SAP APO DP:

Tools and processes that hold it together
at Sanofi

What we will cover

- Forecasting Challenge

- Support Process

- Core Process

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Forecasting Challenge
Our history and context

SANOFI

more than
110,000
Employees[1]

€34.9bn
in sales
in 2012

present in
100
countries

112
industrial
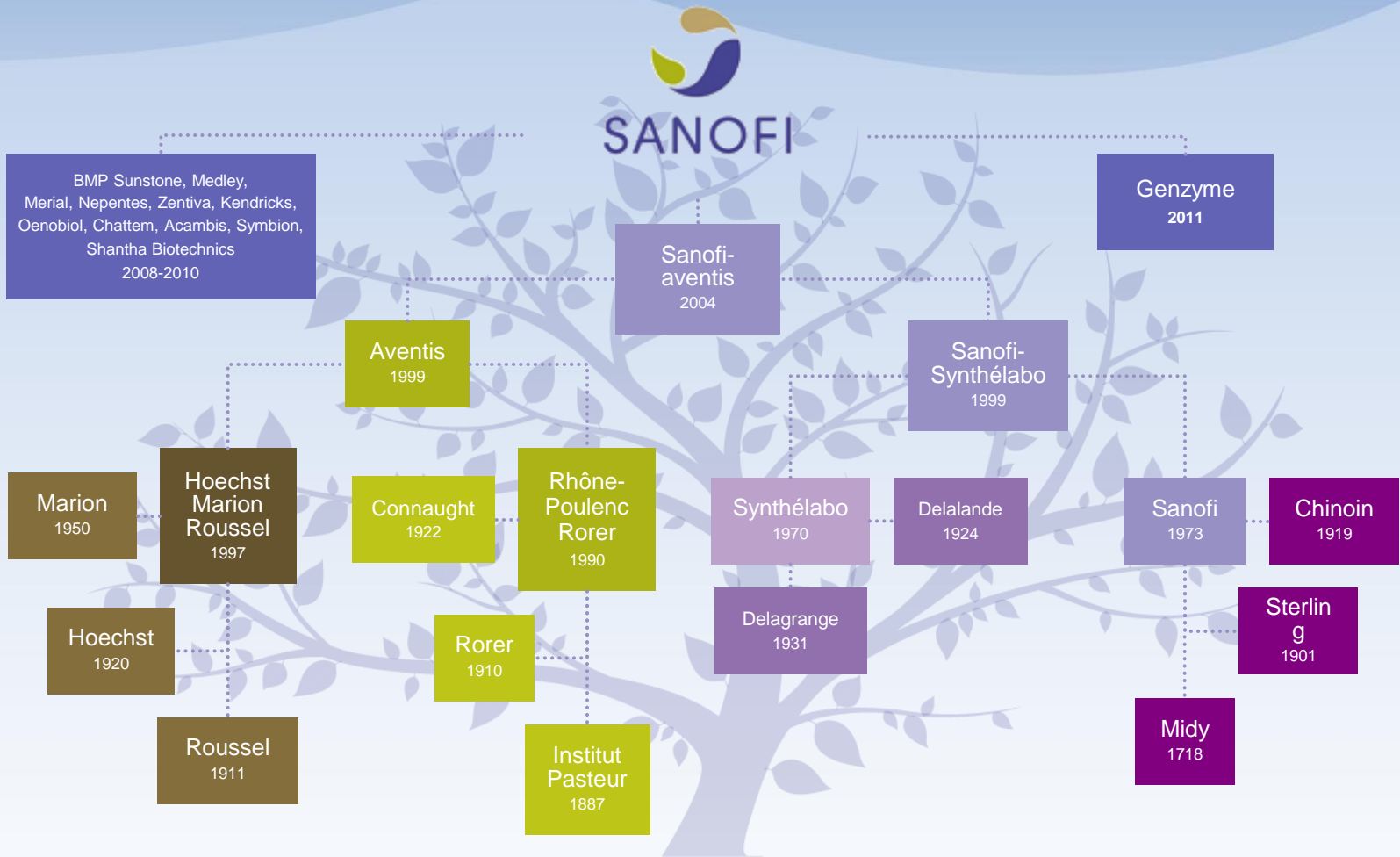Sites in
40 countries

A diversified offer
of medicines,
vaccines
and innovative
therapeutic solutions

We are a **global integrated healthcare** company engaged in the research, development, manufacturing and marketing of healthcare products.

(1) As of December 31, 2012

History of Sanofi

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BMP Sunstone, Medley, Merial, Nepentes, Zentiva, Kendricks, Oenobiol, Chattem, Acambis, Symbion, Shantha Biotechnics
2008-2010

Genzyme
2011

Sanofi-aventis
2004

Aventis
1999

Sanofi-Synthélabo
1999

Marion
1950

Hoechst Marion Roussel
1997

Connaught
1922

Rhône-Poulenc Rorer
1990

Synthélabo
1970

Delalande
1924

Sanofi
1973

Chinoin
1919

Hoechst
1920

Rorer
1910

Delagrange
1931

Sterling
1901

Roussel
1911

Institut Pasteur
1887

Midy
1718

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Our strategy

1 **INCREASE** INNOVATION IN R&D

2 **SEIZE** EXTERNAL GROWTH OPPORTUNITIES

3 **ADAPT** THE GROUP TO FUTURE CHALLENGES

2012 - 2015
19 potential new launches*

Priorities
Diabetes

Fibrosis and tissue repair

Immuno-inflammation

Infectious diseases

Rare diseases

Oncology

Ophthalmology

Aging

R&D Portfolio
2011 Annual Results

60 molecules and vaccines

2009-2011
- **23** companies acquired including Genzyme

- **61** in-licensing agreements

- **2** joint ventures

- **€23bn** invested in external growth

Growth Platforms
- Emerging Markets

- Diabetes Solutions

- Human Vaccines

- Consumer Healthcare

- Animal Health

- Innovative Products

- Rare Diseases

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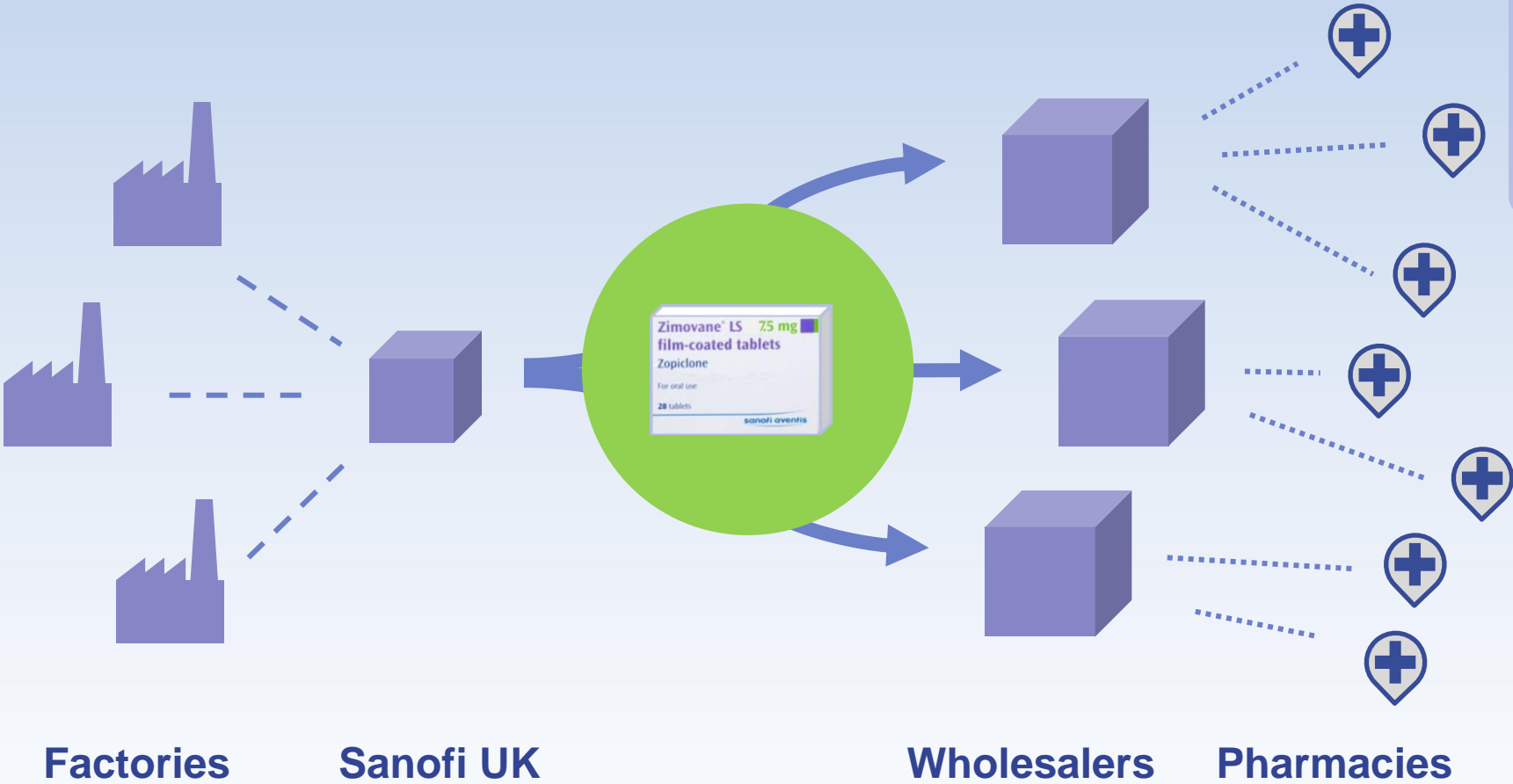
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Sanofi Group in the UK & Ireland

Strong UK & Ireland presence

Circa **3,000** employees

14 Locations

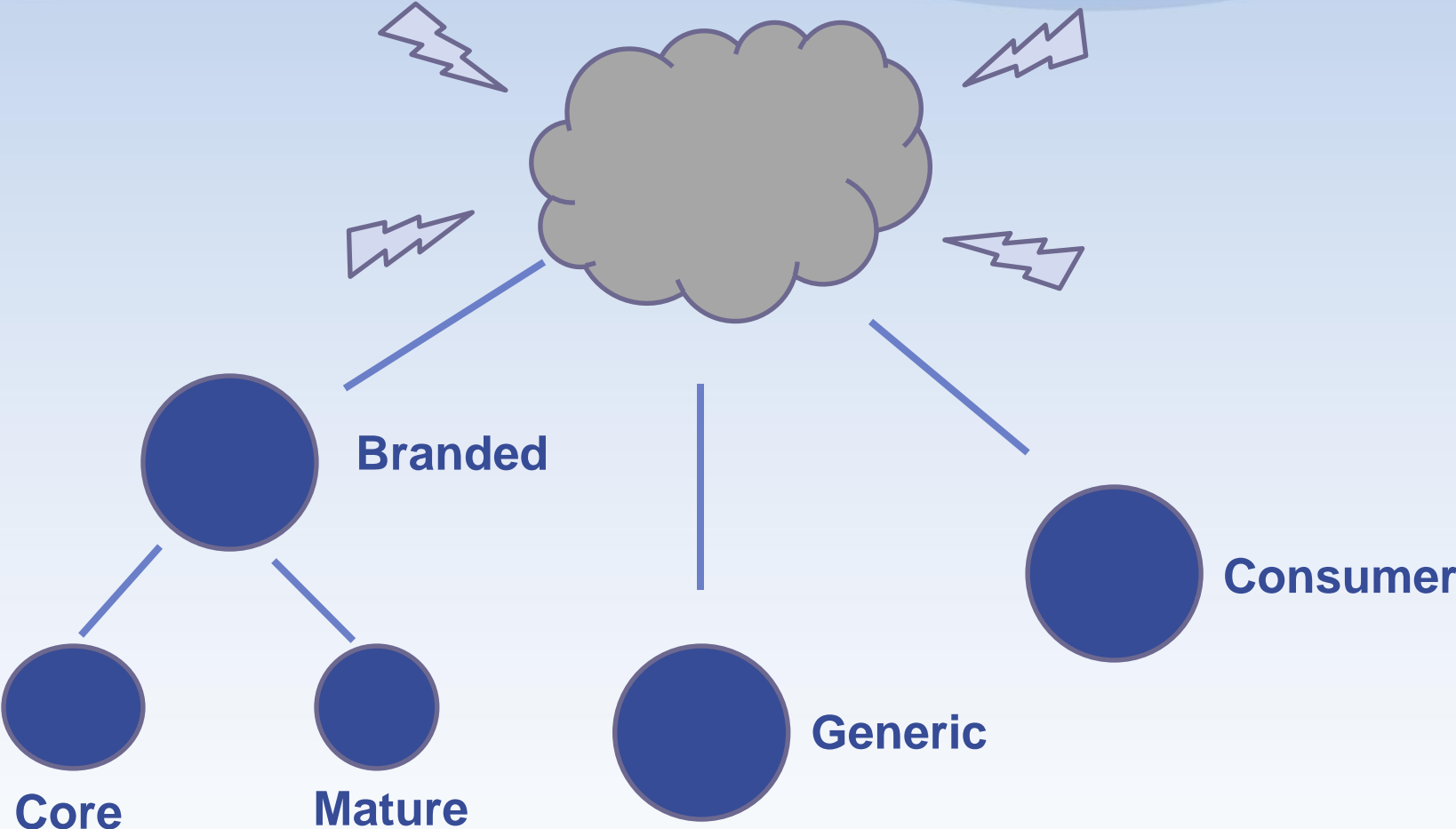Sanofi and Zentiva combined 4th largest supplier to the NHS in terms of volume of prescription medicines

SANOFI

Headquarters
1. Guildford
2. Dublin

Manufacturing
3. Dagenham
4. Fawdon
5. Holmes Chapel

Distribution
6. Chapeltown

MERIAL

Head Office
11. Harlow

R & D
12. Pirbright

ZENTIVA

Headquarters
1. Guildford

genzyme

Headquarters
7. Oxford

Research
8. Cambridge

Manufacturing
9. Haverhill
10. Waterford

sanofi pasteur MSD

Headquarters
13. Maidenhead
14. Dublin

Forecasting scope

Zimovane® LS 75 mg
film-coated tablets
Zopiclone

For oral use

28 tablets

sanofi aventis

Factories **Sanofi UK** **Wholesalers** **Pharmacies**

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Business Segmentation

Branded

Consumer

Core

Mature

Generic

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Brands

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Generics

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Consumer (CHC / OTC)

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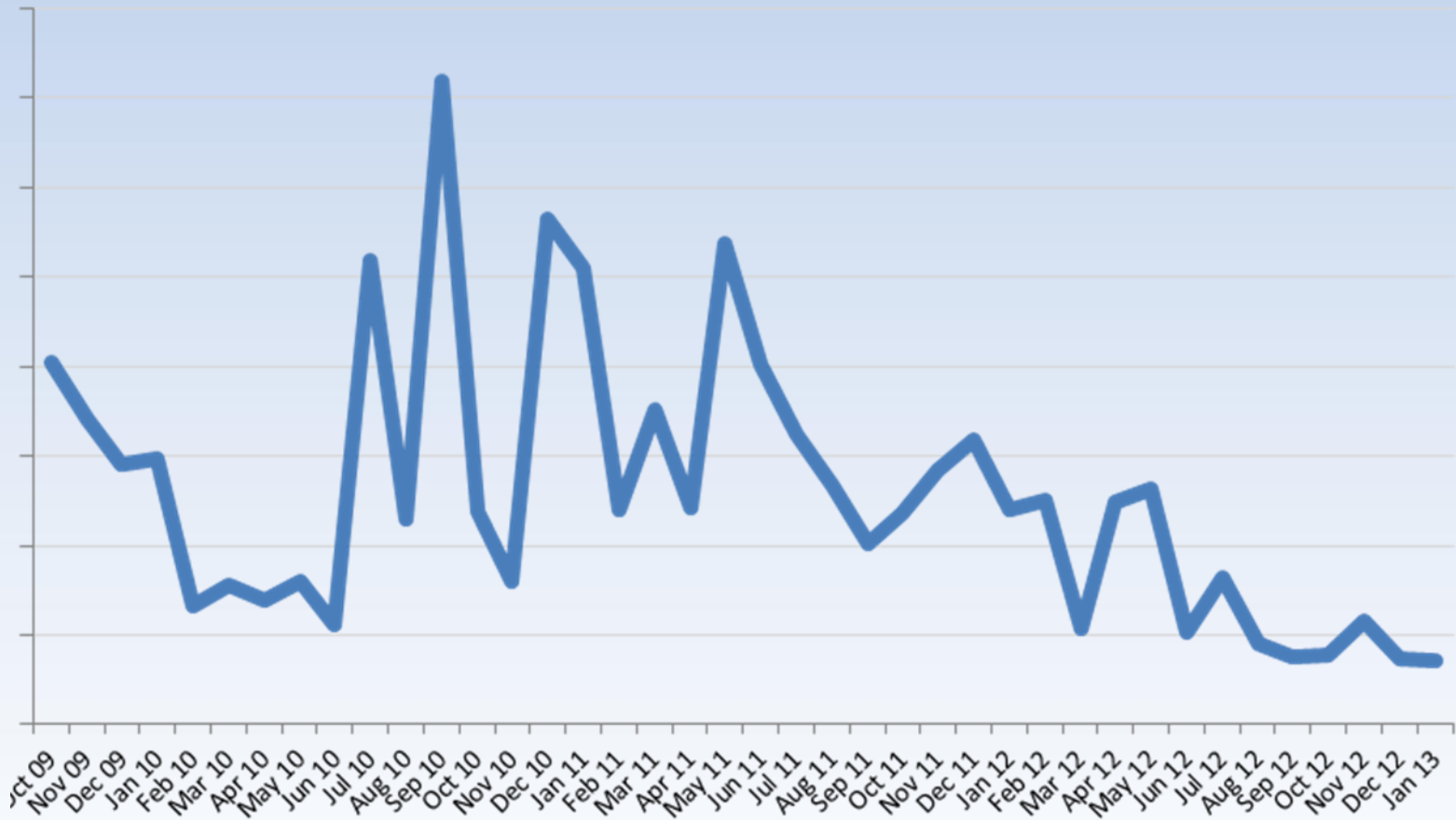
ADDVANTAGE
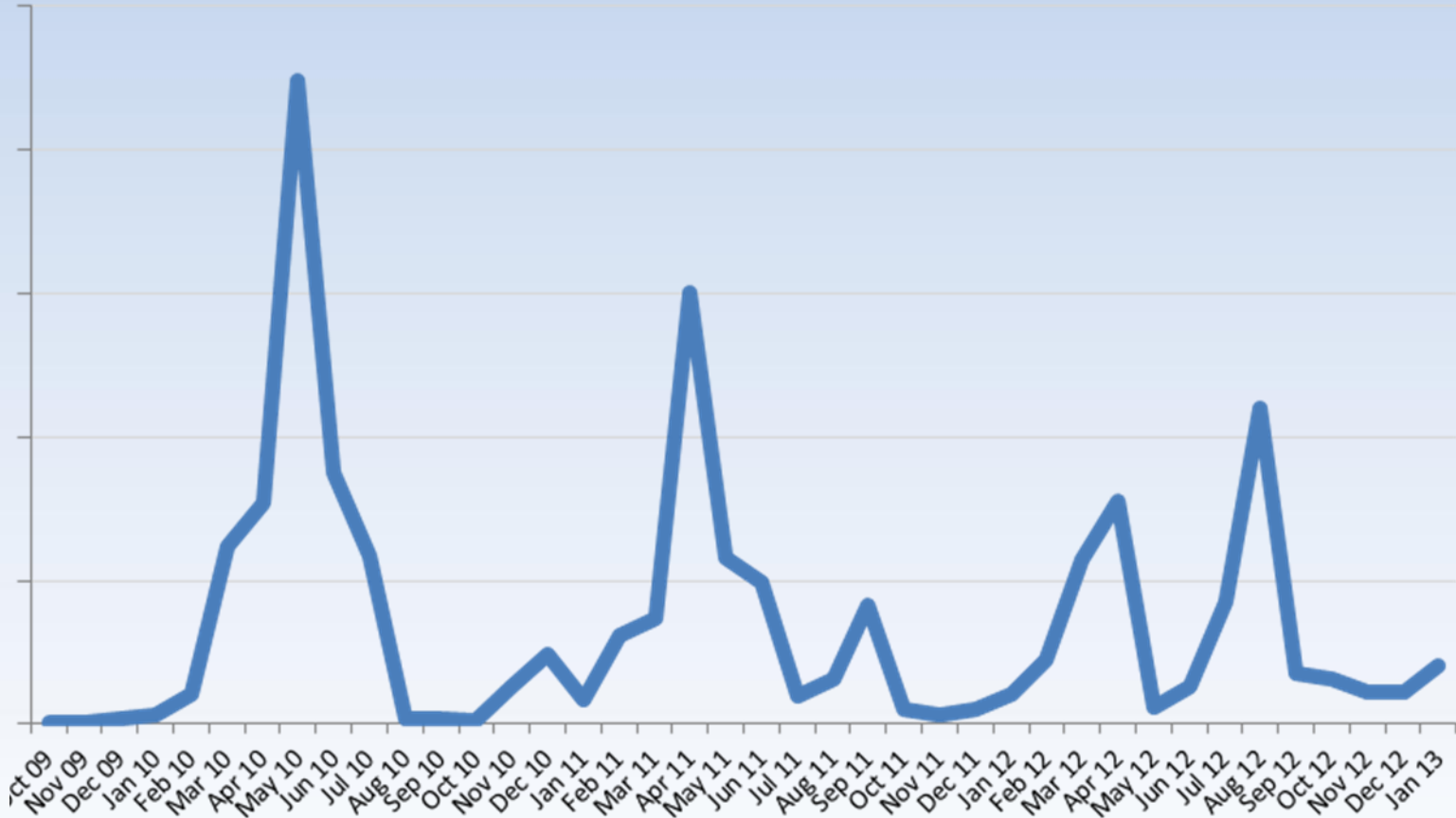
Forecasting objectives
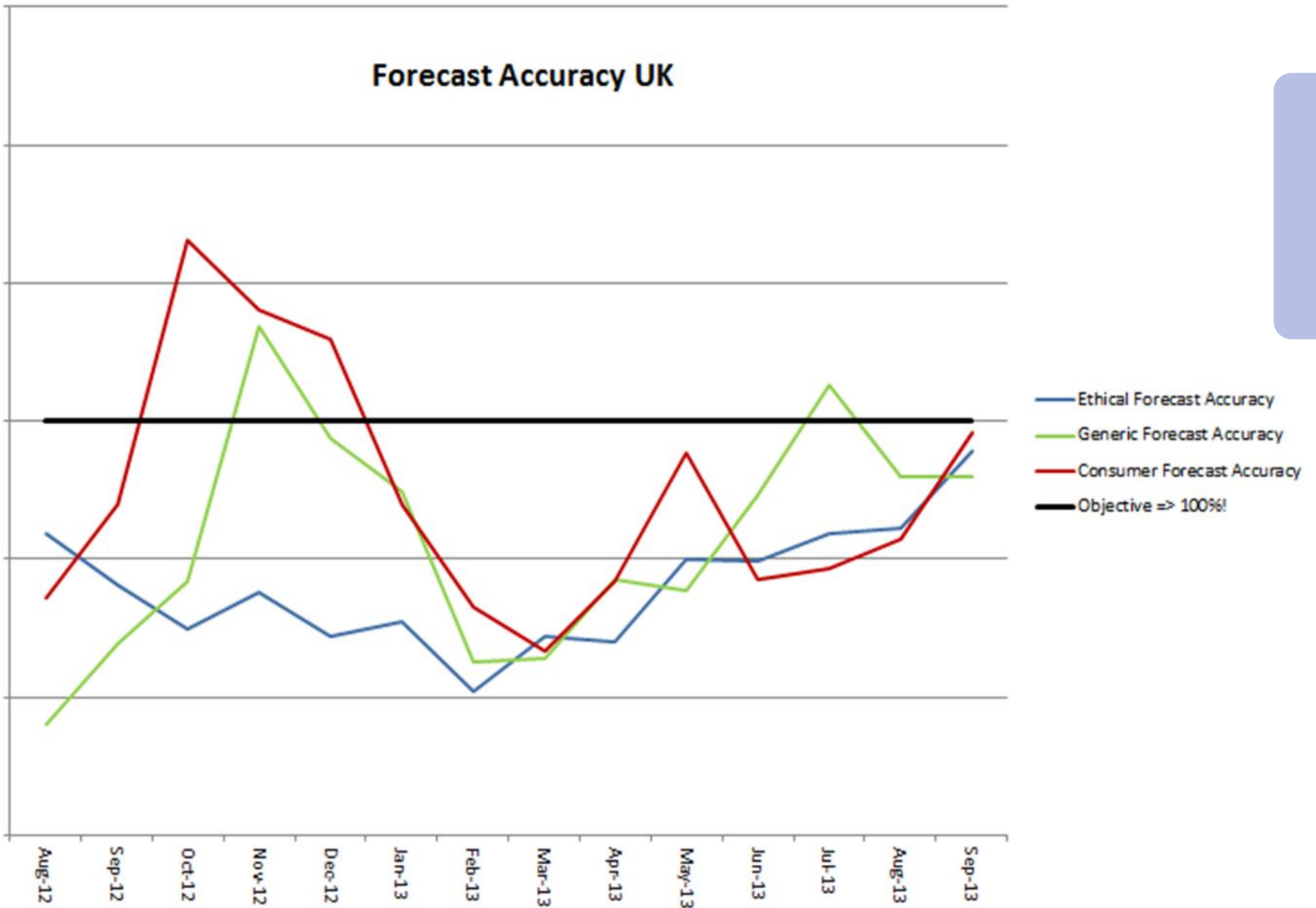
We set ourselves ambitious targets

- 🌀 Aim to Increase forecasting accuracy

- 🌀 Accuracy and Dispersion measured on lag 3

- 🌀 Measure individual forecasting performance of each supply planner

Partial extract from KPIs measured by planner and by business segment

Forecast Dispersion (%)	3.6%	19.9%	13.2%	15.5%
Forecast Accuracy (%)	97.7%	93.5%	95.7%	94.8%
OOS Rate (%)				
CSR Rate - Turnover Rupture (%)				
CSR Rate - Turnover Rupture + Back Order (%)				
Unit Coverage (Mths)				
Forecast Dispersion (%)	8.1%	24.2%	19.3%	14.2%
Forecast Accuracy (%)	101.3%	93.9%	83.4%	95.5%
OOS Rate (%)				
CSR Rate - Turnover Rupture (%)				
CSR Rate - Turnover Rupture + Back Order (%)				
Unit Coverage (Mths)				
Forecast Dispersion (%)	7.4%		42.1%	12.8%
Forecast Accuracy (%)	98.1%		130.7%	103.2%
OOS Rate (%)				
CSR Rate - Turnover Rupture (%)				
CSR Rate - Turnover Rupture + Back Order (%)				
Unit Coverage (Mths)				

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Forecast Accuracy UK

Legend:
- Ethical Forecast Accuracy
- Generic Forecast Accuracy
- Consumer Forecast Accuracy
- Objective => 100%!

Support Process
At the heart of good forecasting

Sanofi and Lancaster Centre for Forecasting

Size of Relative Adjustments to the Forecasts

Absolute relative adjustments are distributed as follows:

1st Quartile 0.1% to 5.1%
2nd Quartile 5.2% to 13.4%
3rd Quartile 13.5% to 30.3%
4th Quartile 30.4% onwards
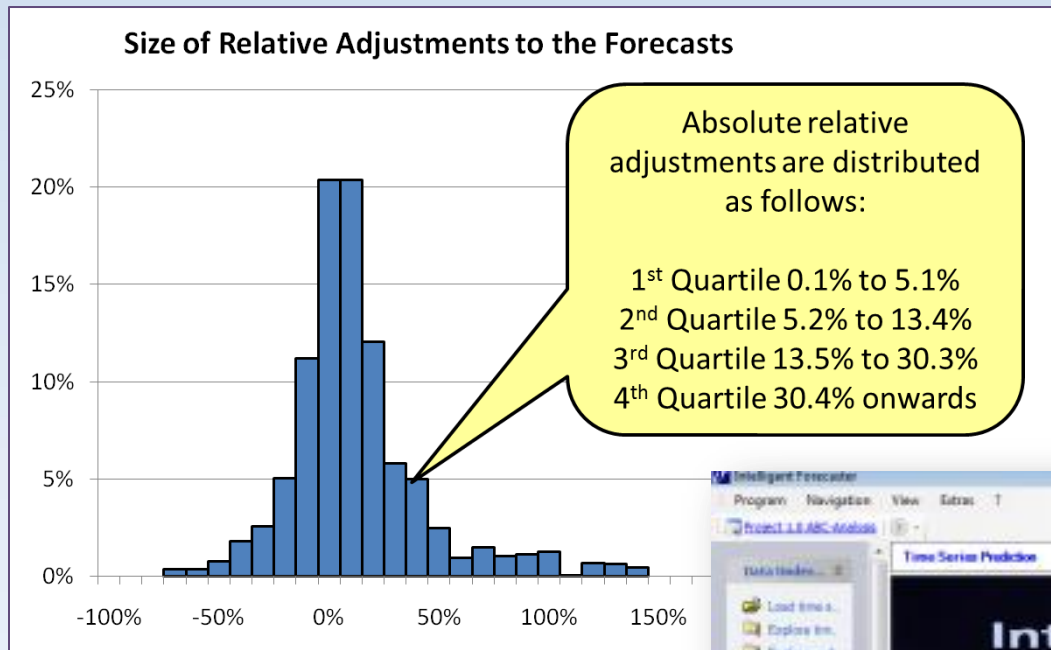
Full Portfolio Forecasting Process Review

SUPPORT PROCESS

Intelligent Forecaster is a powerful tool for:

- portfolio segmentation
- auto model selection

QUARTERLY

Forecasting Models Review

↓

Model Optimisation

↓

SAP APO Model Updates

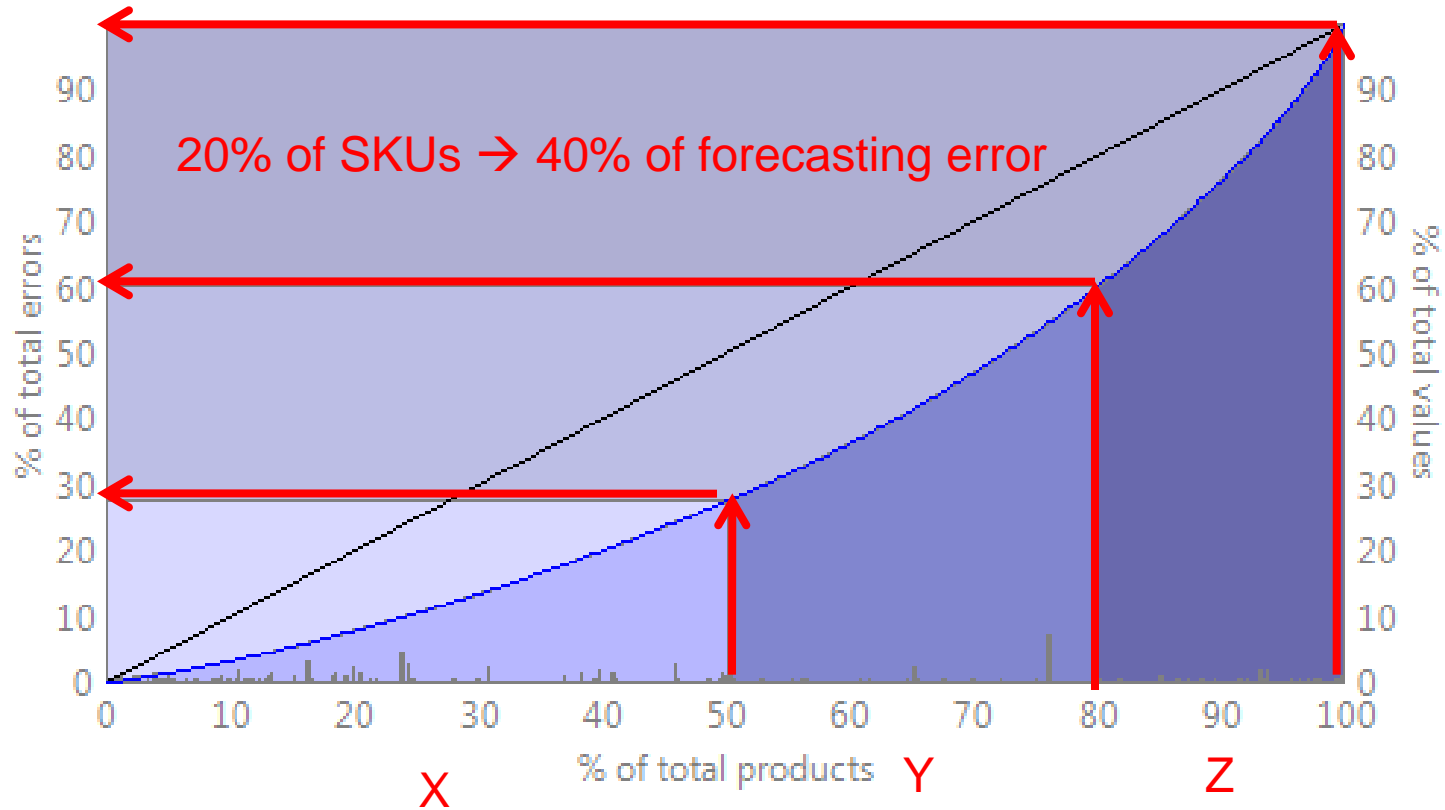SUPPORT PROCESS

ABC Analysis

20% of SKUs

75% of volume
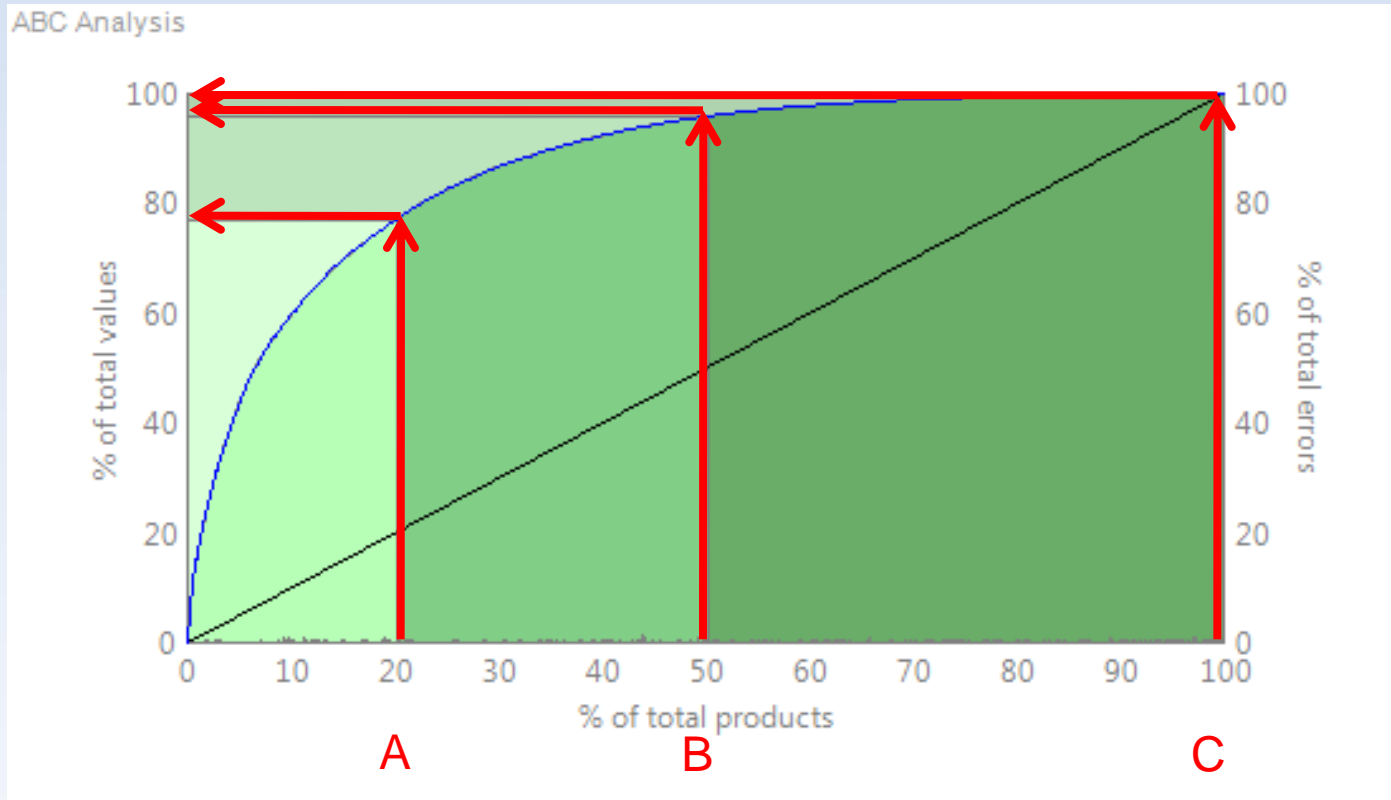
SUPPORT PROCESS

"Important"   A ---------------------- B ---------------------- C   "Unimportant"

XYZ Analysis

Product Portfolio Segmentation

Automate easier and lower value forecasts; Check if they make sense
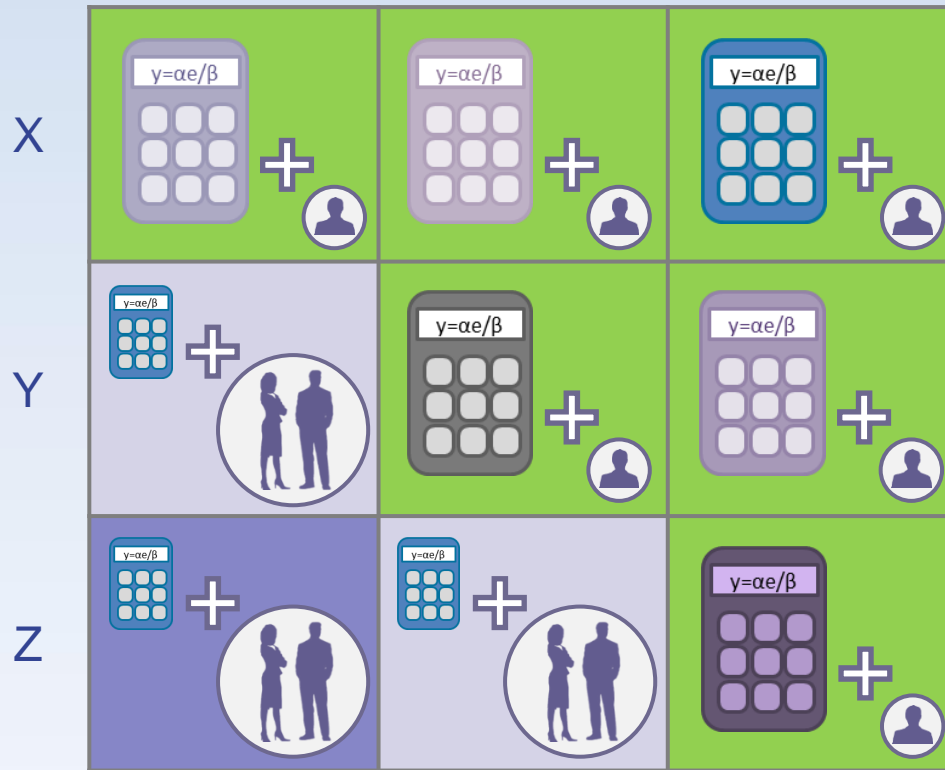
The SKUs can be easily classified in the nine categories A-C/Z-X

74% of all SKUs on statistical automation

8% on watchful attention

17% on constant monitoring (stats+judg)

8%

17%

Small volume

Large volume

Small forecasting error

Large forecasting error
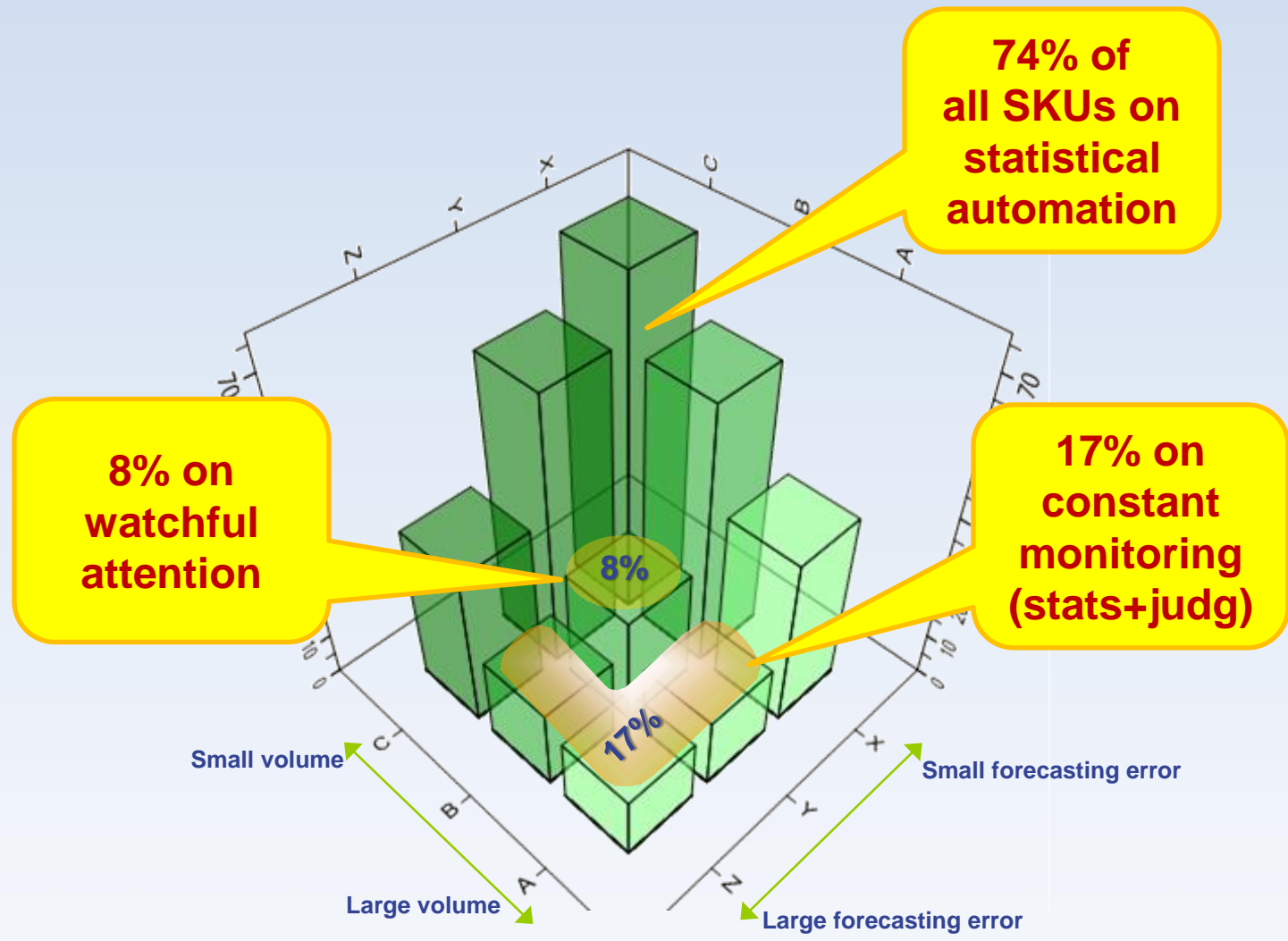
SUPPORT PROCESS

How many Stats models are there in APO?

Type of Forecast Model

- ○ Constant Models
- ○ Croston Method

- ○ Auto. Model Sel. 1
- ○ Auto. Model Sel. 2

- ○ Trend Models
- ● Linear Regression
- ○ Seasonal Trend Model
- ○ Season + Linear Regr.
- ○ Median Method

- ○ Seasonal Models
- ○ Manual Forecastng
- ○ History
- ○ External Forecst
- ○ No Forecast

~10 X 100 X 100 X 100 = ~ 10'000'000

How many do we actually use?

10

Model Selection using Intelligent forecaster

Visual data analysis

Using APO in practice

MONTHLY

New APO cycle run

⬇

Sales history adjustment

⬇

Critical/complex product

Forecast meeting

Market intelligence/adjustment

Planners review

New SSF or last month forecast maintenance

Lower value / simpler products

⬇

Publication

CORE PROCESS

MONTHLY

New APO cycle run

Sales history adjustment

Forecast meeting

Market intelligence/adjustment

Planners review

New SSF or last month forecast maintenance

Publication

QUARTERLY

Forecasting Models Review

Model Optimisation

SAP APO Model Updates

CORE PROCESS

Previous issues…

In the past forecast process was supported by either graph from excel:

- Remove the support of the statistical forecast from APO

- Excel was more preparation work and could have some mistake or realignment issues

- APO was a black box in which we would only paste forecast agreed previously on excel/DRP => extra work

- Planners skills with APO were very low

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Graphical interface
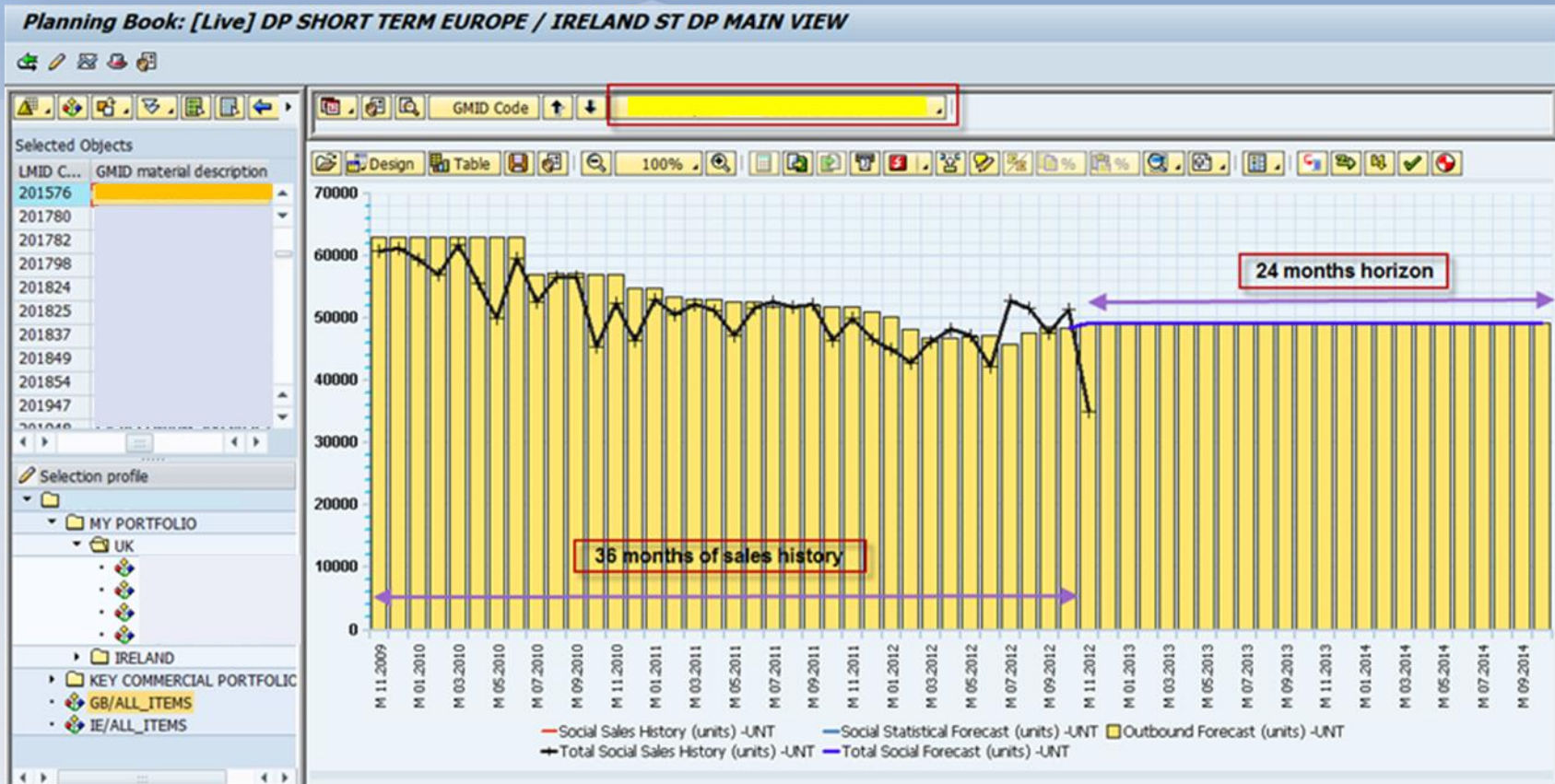
- Long sales history and forecast horizon help to detect trend or old recurring event
- Interface simple and easy to understand for non supply chain people
- Allow planners to implement change live and compare versus sales

CORE PROCESS

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Sale history correction
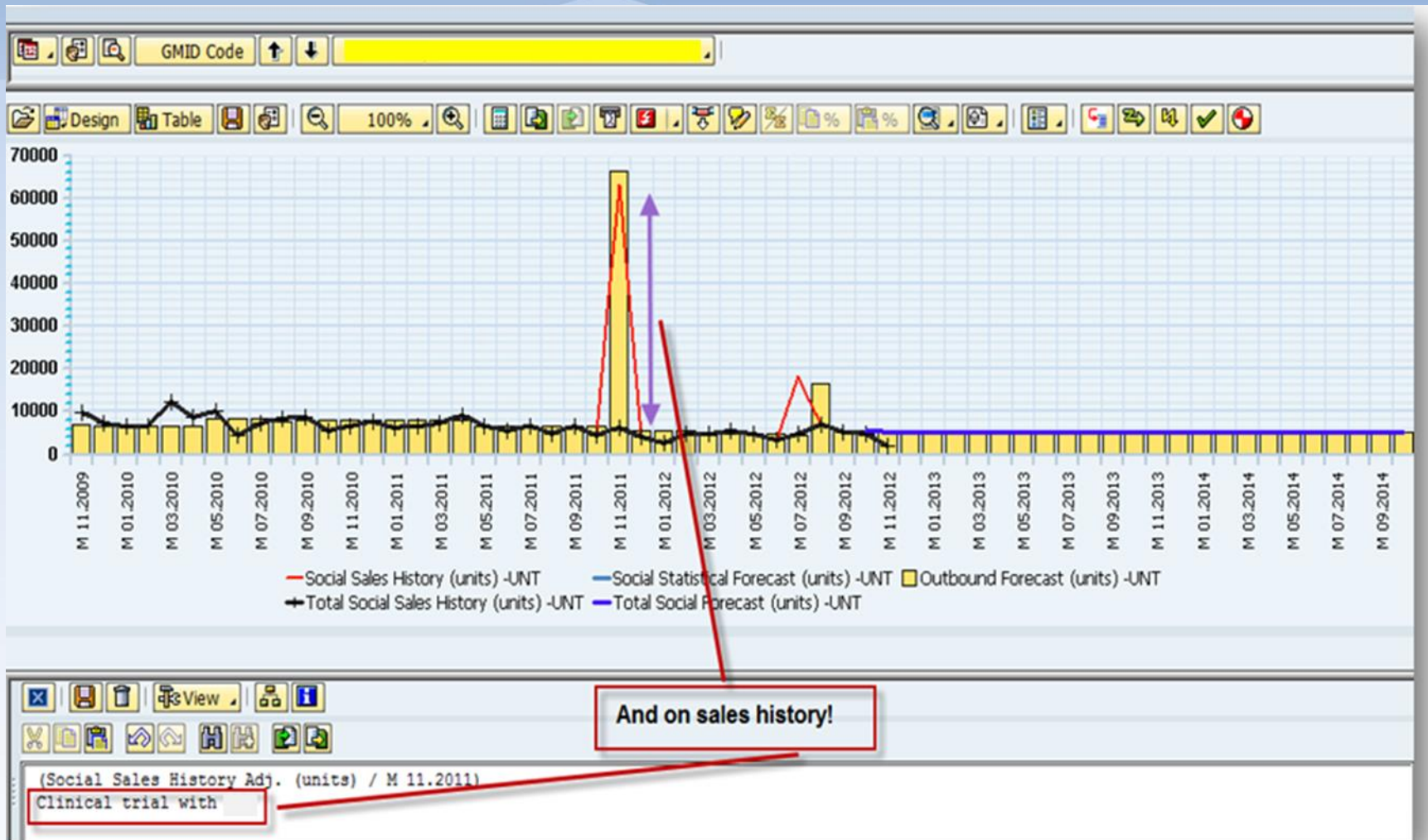
CORE PROCESS

Graphical interface

Table interface

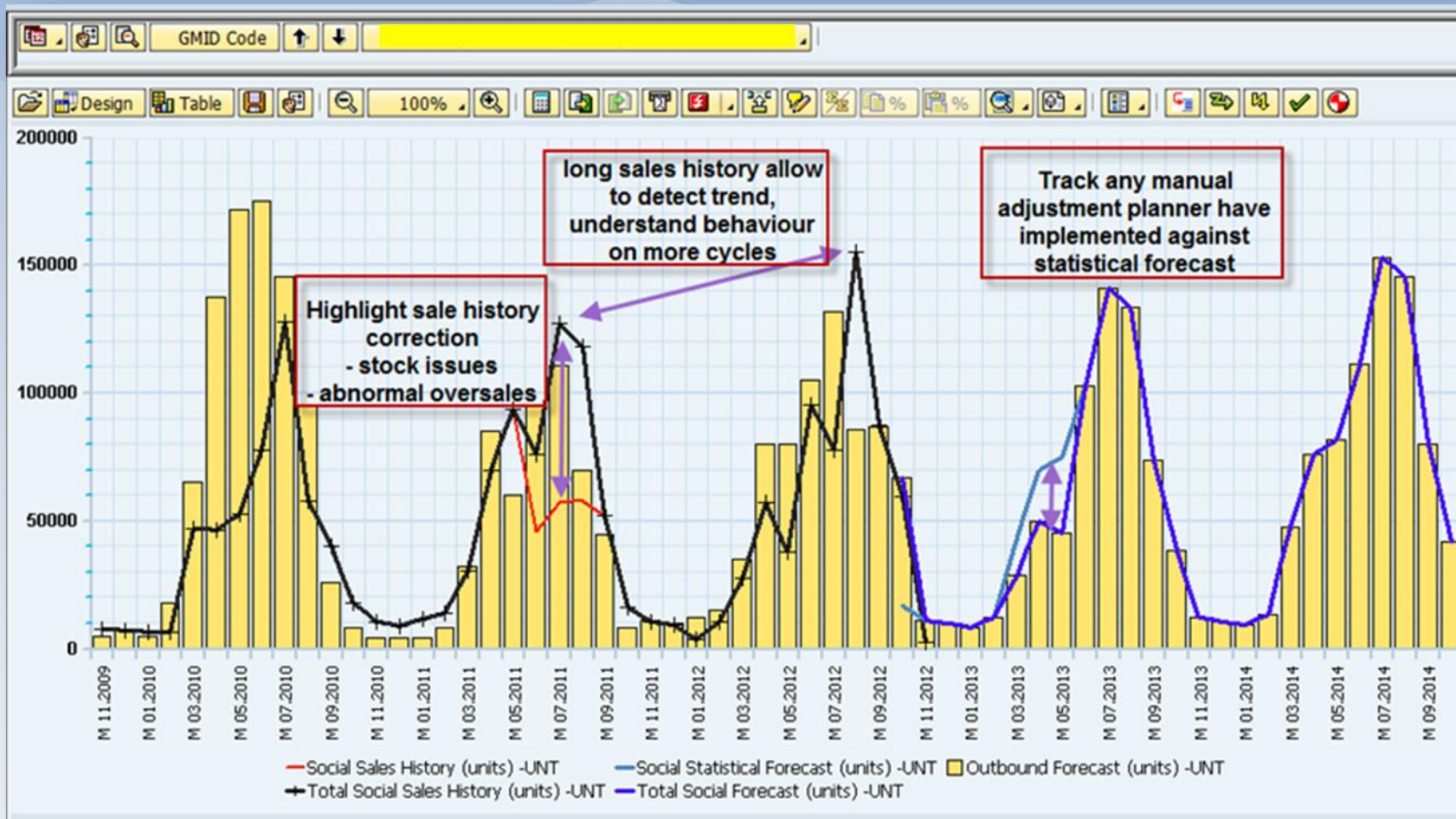|	Unit	M 12.2012	M 01.2013	M 02.2013	M 03.2013	M 04.2013	M 05.2013	M 06.2013	M 07.2013	M 08.20
Proposed Forecast (unit)	UNT	9,907	8,475	12,210	28,775	49,684	45,137	102,656	141,001	133,8
Outbound Forecast (units)	UNT	9,907	8,475	12,210	28,775	49,684	45,137	102,656	141,001	133,8
Previous Forecast (1 month) (units)	UNT	9,369	7,889	11,460	40,847	65,031	69,359	95,678	129,866	124,7
Social Sales History (units)	UNT									
Social Sales History Adj. (units)	UNT									
Total Social Sales History (units)	UNT									
Social Statistical Forecast (units)	UNT	9,907	8,475	12,210	43,775	69,684	75,137	102,656	141,001	133,8
Social Forecast Adj. (units)	UNT									
Social Forecast Adj. (%)					10	10	10	10	10	
Total Social Forecast (units)	UNT	9,907	8,475	12,210	48,153	76,652	82,651	112,922	155,101	147,
Budget (units)	UNT									
Suggested Forecast	UNT									
Average Forecast Accuracy in %	UNT									

The table allow comments to keep track of manual adjustment on forecast...

(Social Forecast Adj. (%) / M 03.2013)
New listing with   + 10% sales expected from March 2013

* Li 2, Co 61   Ln 1 - Ln 2 of 2 lines

CORE PROCESS

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Customization

	Unit	M 11.2012	M 12.2012	M 01.2013	M 02.2013	M 03.2013	M 04.2013	M 05.2013	M 06.2013	M 07.201
Forecast Validation Status		1								
Proposed Forecast (unit)	UNT	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,15
Outbound Forecast (units)	UNT	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,15
Previous Forecast (1 month) (units)	UNT	5,333	5,333	5,333	5,333	5,333	5,333	5,333	5,333	5,33
Social Sales History (units)	UNT	1,936								
Social Sales History Adj. (units)	UNT									
Total Social Sales History (units)	UNT	1,936								
Social Statistical Forecast (units)	UNT	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,15
Social Forecast Adj. (units)	UNT									
Social Forecast Adj. (%)										
Total Social Forecast (units)	UNT	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,157	5,15
Budget (units)	UNT									
Suggested Forecast	UNT	**Remove unneeded lines from table e.g. domestic information etc...**								
Average Forecast Accuracy in %	UNT									

Customize planners portfolio

In Summary

- **Focus** and time spend on **key products** through portfolio segmentation

- Make **the best use of the statistical** forecast offered by APO

- **Optimize model** and portfolio segmentation through IF

- Use **APO as a core tool** of the process
  - **No preparation work and no mistake!**
  - **Long sales history** and forecast horizon which **keep record of comments** on adjustments, one off events, trends etc…
  - Changes agreed at the same time that they are implemented => **no extra work** for implementation
  - **Develop planners skills** with APO => more confident and efficient with the tool