

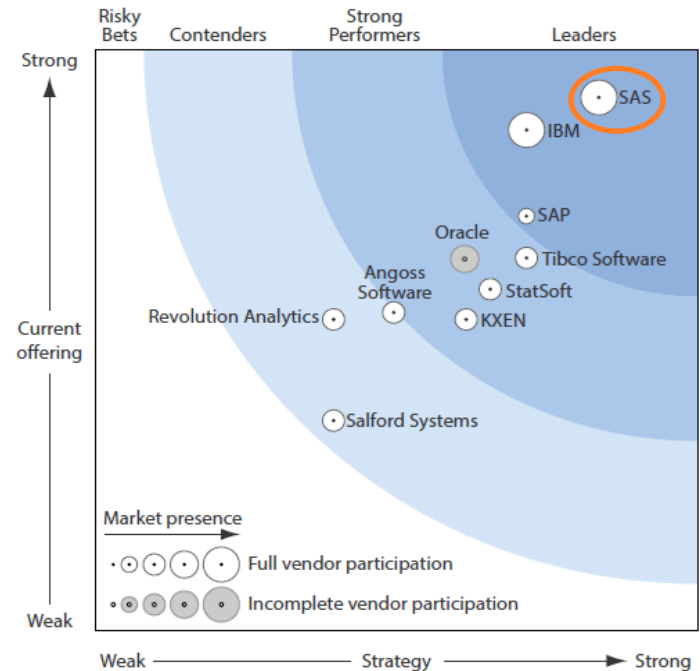
BIG DATA ANALYTICS

Sneller nieuwe inzichten verkrijgen uit Big Data



**EDWIN VAN UNEN
SAS NEDERLAND
12 SEPTEMBER 2013**

SAS AL SINDS 1976 IN BIG DATA



Forrester Wave Big Data Predictive Analytics Q1'13

1492 COLUMBUS ONTDEKT EEN NIEUWE WERELD



BIG DATA

Noodzaak of hype?

BIG DATA

TECHNIQUES ANALYZING BIG DATA



- A/B/N-testing
- Association rule learning
- Classification
- Cluster analysis
- Crowdsourcing
- Data fusion and Data integration
- Data mining
- Ensemble Learning
- Genetic Algorithms
- Machine learning
- Natural Language Programming
- Neural networks
- Network analysis
- Optimization
- Pattern recognition
- Predictive modeling
- Regression
- Sentiment analysis
- Signal processing
- Spatial analysis
- Statistics
- Supervised learning
- Simulation
- Time series analysis
- Unsupervised learning
- Visualization

(Un)structured & Predictive

BIG DATA ANALYTICS

BIG DATA ANALYTICS

BIEDT NIEUWE KANSEN IN ALLE SECTOREN

- Banking
- Retail
- Health
- Energy
- Insurance
- Public
- Credit risk in seconds
- Optimal price on SKU level
- Audit all patient records
- Forecast asset failures
- Detect wrongful claims
- Find criminal activity
- Less Risk capital
- Improved Margins
- Patient safety
- Higher productivity
- Lower premiums
- Public security

Big Data voor Vastgoedsector?

BIG DATA ANALYTICS

IN ALLE SECTOREN EN DOMEINEN

Customer Intelligence



Risk & Fraud



Operational Efficiency



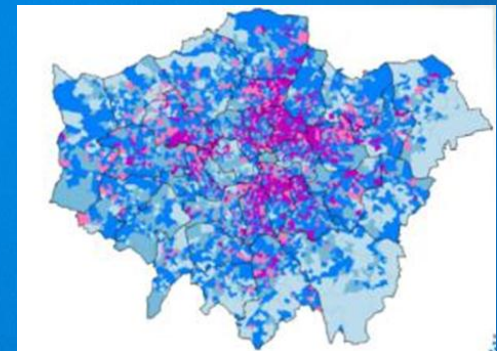
LONDEN BRANDWEER

DATABRONNEN

- **National Statistics 2001 Census**
 - Demografie, woning types, gezondheidzorg, transport
- **Ordnance Survey**
 - Geografie, wegen types and lengte
- **Mosaic consumer profiles**
 - 11 lifestyle groepen
- **Indices of multiple deprivation**
 - Inkomen, werk gelegenheid, gezondheidzorg, onderwijs, huisvesting, criminaliteit, leef omgeving,
- **Regulatory fire safety site inspections**
 - Hoge, medium en lage risico score
- **Home fire safety visits**
 - 4 jaar data van huisbezoeken

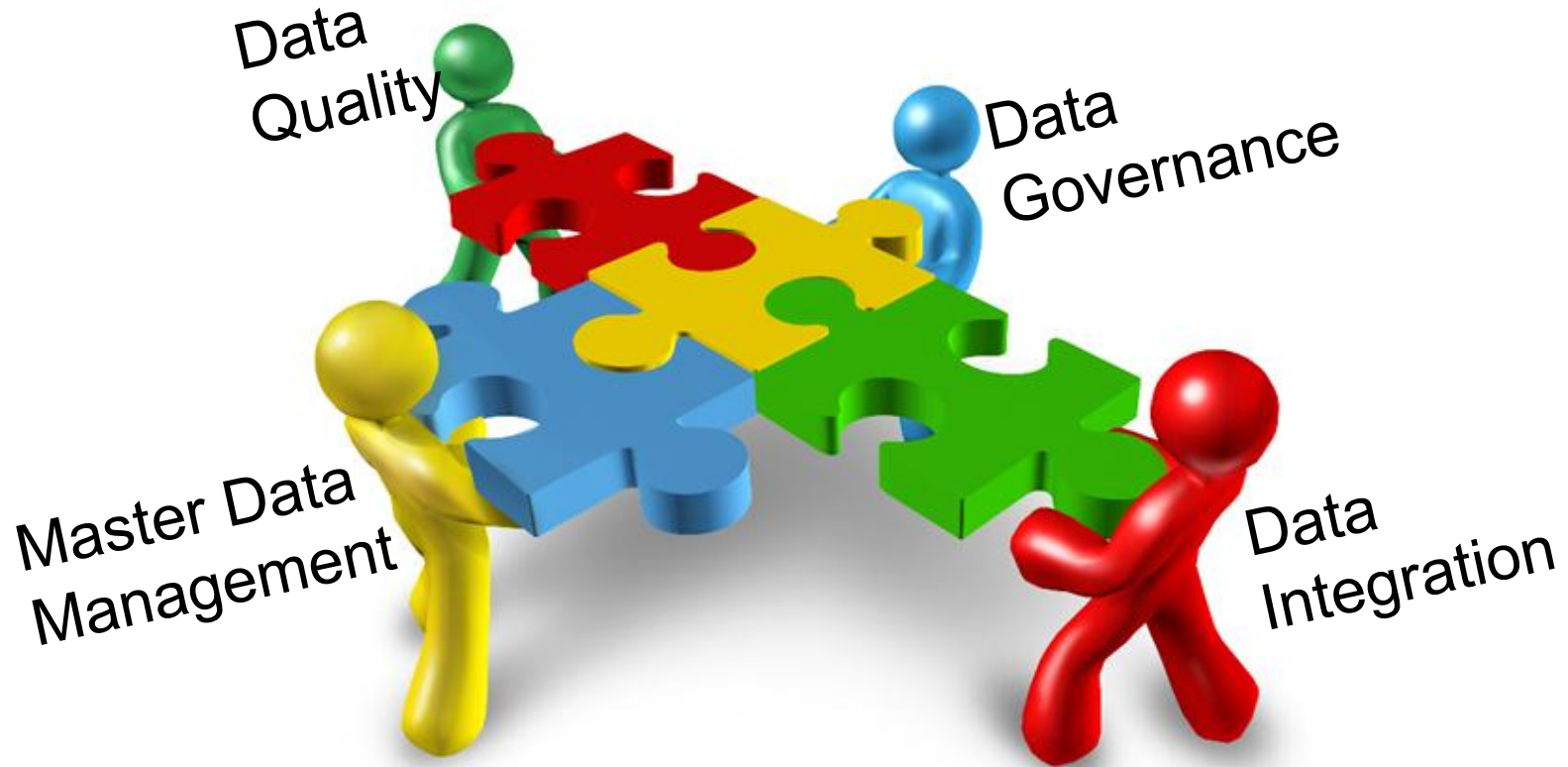


Analytics redt levens



BIG DATA ANALYTICS

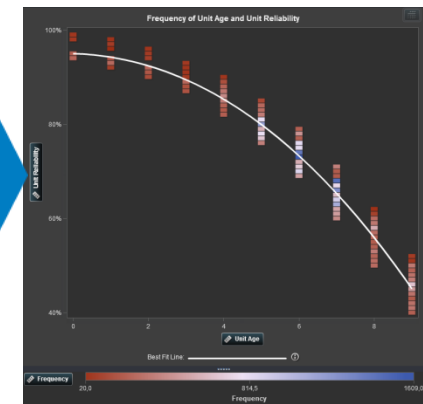
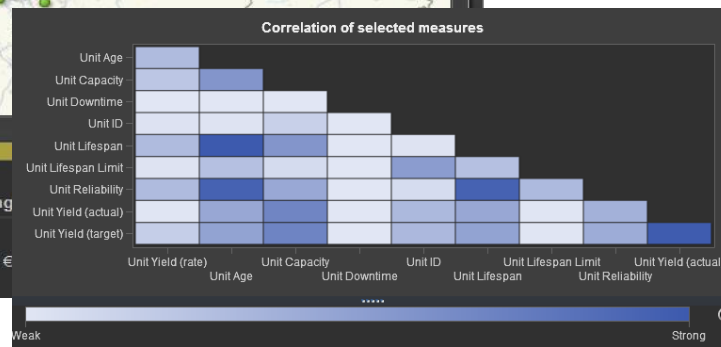
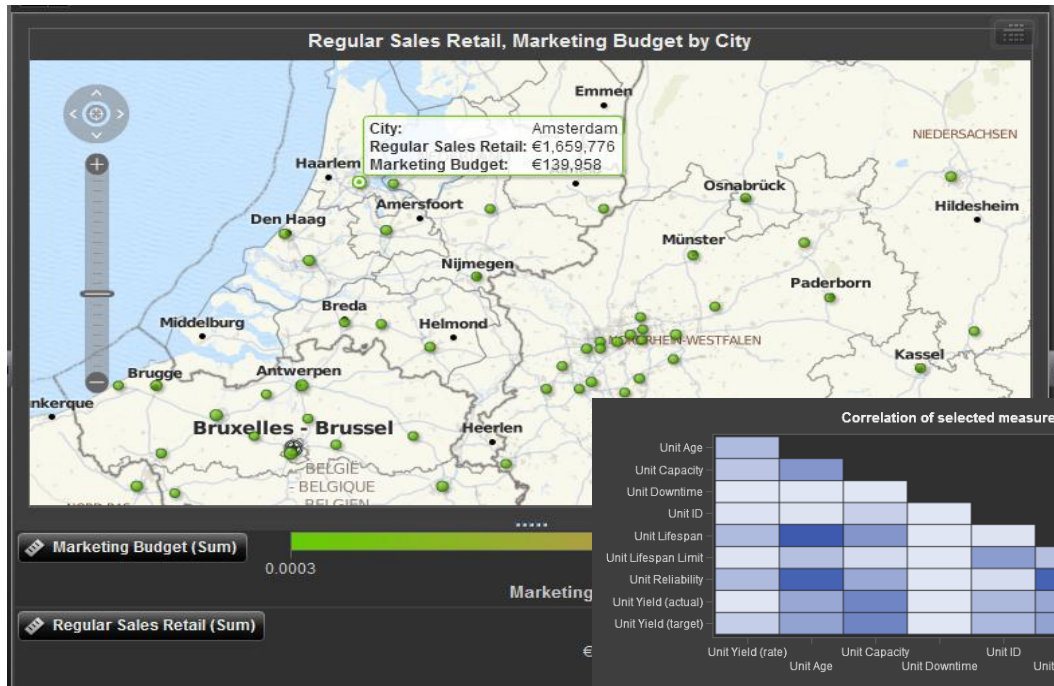
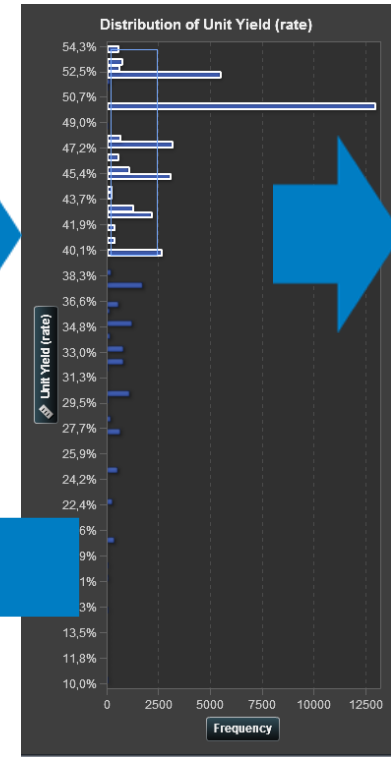
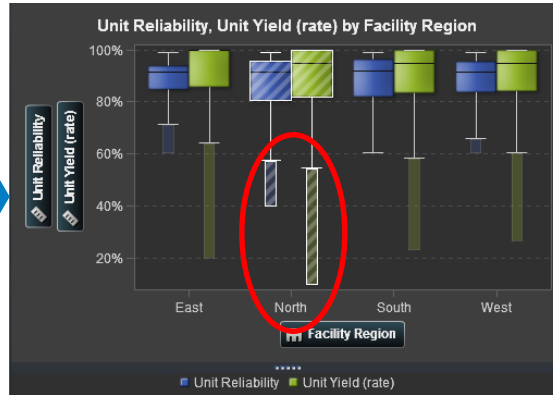
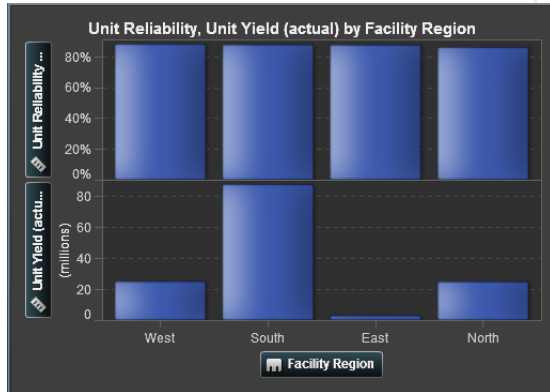
DATA IS EEN “CRITICAL ASSET”



Traceable, Auditable, Manageable

BIG DATA ANALYTICS

ONTDEKKEN VAN NIEUWE INZICHTEN



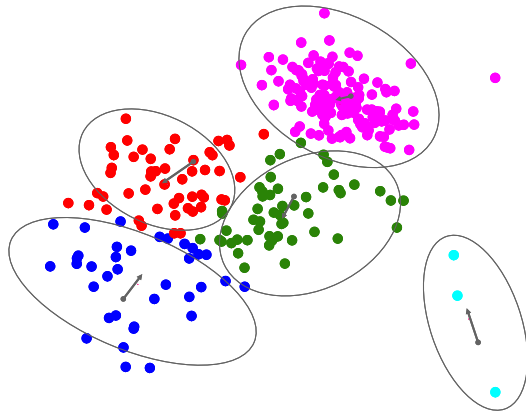
BIG DATA ANALYTICS

VISUAL ANALYTICS GEEFT NIEUW INZICHT

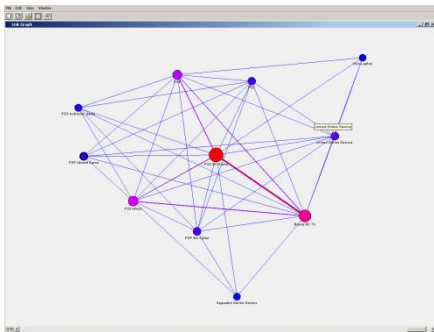
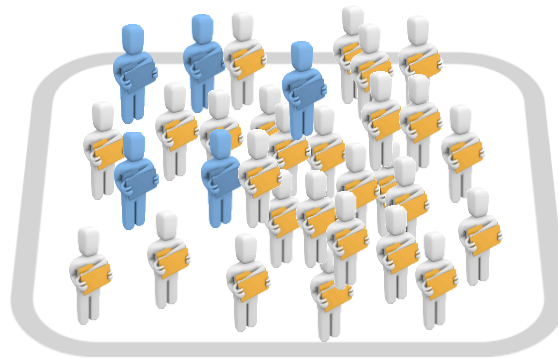


BIG DATA ANALYTICS

DIEPER GRAVEN MET ADVANCED ANALYTICS



Datamining





After more than 80 years in business, Macy's Inc. is one of America's most iconic retailers. With annual revenues exceeding \$20 billion, Macy's enjoys a loyal base of customers who come to its stores and shop online each day. To continue its legacy of providing stellar customer service and the right selection of products, the retailer's e-commerce division – Macy's.com – is using analytical software from SAS to better understand and enhance its customers' online shopping experience, while helping to increase the retailer's overall profitability.



Business Issue:

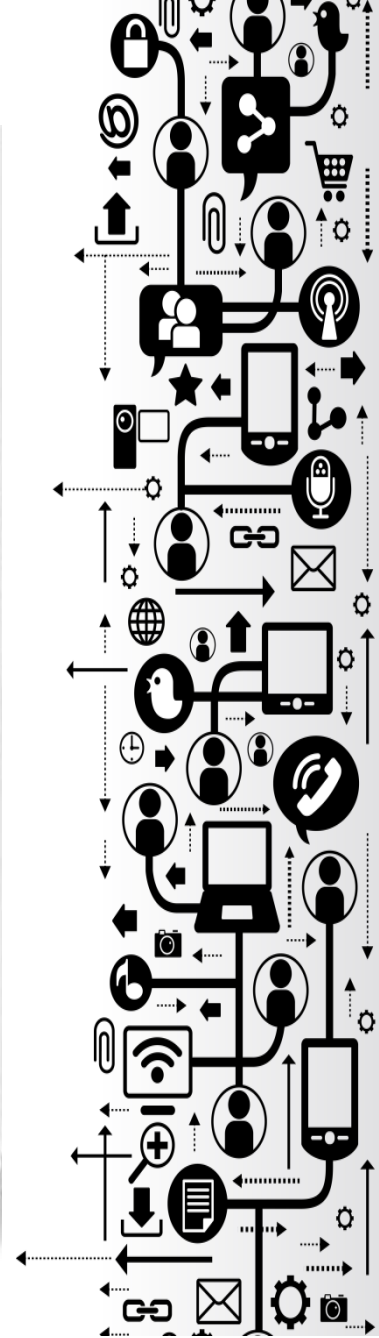
Macys.com needed enhanced customer insight, online and across channels, to effectively measure and understand the impact of its online marketing initiatives on Macy's store sales.

Benefits:

Increased customer insights; cross-sell and up-sell effectiveness; revenue and customer satisfaction, an approx. 20% reduction in churn rate.

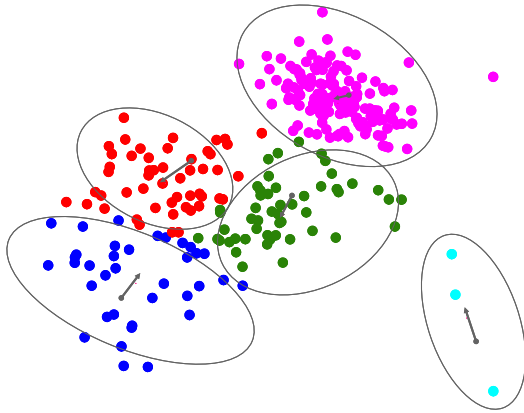
“With the extra time, the team has moved from being reactionary to proactive, meaning they can look at data and spend more time analyzing it and become internal consultants who provide more of the insight behind the data.”

Kerem Tomak, Vice President of Analytics

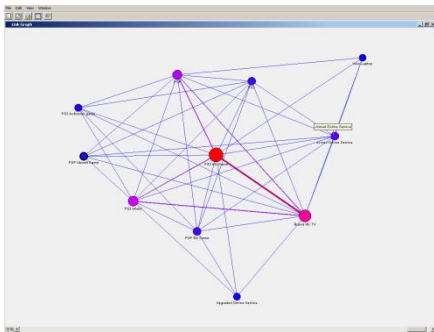
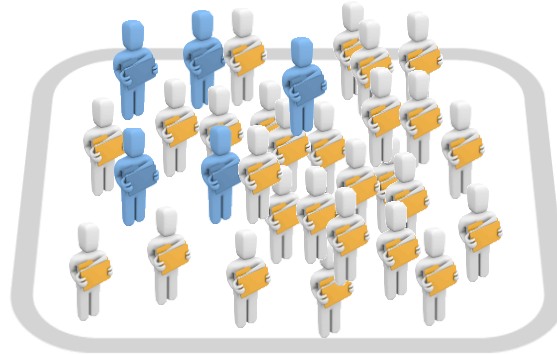


BIG DATA ANALYTICS

DIEPER GRAVEN MET ADVANCED ANALYTICS



Datamining



Ongestructureerde
data

Lillebælt Hospital streamlines journal audits using SAS® Text Analytics

The Department of Orthopedic Surgery at Denmark's Lillebælt Hospital has given up resource-intensive, manual journal audits and has initiated an IT solution that provides quality control of registrations in all patient records.

Industry

Health Care

Business Issue

The manual patient record audits were a resource-demanding process, which only discovered faults and shortcomings in 1 percent of the records.

Solution

SAS® Text Analytics automates the process of analyzing patient records and flags faulty records.

Benefits

Surgeons spend more time with patients instead of reviewing records. And with all records checked, the staff is in a better position to learn from its mistakes.

Previously, 1 percent of the patient records in the Department of Orthopedic Surgery at Vejle Hospital, a division of Lillebælt Hospital, were checked by random sampling during record audits four times a year by a surgeon and a secretary. But even the 160 records that were checked brought limited knowledge to those who made the mistakes, and most importantly, the quality control was time-consuming.

"We found errors in 33 percent of the records we checked by random sampling. This meant that we had registered faulty or too few diagnoses or treatments. For example, when a patient with a thigh-bone fracture caught pneumonia during the hospitalization, the pneumonia and the treatment of it were too often not registered," says Chief Surgeon Sten Larsen.

Automated journal audits

The department has implemented the

Facility and IT Strategy, got the idea for the project. They have both participated during the entire development phase.

Both Larsen and Seerup Jørgensen are evaluating the project to determine how well errors have been caught and fixed and whether this is freeing surgeons to spend more time with patients. "If the project meets our expectations, it can immediately be transferred to other orthopedic surgery departments in the Lillebælt Hospital group. And with a few adjustments of codes and terminology it can also be transferred to other surgical departments, where electronic patient records are already in use," says Seerup Jørgensen.

Information basis for other improvements

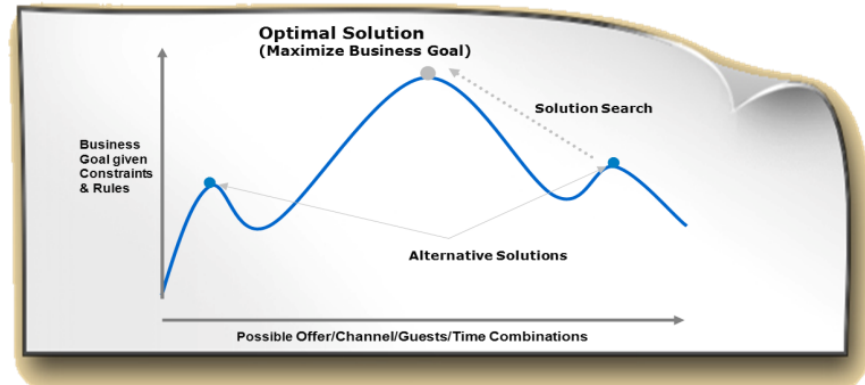
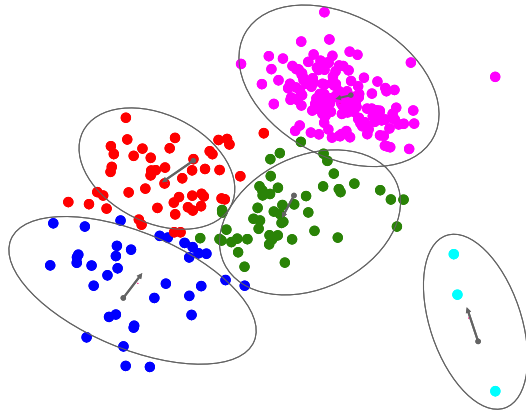
Due to this project, management at Lillebælt Hospital has prioritized the establishment of a database that can also be used for improvements in other

Meer tijd voor de
patiënt en
sneller leren van
gemaakte fouten

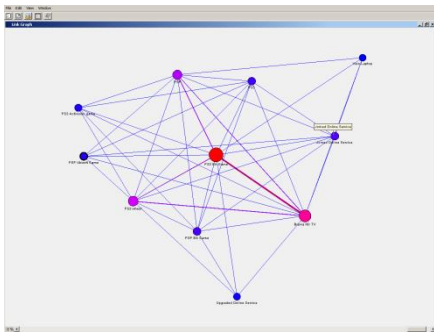
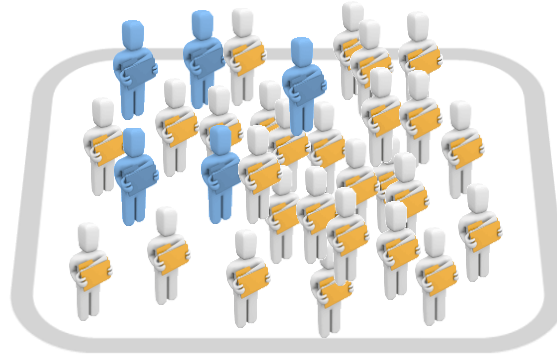
BIG DATA ANALYTICS

DIEPER GRAVEN MET ADVANCED ANALYTICS

Optimalisatie



Datamining



CASE STUDY MARKETING OPTIMIZATION

RETAIL

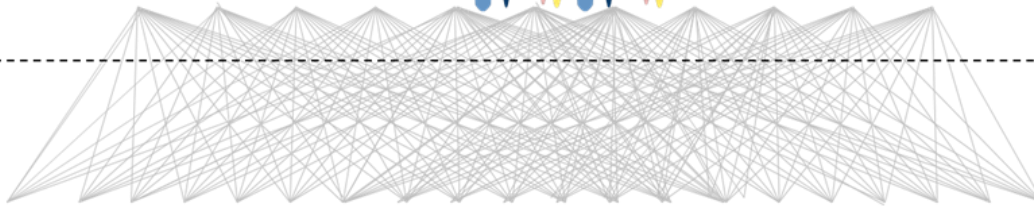
*In-memory
Analytics*

How to deliver the right offer to the right person at the right time using the right channel ?

Customers



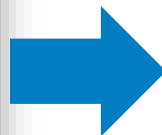
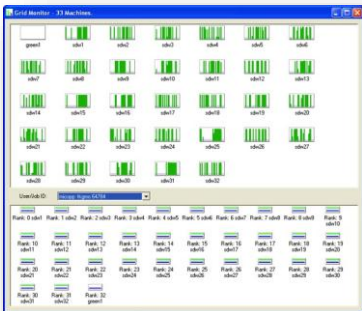
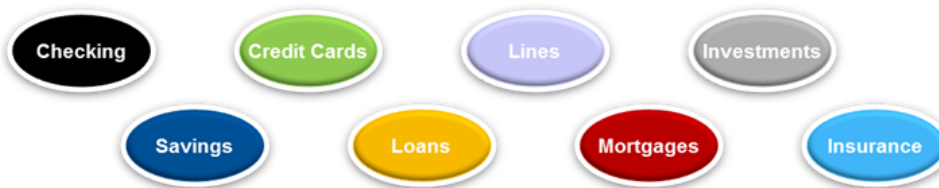
Offers,
Services,
and Pricing



Channels

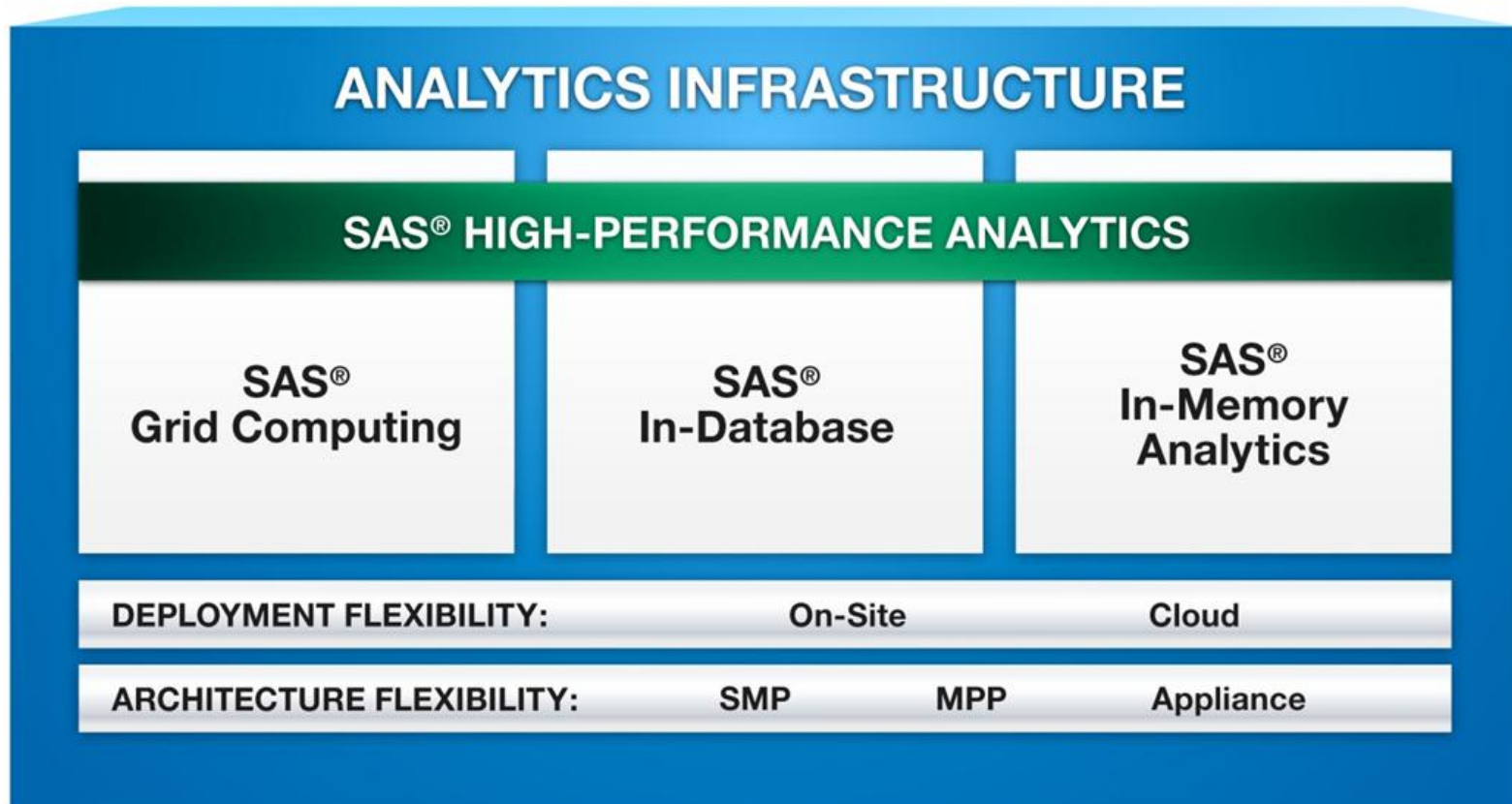


Products



Game changing:
Resultaat in minuten
i.p.v. uren

SAS® HIGH-PERFORMANCE ANALYTICS



CATALINA MARKETING

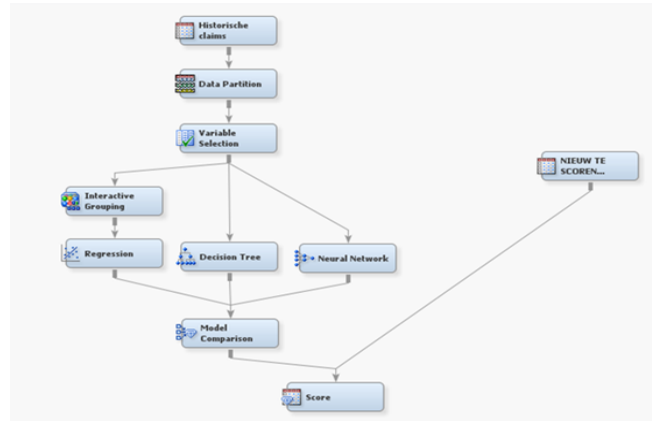
IN-DATABASE SCORING



BIG DATA TECHNOLOGY

IN-MEMORY ANALYTICS

- Alle data(bronnen)
- Meer variabelen
- Meer complexe modellen
- Meer scenario's evalueren
- Modellen monitoren



Use case

167 Hours

S	M	T	W	TH	F	S
X	X	X	X	X	X	X

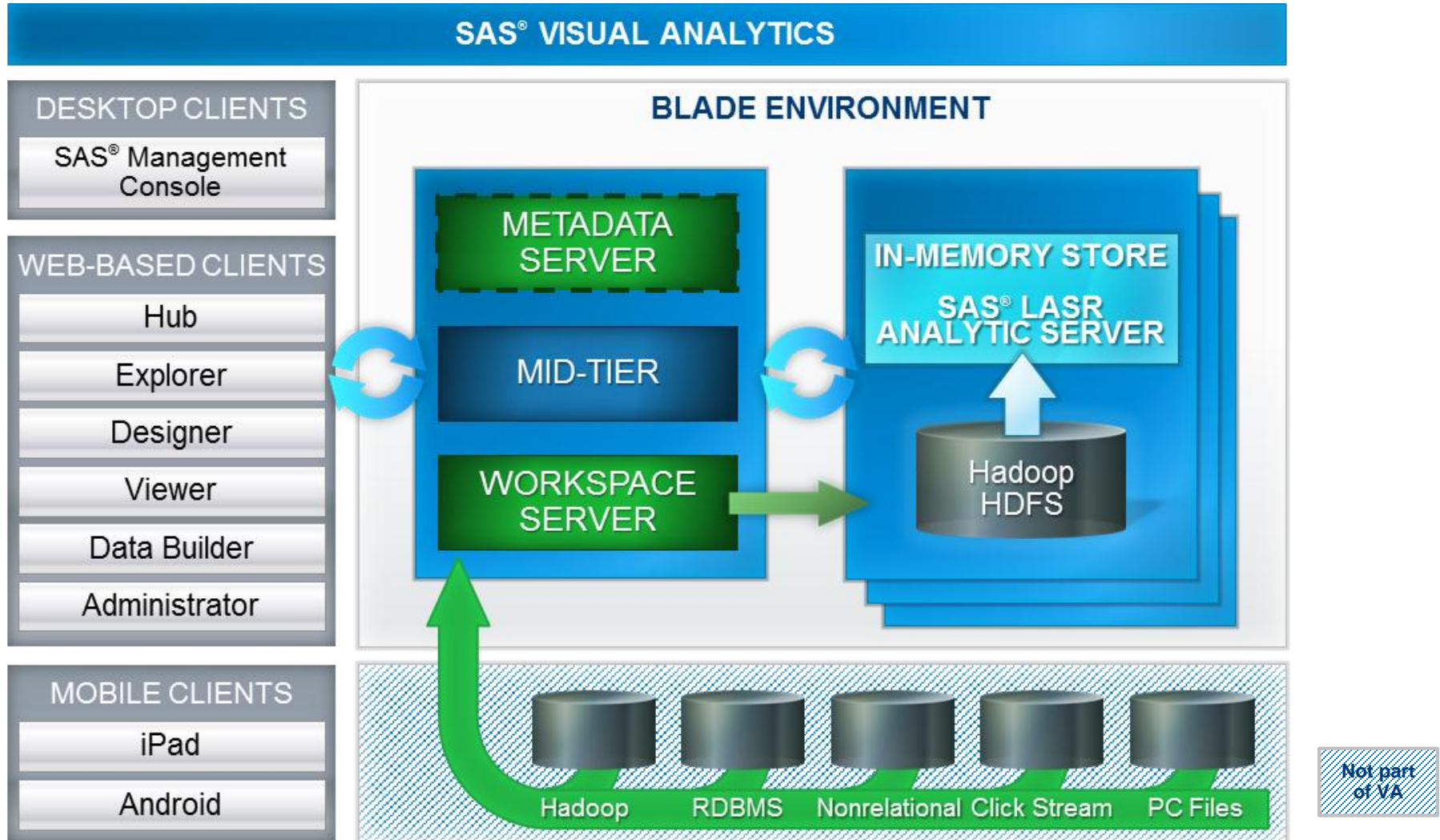
- HP Data Partition
- HP Explore
- HP Transform
- HP Variable Selection
- HP Impute
- HP Regression
- HP Neural
- HP Forest
- HP Text Miner

- HP Data Partition
- HP Explore
- HP Transform
- HP Variable Selection
- HP Impute
- HP Regression
- HP Neural
- HP Forest
- HP Text Miner



Appliance or Hadoop





BIG DATA ANALYTICS

RAPPORTEN OP TABLETS



EURAMAX COATED PRODUCTS

VOORUIT KIJKEN MET DATAVISUALISATIE

- Dynamische rapportages overal en altijd beschikbaar
- Analyse mogelijkheden voor dieper en breder onderzoek
- Optimalisatie van productieproces en wereldwijde supply chain

MANUFACTURING

“De kracht en het gebruiksgemak van Visual Analytics helpt ons gegevens veel efficiënter te analyseren”

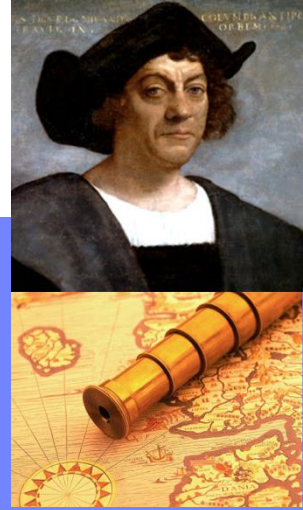
Peter Wijers,
Business Support
Manager



- **De uitdaging**
 - Hoe vind je de relevante informatie uit Big Data
 - Combinatie Structured, Streaming, Unstructured data
- **Vraagt om een Informatie Management strategie**
 - Data Governance, Data as an asset,
- **Analytics geeft de nieuwe inzichten**
 - Visualisatie, predictive models
 - Data Scientists (Domeinkennis!!)
- **Maak het operationeel bruikbaar**
 - Tablets
 - Imbedded in operationele processen



BIG DATA HOE KAN IK HET BESTE BEGINNEN?



© 2011 by Keith Pickering. Bathymetry & topography from the GEBCO One Minute Grid V.2.0. <http://www.gebco.net>

EDWIN.VANUNEN@SAS.COM



**THE
POWER
TO KNOW.**