoid the out-of stock situations for such by stock. For high prized items constant talks with key suppliers ought to be on the agenda to find solutions for low-risk-low-stock-low-lead-time.

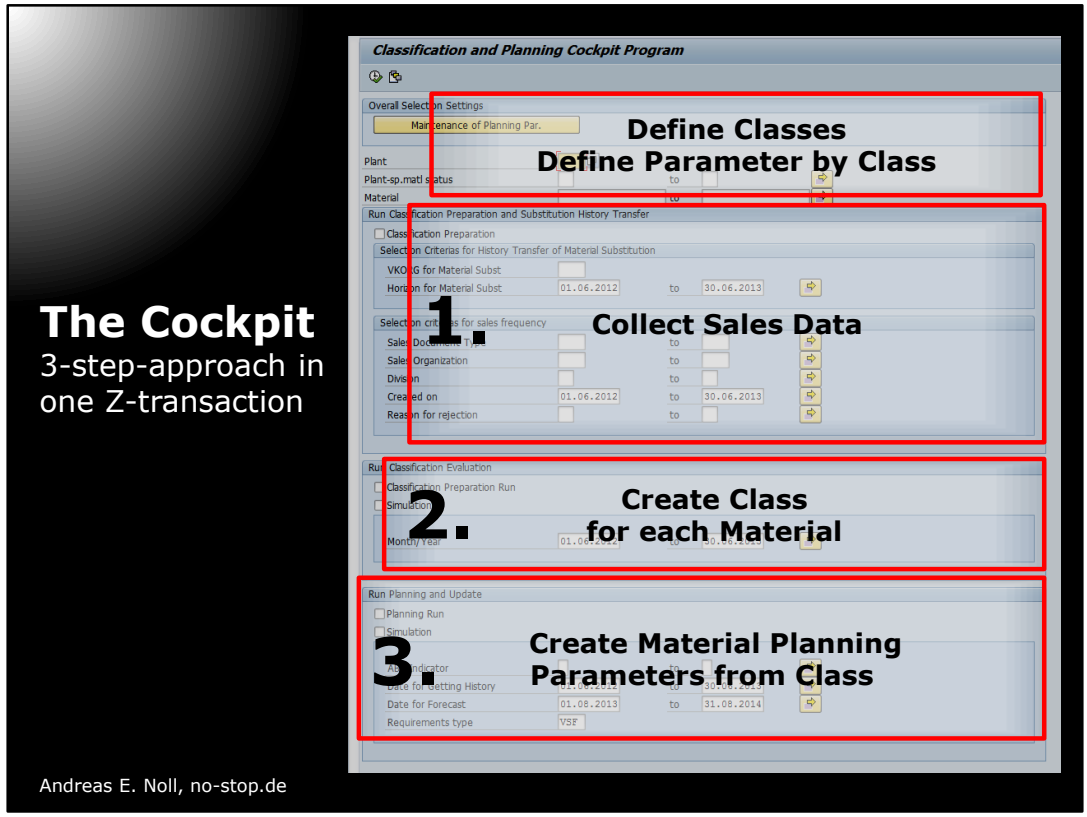


Everybody knows the circle of continuous improvement

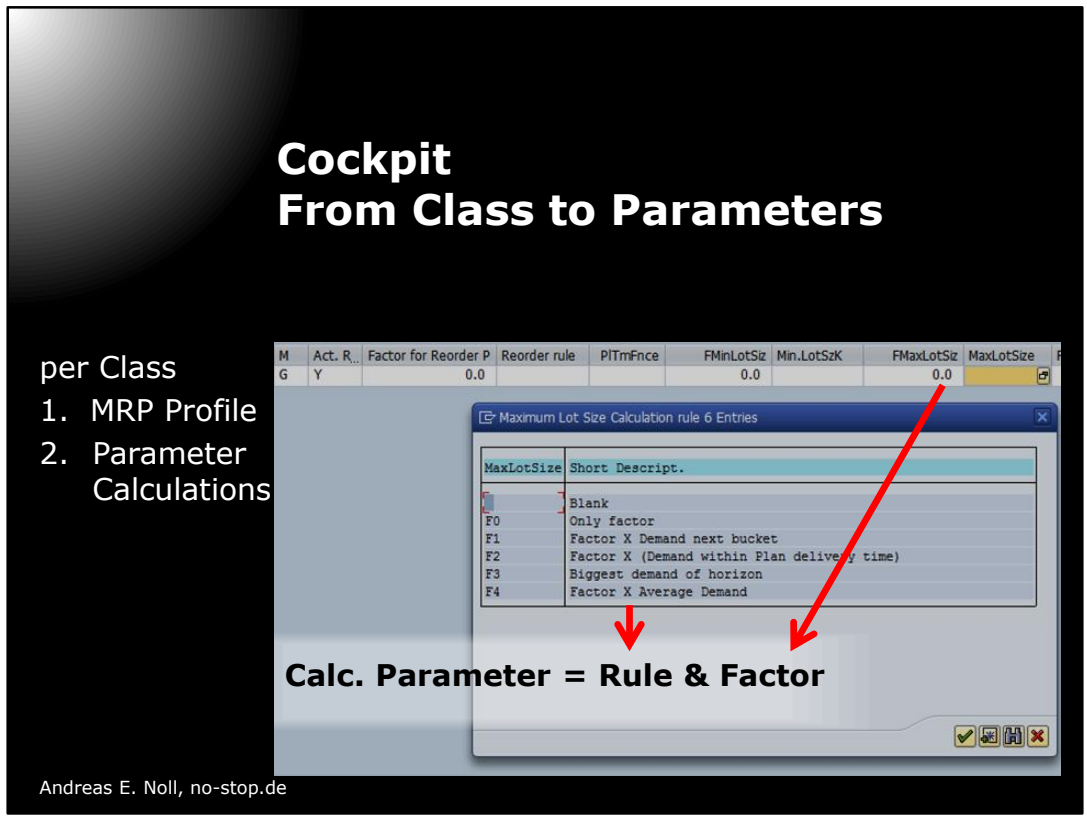
To improve we needed a regular, and thereby automated process. SAP would do the Act part on a monthly base. All data had to be stored within SAP in an accessible way. SQVI helped to get data out of SAP. And then Excel had to be used. This is mid sized company, this is Pareto.

1. Idea
2. Programming with intensive discussion of bits and pieces
   Unfortunately program segments were not transported separately,
   thereby classification and availibility check could not be used in an early stage but had to be calculated manually
3. Training of key user
4. Lengthy tests (almost all Q-system materials used)
5. Change Management with
   - Training on Excel and SQ01 to handle mass data well before Go-live
   - open communication on key figures
   - Classification
   - Stock Breakdown
   - Availibility
   - Visibility
   - Controlling

More on that in a minute.

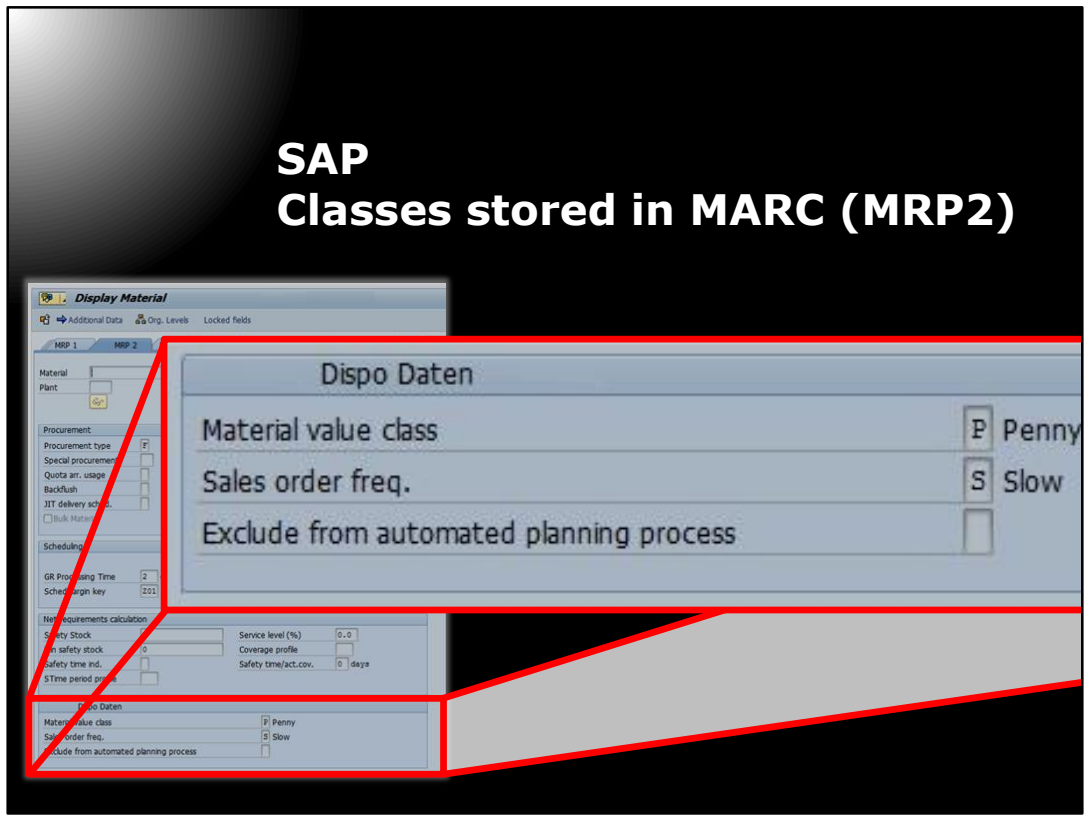


Some slides about the results in SAP. One Cockpit, that´s it.
The Z-transaction is handled by key user only to improve parameters.



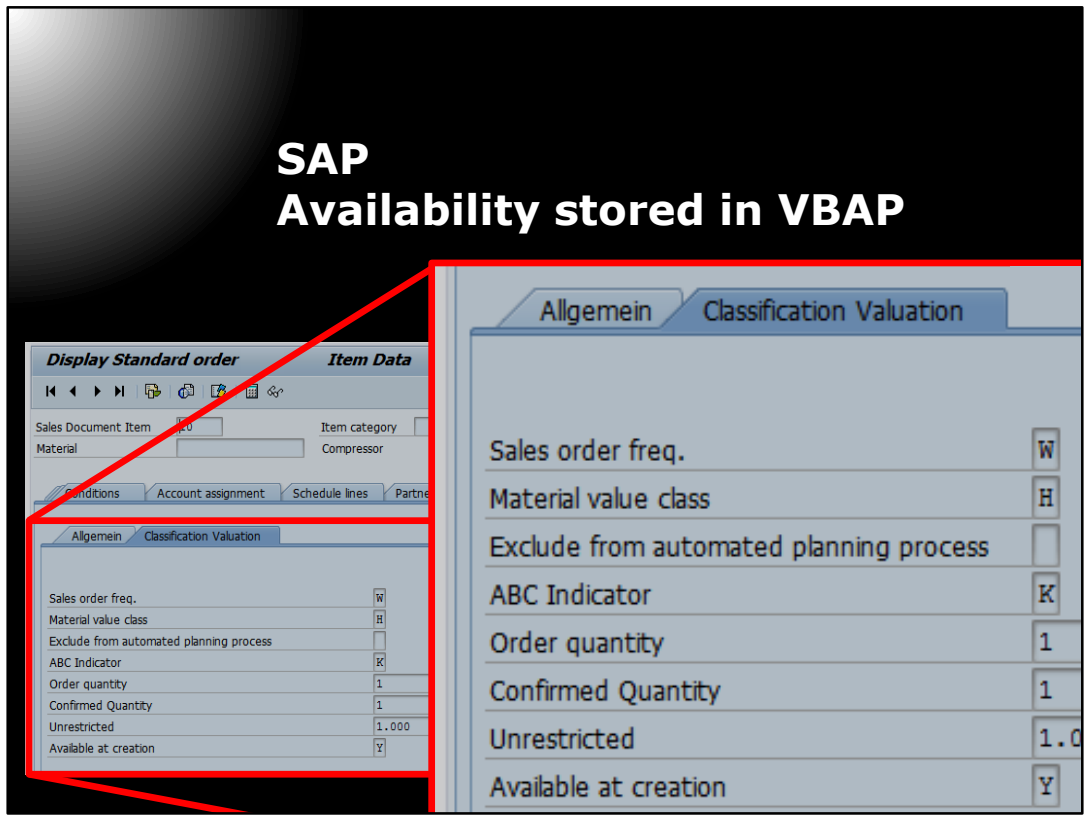
Behind each class a full set of parameters calcultion methods had been defined. Clear goal: we stick with standard MRP

By linking a MRP Profile to each class the needed parameters were clear, and quite limited. Parameters itself were either fix per class, or calculated during program run from basic calculation as shown here for maximum lot size giving maximum flexibility in the future.



Classification is saved and visible in Material Master Data on plant level. No manipulation allowed. A change log is saved as well in parallel to the standard material master log.

here you can see just another Pareto:
to handle extraordinary parts for any not thought about reason the planner may exclude the part from automated planning just by ticking in the box. It had to be used after taking over new parts

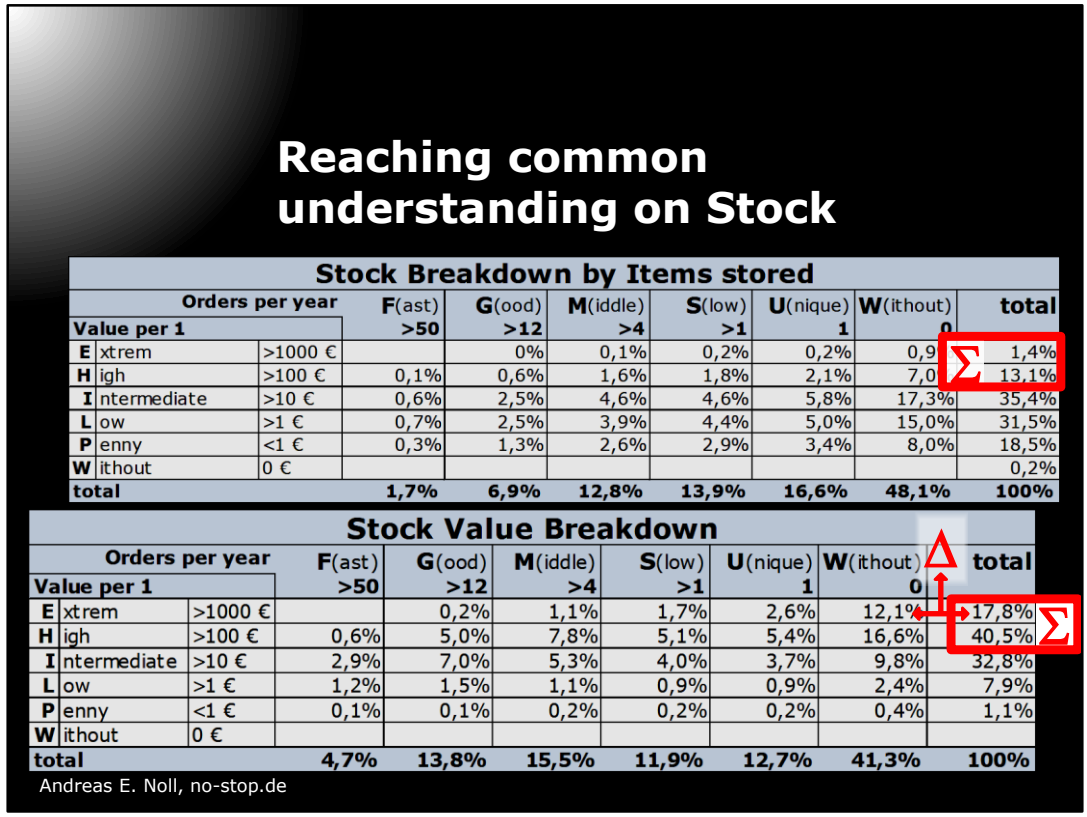


the whole set of information is being saved within the sales order, and, as mentioned, at time of creation. By that database extension it is now possible to measure availibility for any kind of sales order related topic, like
-material
-customer
-country
-sales org
To avoid manipulation of availability by order changes to the available quantity the data shown are saved at order creation only.

Just to mention here that by far the most customer orders are entered via the web-shop, run by SAP as well. Customers stopping the order process because of lacking availability can´t be measured this way. So what. That´s Pareto.

working in an internationally distributed own organization with two otherwise completely separated business units needed some communication:

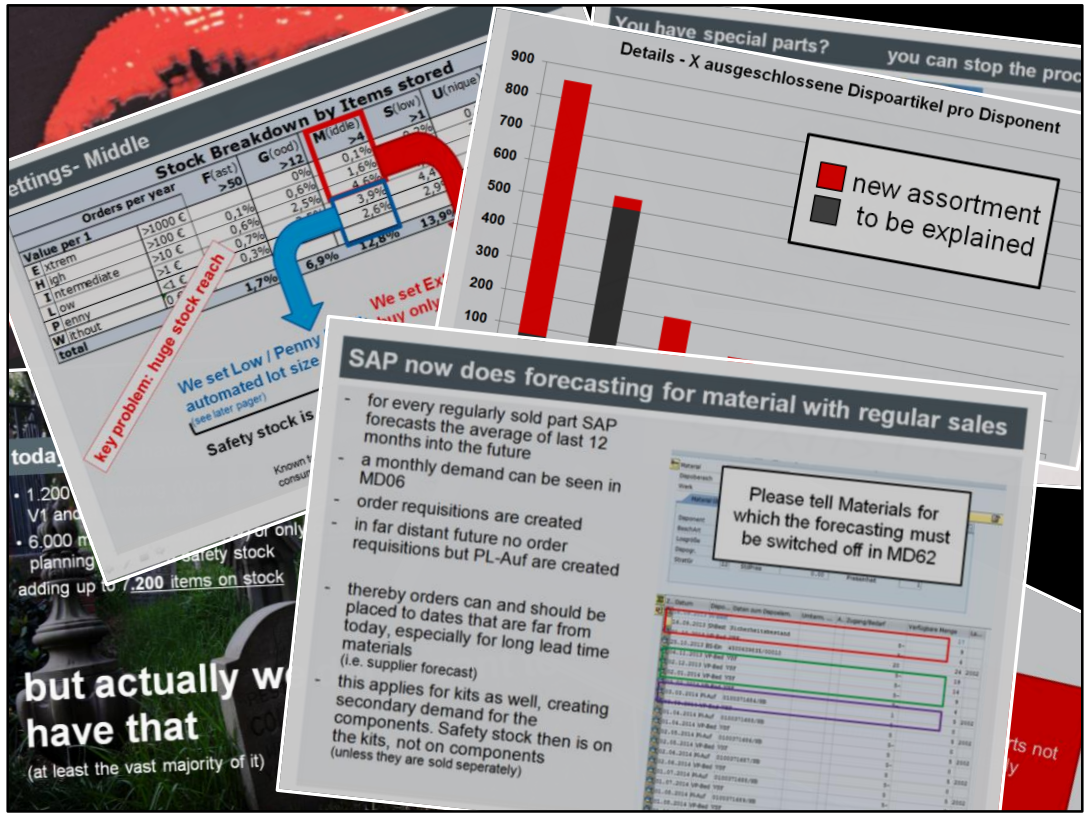
- to all key users
- to planners on
  - classification & basic figures
  - operations with MRP
  - mistake feedbacks
  - resulting figures
- with IT on competing transports especially for changes on customer orderline level (unfortunately during tests an additional country migrated to SAP with lots of legal requirements)



In an early stage well before implementation planners were introduced into classification. Especially breakdown of into Sales Frequency brought quite some aha-effects. Sheer volume of W parts had been impressive for everyone, but with a planners name behind so called dead stock (=W) personal responsibility was clear from day 1 on.

2/3 of E value = dead

15 % of parts = 58% of value



Planners had been under steady bombardment of meetings, mailings, phone calls. It needed at least some feeling of responsibility as well as urgency for them to actively support the project.

With the project new MRP methods had been implemented like automated lot size calculation and forecasting. It took planners a while to understand that things really worked. Especially high lot sizes on Penny items irritated immensely: wouldn´t stock rise even more???

Initial fears about broad usage of the exclusion marker showed up to be not necessary. But only after some openly done controlling.

Controlling

Andreas E. Noll, no-stop.de

The whole process of implementation had to be controlled intensively
to avoid fully automated overstocking as well as out of stock situations.

The first 2 months had been handled manually and in partials to check outcome.
Initial changes in figures:
-several thousand safety stocks reduced to zero
-few hundred safety figures increased
(frontal wave easily handled, but not always believed by planners)

Today jobs are run by SAP automatically every month. The volume of monthly change of parameters is quite limited.

But it all started with two glitches …

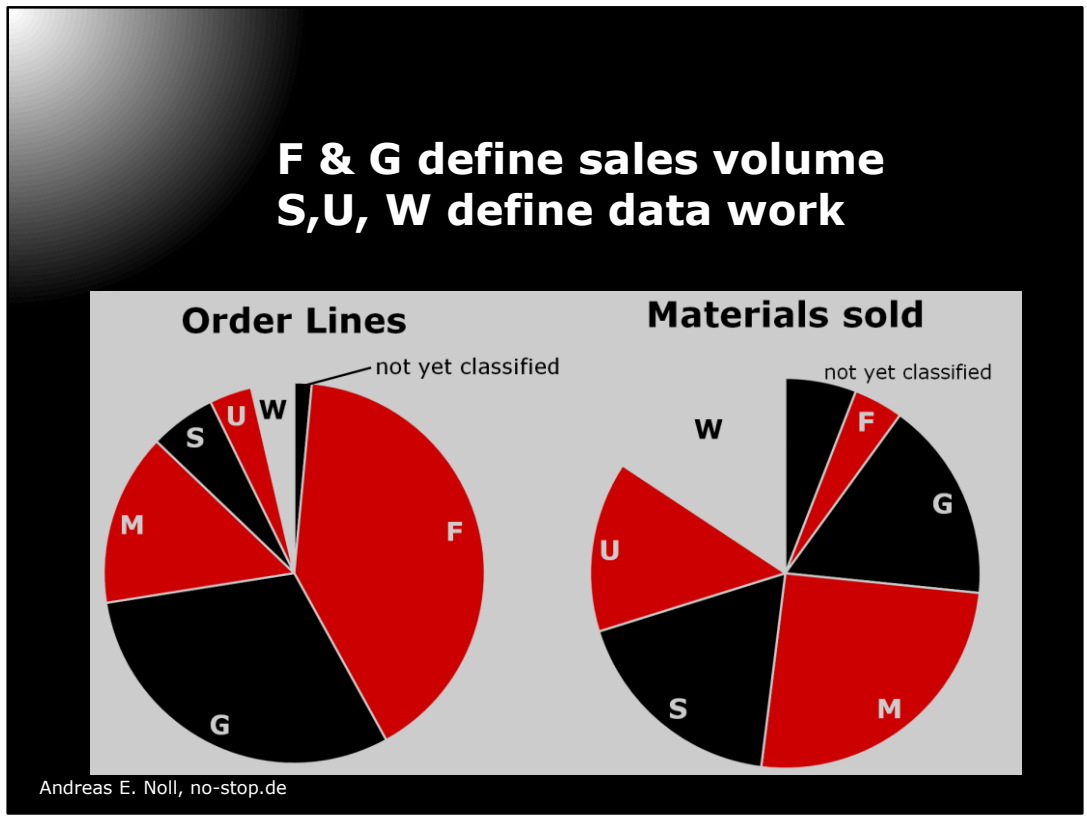
Big fun: Gaps in classification popped up.

Zero Value from poorly maintained standard prize items. Historically transferred parts simply were re-evaluated.

Plus there were a few gaps for parts evaluated per 100 or 1.000. They simply fell into the trap of being above lower border as well as below upper border. And of course there were a few parts with a value just below 0,01.

even though we had tested intensively we had to find out only after implementation that within the calculation of average consumption an integer variable had been implemented.
So a 12 month consumption of 5 led to a monthly consumption of zero. So especially the Slow Movers (2 or 3 sales per 12 months) ususally didn´t have any safety stocks as outcome.

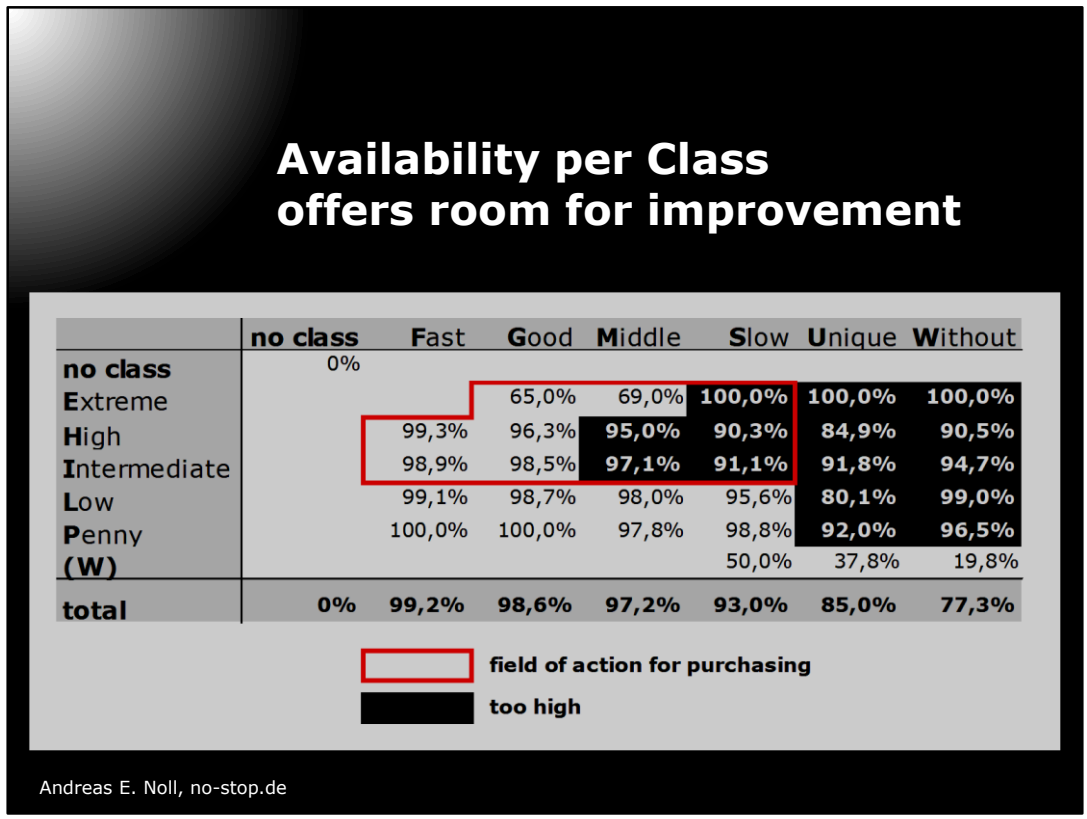
The only short term help: uploading safety stock figures manually at least to generate some order requesitions.



on sales sides the effects were quite obvious now:
very few parts define sale volume and overall availability.

All headaches stem from few order lines with a lot of to be maintained parts. Especially never before classifed parts meant fast manual processes from customer order entry to supplier.

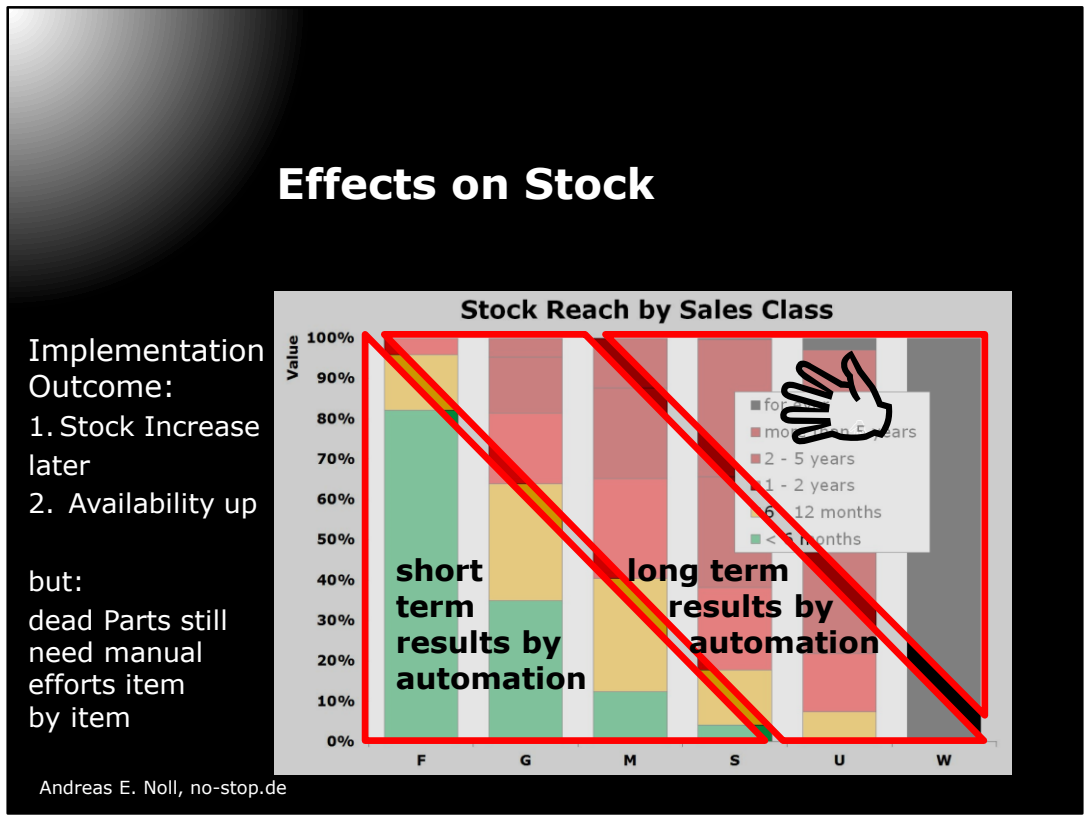
why hadn´t it been obvious before? The warehouse serves two completely different markets with different assortments. The international market has a different assortment than the German one. With astonishing results on availability. Regularly sold machines in Germany in high numbers resulted in roughly 99 % availability.



Expensive Parts (E+H) define Stock Value. Stock should be reduced. How?
- Put your efforts into close contact with supplier. Try reaching frame contracts.
- Key goal of purchasing not price, but low lead time.
- Intensive talks with production planners on how to access their parts.
- May be disassembling finished products
- assembling variations of almost identical parts on demand

By incident I applied for a job in After Sales of one of the suppliers of E and H parts. They understood immediately the idea of selling „time“. Strategic Purchasing had a tough time with it..

Highlighted:
We put to stock too much.
We don´t care for Penny items. For quite some Penny items storage costs are higher than stock value. If easily to be gotten: scrap.



what´s quite often realized in Spare Parts: hardly any short term solutions. Stock is mainly defined by hardly moving parts.

Actionable stock is concentrated in the area of consumed parts (Fast +Good), with quite some relevance to availability.

No more replenishment will be recognized only long term.
Where mostly? for W parts. Many have only a stock of 1.

Unfortunately lacking a clear measurement from times before implementing the project made it impossible to measure full improvement.

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)

Diplom-Ingenieur

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Vita

seit 2017	selbstständiger Unternehmensberater
2016-2017	Parts Marketing Manager Crown Gabelstapler, Feldkirchen
2014-2016	Parts Manager EMEA Crown Gabelstapler, Pliening
2011-2013	Head of Spare Part Service Ammann Schweiz, Langenthal
2006-2011	Head of Warehousing Service Parts KION Group, Wiesbaden
2000-2006	Referatsleiter Fabrikstrukturen (Inhouse Logistik-Beratung) Linde, Wiesbaden
1989-2000	Leiter Logistik DE-STA-CO, Steinbach
1987-1989	Projektingenieur Bochumer Eisenhütte, Bochum
1987	Diplom-Ingenieur Maschinenbau Universität Dortmund

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Gemeinsam Machen

Projekte zu

- Steigerung Ihrer Ersatzteil-Verfügbarkeit
- Verringerung Ihres Ersatzteil-Bestands
- Verbesserung Ihrer Stammdaten-Qualität
- Optimierung Ihrer Ersatzteil-Preise
- Auf- und Ausbau Ihres Ersatzteil-Marketings
- Beschleunigung Ihrer Auftragsdurchläufe
- Transparenz durch Kennzahlen-Systeme
- Qualitäts-Steigerung Ihrer physischen Ersatzteillogistik
- Erstellung Ihrer Roadmap im After Sales Service
- Aus- und Eingliederungen in Ihrer Ersatzteil-Organisation
- Aufbau und Kostensenkung Ihrer Distributionslogistik

und ganz generell

- Schulung Ihrer Mitarbeiter im After Sales Service

Zusammenarbeit auf Zeit

- als Interim Management
- im Rahmen von Tages-Workshops

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Umgesetzte Projekte

2018 Aufbau einer neuen Ersatzteil-Preisliste
Dashboard Ressourcenmanagement Ersatzteillager
Anlauf-Unterstützung nach Outsourcing eines Lagers

2017 Umzug eines Ersatzteillagers zum Dienstleister
Ausschreibung von Ersatzteil-Frachten
Konzept + Umsetzung Ersatzteil-Werbung im Extranet

2016 kompletter Neuaufbau einer Ersatzteil-Preisliste
Konzept + Umsetzung aktiver Ersatzteil-Werbung

2015 Restrukturierung eines Ersatzteillagers nach Umzug
Einführung eines Kennzahlensystems im Ersatzteilwesen

2013 kompletter Neuaufbau Ersatzteil-Preisliste

Integration italienisches Produktprogramm in SAP
Integration eines italienischen Ersatzteillagers

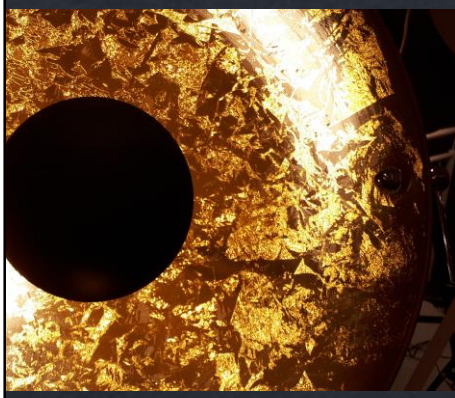
2012 life-cycle-Management für den Neuanlauf Maschinen
Ersatzteil-Klassifizierung für die Beschaffung

2010 Budgetreife Planung eines Ersatzteillager-Ausbaus
Europaweites Template für Ersatzteilläger

2009 Prozess-Verbesserungen in Ersatzteillägern
Aufbau Team + Budget für Europa-Projekt

2008 Austausch IT-Infrastruktur in einem Ersatzteillager
Prozess-Verbesserungen in Ersatzteillägern

2007 Strategieprojekt für europaweite Ersatzteil-logistik
Lager-Outsourcing für Ersatzteile
Durchsatzsteigerung an Automatischen Kleinteilelägern (AKL)



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Vorträge

Stärken und Schwächen von Behälter-verwaltungssystemen in Industriebetrieben	BME
Einführung eines elektronischen Ersatzteilkatalogs und –Shops	marcus evans
Logistikdienstleister als Partner für die außenwirtschaftliche Zollabwicklung	BME
Optimierung der Ersatzteil-Disposition	marcus evans
Materialstammdaten von Ersatzteilen optimieren	T.A.Cook
Ersatzteilumsatz steigern durch zielgerichtete Werbe-Maßnahmen	marcus evans
Ersatzteilmaterialstämme: Viel Masse, wie steht es mit der Klasse?	BME
Ersatzteil-Umsatz steigern durch Transparenz und Kundenansprache	marcus evans
Einführung in die Ersatzteillogistik	IUBH
Kennzahlen im Ersatzteilmanagement: Stammdaten – Einkauf – Logistik – Verkauf	BME
Lebenszyklus mechanischer Ersatzteile im Maschinenbau	COG-D
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