

Growing your business by
expanding from SPSS to
include Decision
Optimization

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**World of
Watson
2016**



Pricing using promotions, markdowns, and clearance strategies



Retail optimization use case

Vertical: Retail

Products: Apparel & Accessories

Objective: Maximize Revenue, Maximize margin, Reduce Inventory

Decisions: Dynamic Pricing

What do I have: Initial Plan

Status: Review the week

- Decisions: Pricing
- Dynamic Pricing
- Markdowns
- Price Points
- Clearance
- Promotions

How did we do last week? Plan vs. Actual (USE TM1)

IBM Cognos TM1 Performance Modeler

Model Design | Detail | Summary

Rows: Working Subset Version | Columns: Working Subset SalesMeasures

	Sales	Units Sold	Margin
Plan	\$7,689,140	568,000	53.73%
Actual	\$7,083,935	559,390	51.00%

REVENUE TARGET

ACTUAL Revenue

How did we do last week? Plan vs. Actual (USE TM1)

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	Sales	Units Sold	Margin
Plan	\$7,689,140	568,000	53.73%
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We missed both in sales revenue, units sold and margin

REVENUE TARGET

ACTUAL Revenue

How did we
do last week?
Plan vs.
Actual
(USE TM1)

The screenshot shows the IBM Cognos TM1 Performance Modeler interface. The 'Model Design' pane on the left shows a tree view of the model structure. The main area displays a table with the following data:

	Sales	Units Sold	Margin
Plan	\$7,689,140	568,000	53.73%
Actual	\$7,083,935	559,390	51.00%

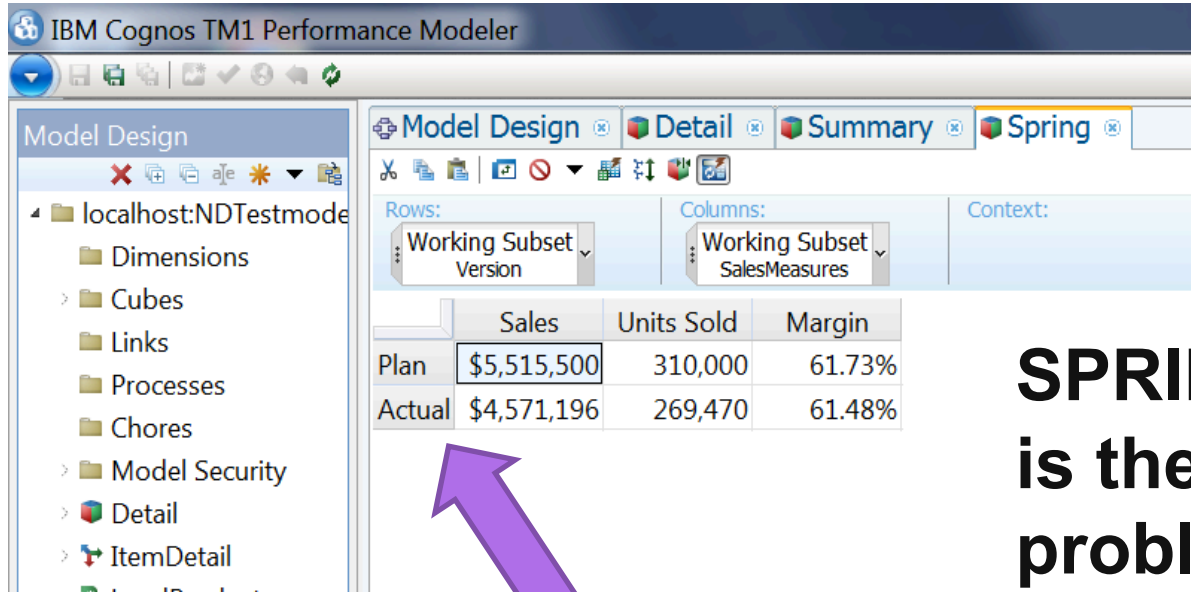
Two purple arrows point from the text labels below to the 'Plan' and 'Actual' rows of the table.

Which
season/s
was the
problem?

REVENUE TARGET

ACTUAL Revenue

Where did we miss?



The screenshot shows the IBM Cognos TM1 Performance Modeler interface. The 'Model Design' pane on the left shows a tree view with folders for Dimensions, Cubes, Links, Processes, Chores, Model Security, Detail, and ItemDetail. The main workspace displays a table with columns for Sales, Units Sold, and Margin. The rows are labeled Plan and Actual. A purple arrow points to the 'Actual' row.

	Sales	Units Sold	Margin
Plan	\$5,515,500	310,000	61.73%
Actual	\$4,571,196	269,470	61.48%

**SPRING 2016
is the
problem!**

We missed on Revenue and on units

Using TM1 we can analyze the data and identify Variance in the Plan vs. Actual

How can we affect the demand?

- Promotions
- Markdowns
- Clearance

How do we decide which products, groups, when to act?

Technology

We use Predictive analytics (SPSS)

- To predict the sales for next week/s (SPSS)**
- To identify slow and fast moving products (WATSON ANALYTICS)**
- To identify products that react well in markdowns and promotions (WATSON ANALYTICS)**

We use Prescriptive analytics – optimization (CPLEX)

- To decide optimal prices that maximize our revenue**
- To decide when to offer promotions to maximize our revenue**

What are the data we need for each SKU? (USE TM1)

IBM Cognos TM1 Performance Modeler

Model Design

Model Design | Detail | Summary | Spring

Rows: Working Subset SKUProd

Columns: Working Subset ItemDetail

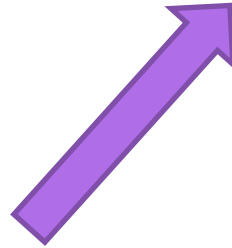
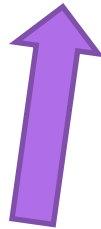
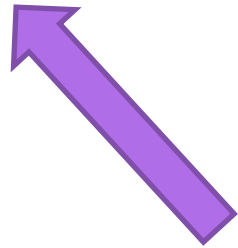
Context:

	Price	UnitCost	Days on Floor	Total Quantity Ordered	Revenue	COGS	Current Margin	Total Units Sold	Total Length Selling Period-wks	Liquidation Price
SKU999	\$24.04	\$6.85	77	1,794	\$9,969.00	\$4,247.00	57.40%	620	24	\$6.85

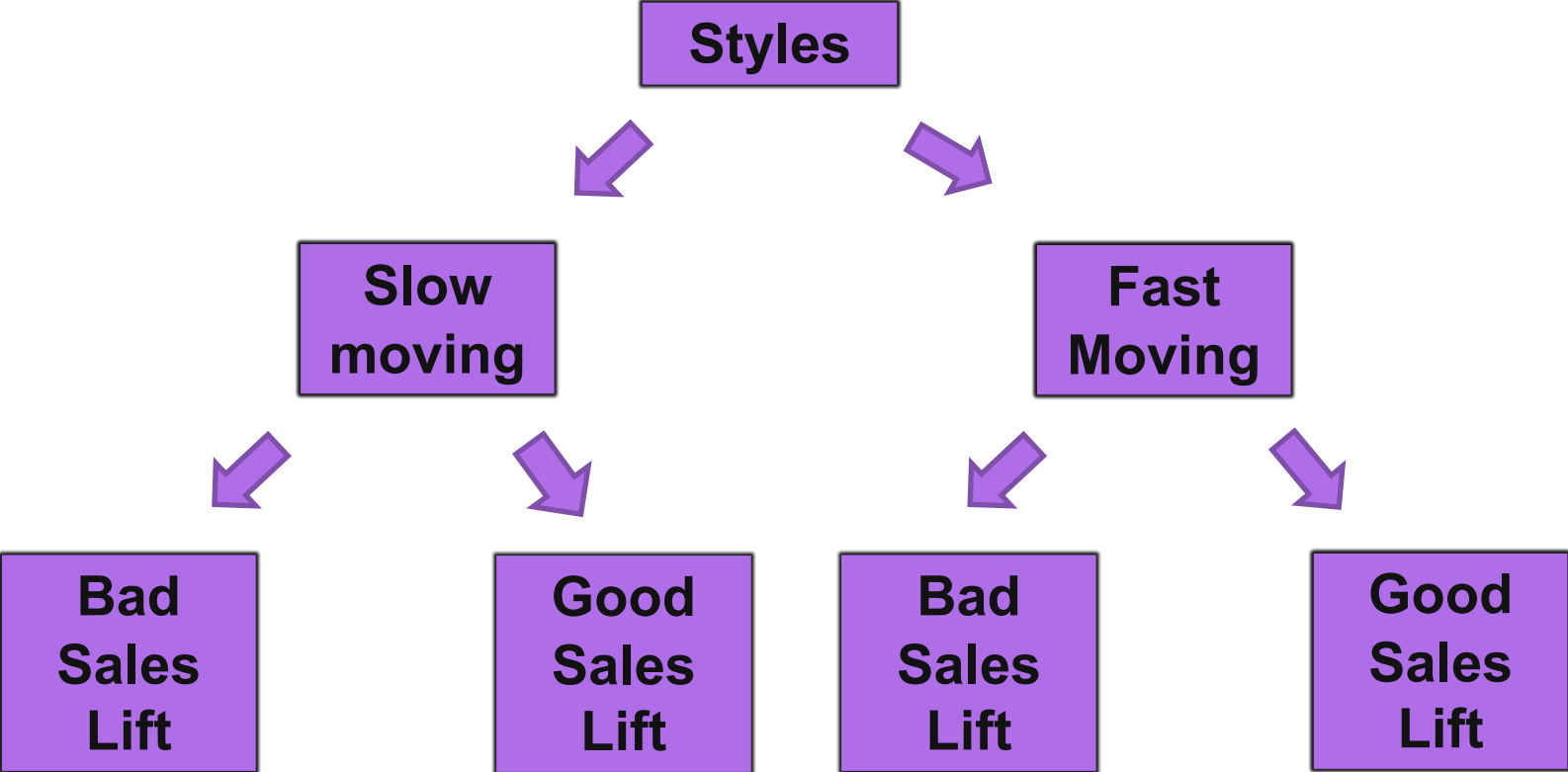
**Average Price
\$16.07**

**Total Sold * Price
IS NOT EQUAL to
REVENUES SO FAR**

**Avg. Sales through
3.14%**



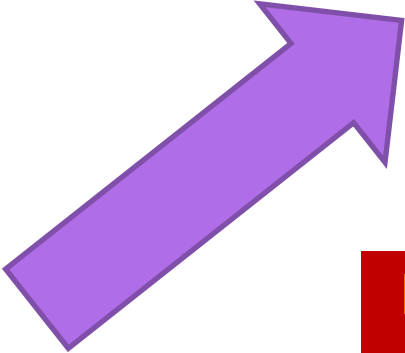
Learn more (USE SPSS & WATSON ANALYTICS)



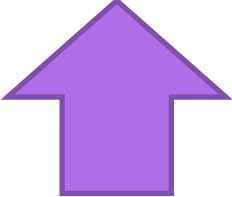
What is the output of the optimization? (USE CPLEX)

SKU ID	Price	Cost	Days on the Floor	Total Quantity Ordered	Revenue	Cost of Sold	Current Margin	Total Sold Units	Total Length of Selling period	Liquidation price
SKU999	\$24.04	\$6.85	77 days	1794	\$9969	\$4247	57.4%	620	24 weeks	\$6.85

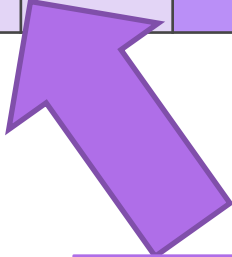
Average Price
\$16.07



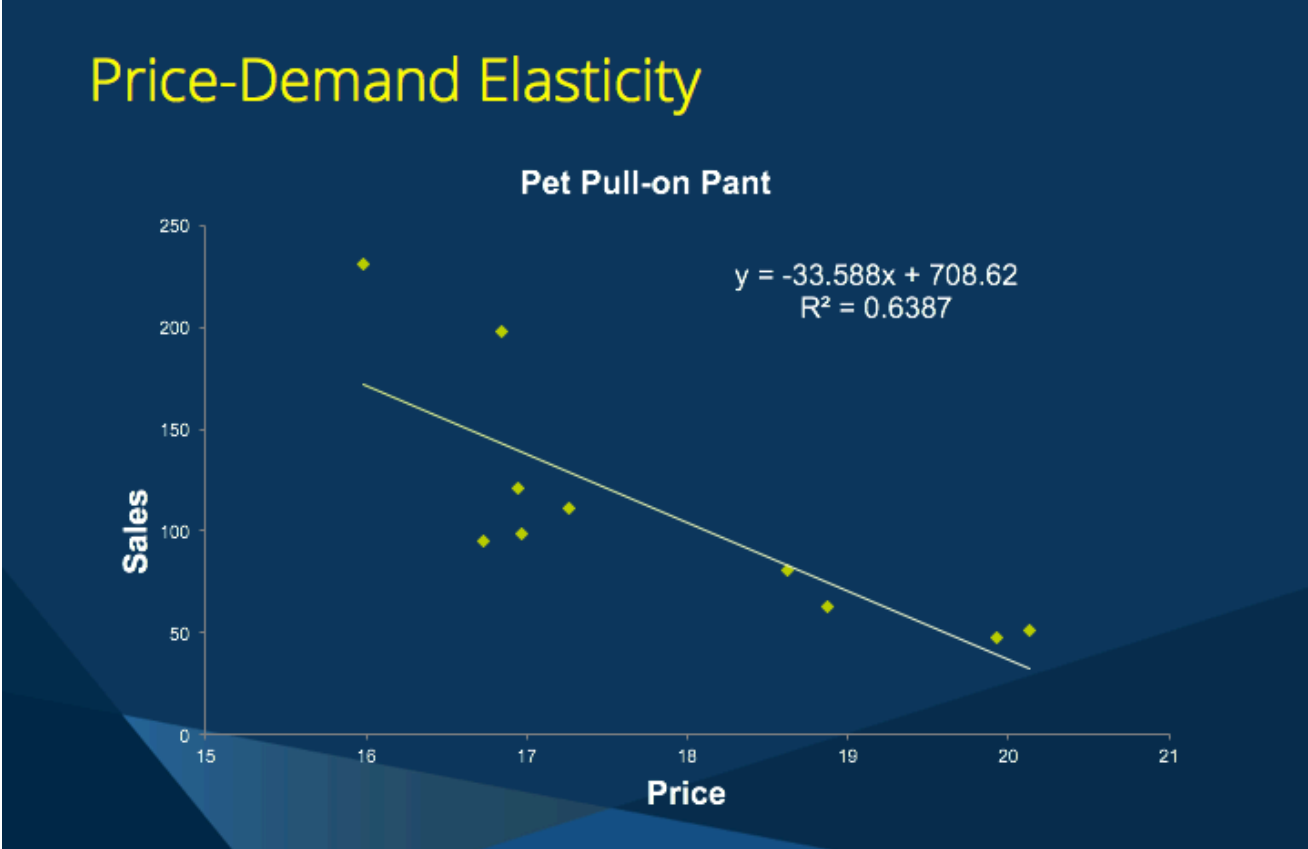
PROMOTE 30% NEXT WEEK



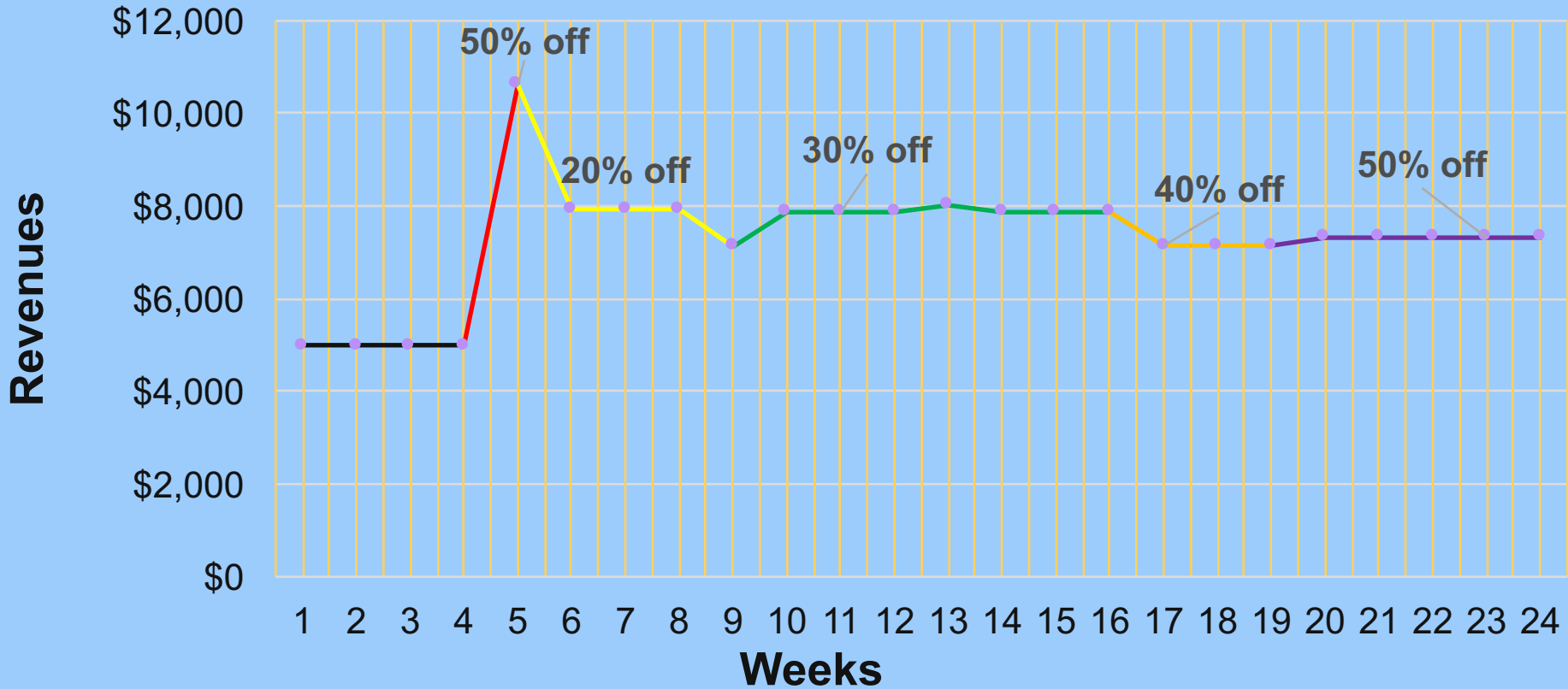
Avg. Salesthrough
3.14%



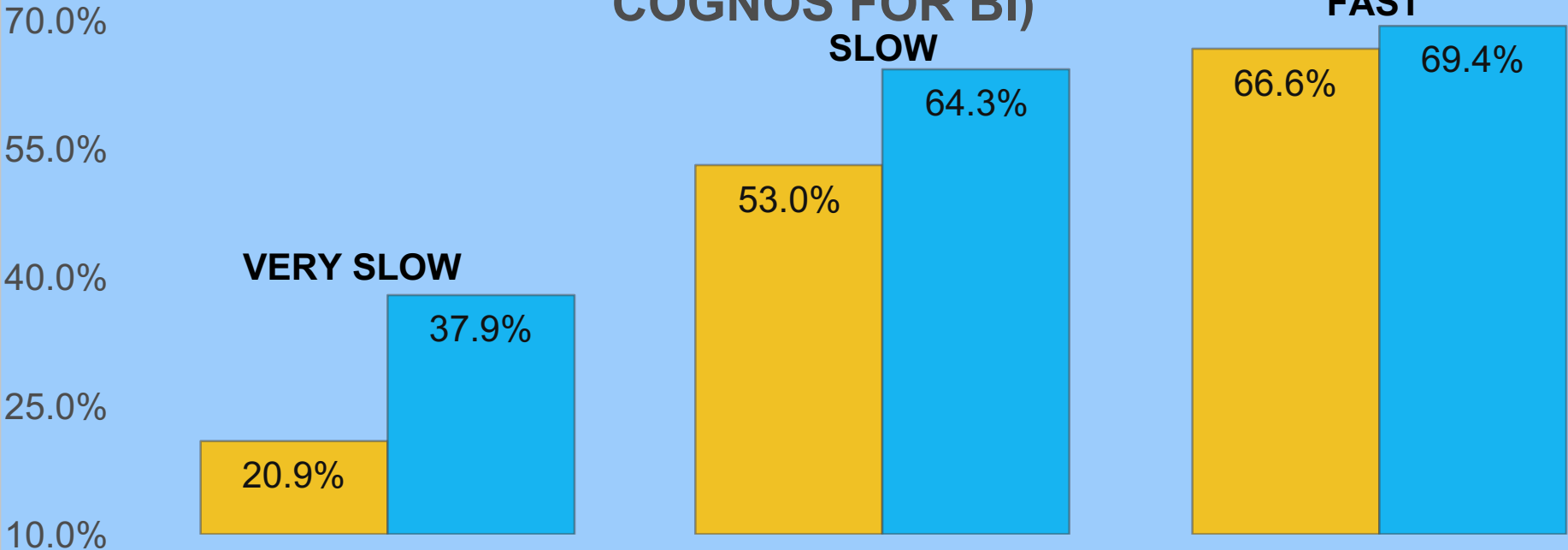
Calculate Price-Demand Elasticity (USE SPSS - regression)



Markdown & Promotion strategy for a “slow-moving” product (USE CPLEX)



Effect of Markdowns & Promotions on Margin (USE COGNOS FOR BI)



Original Sales Rate

- Margin without Markdown & Promotion
- Margin with Markdown & Promotion

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