APLICAÇÕES DE *DATA SCIENCE* E *MACHINE LEARNING* NOS NEGÓCIOS

GEANDERSON LENZ
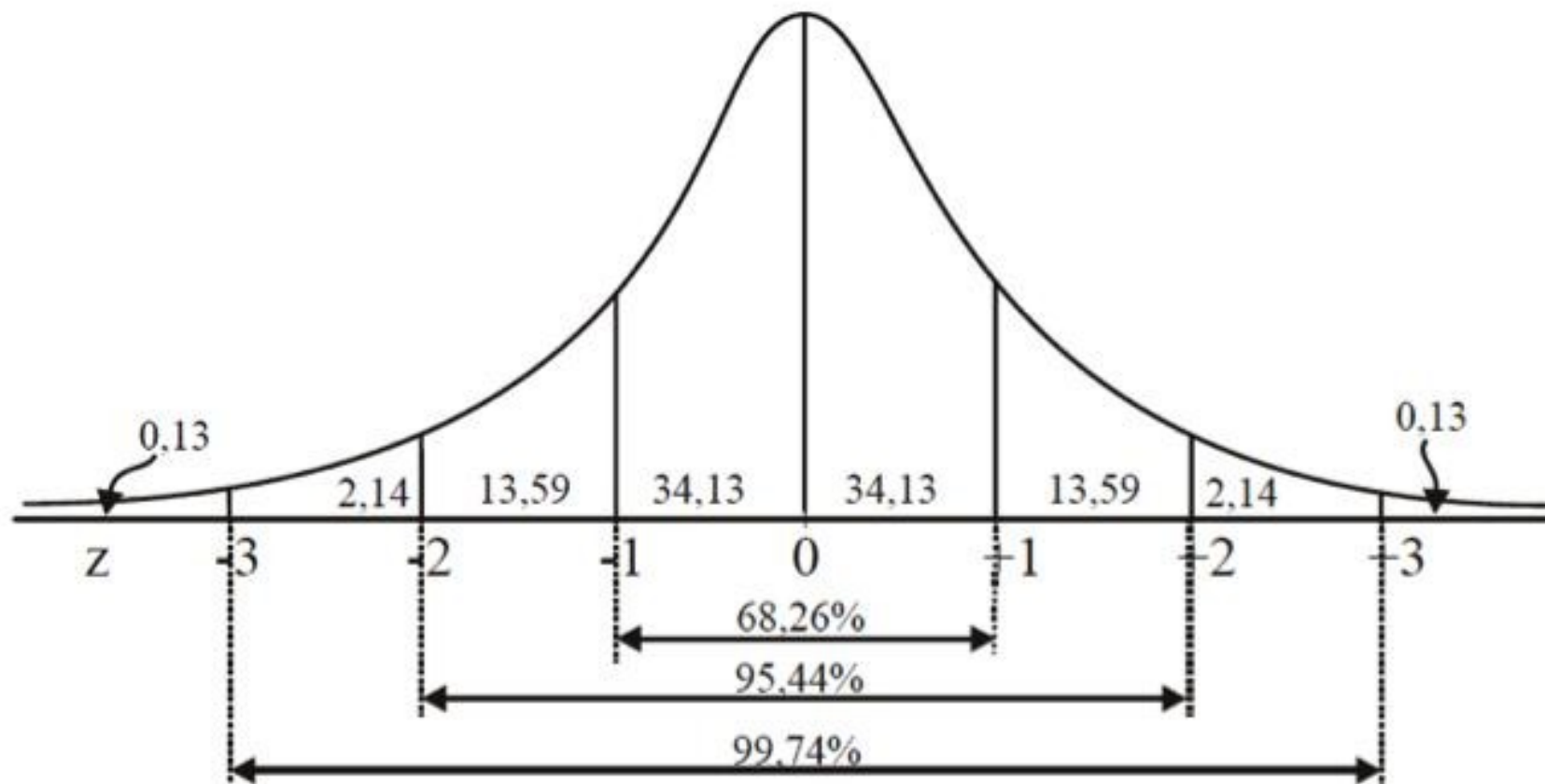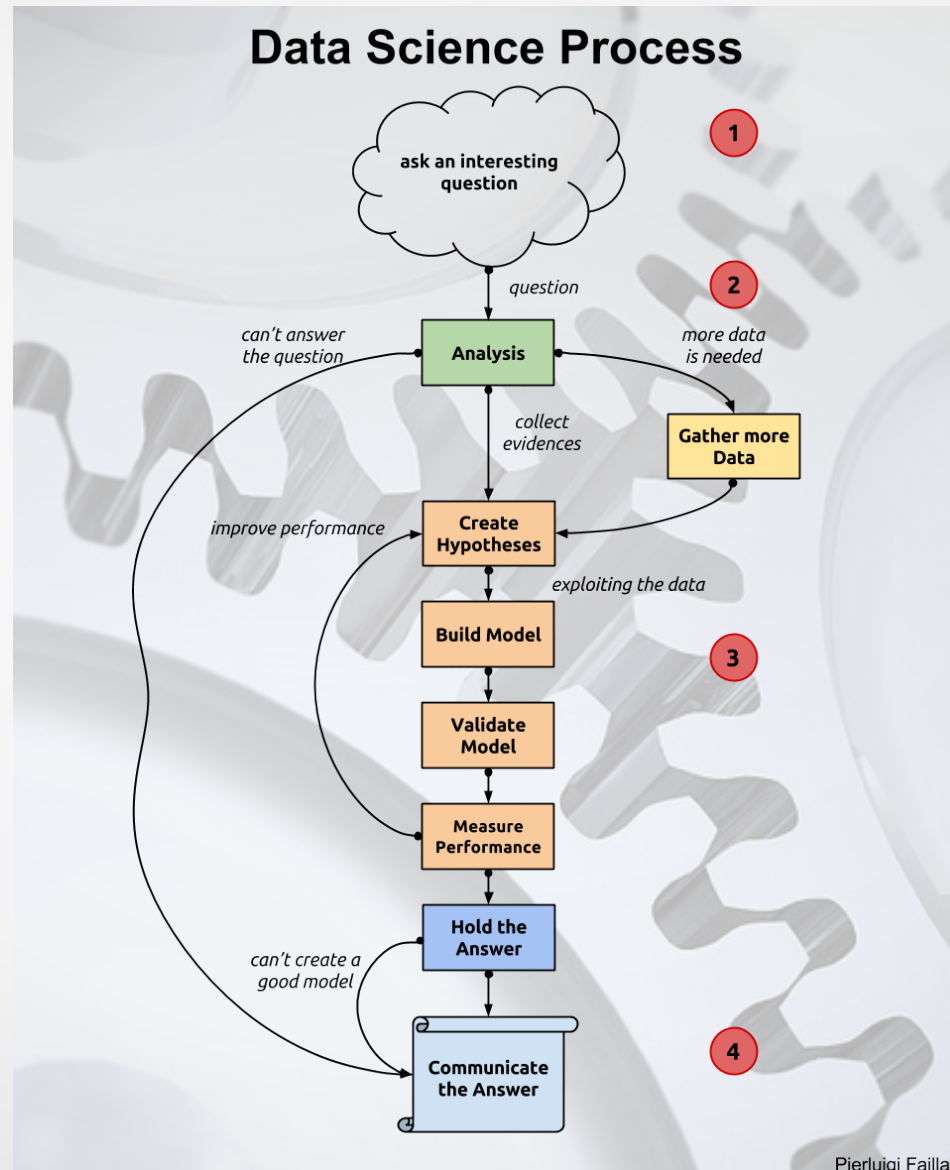*@geanderson*
Telegram: 51982896555

Perfil

- Geanderson Lenz (@geanderson)

- Spark Data Science (sparkproject.me)

- Professor de Administração (Instituto Federal)

- Mestre em Métodos Quantitativos na Gestão (PUCRS)

- Bacharel em Administração (UniRitter)

- Projetos de Data Science em R

- Consultoria de Business Intelligence (BI) com foco em Análise de Dependências (SEM)

- Python Lover

Distribuição Normal

Data Science

Data Science Process

ask an interesting question

1

question

2

can't answer the question

Analysis

more data is needed

collect evidences

Gather more Data

improve performance

Create Hypotheses

exploiting the data

Build Model

3

Validate Model

Measure Performance

Hold the Answer

can't create a good model

4

Communicate the Answer

Pierluigi Failla

Detecção de Fraudes

1. Cartão de Crédito
2. Ecommerce
3. Cargas
4. Transações Financeiras
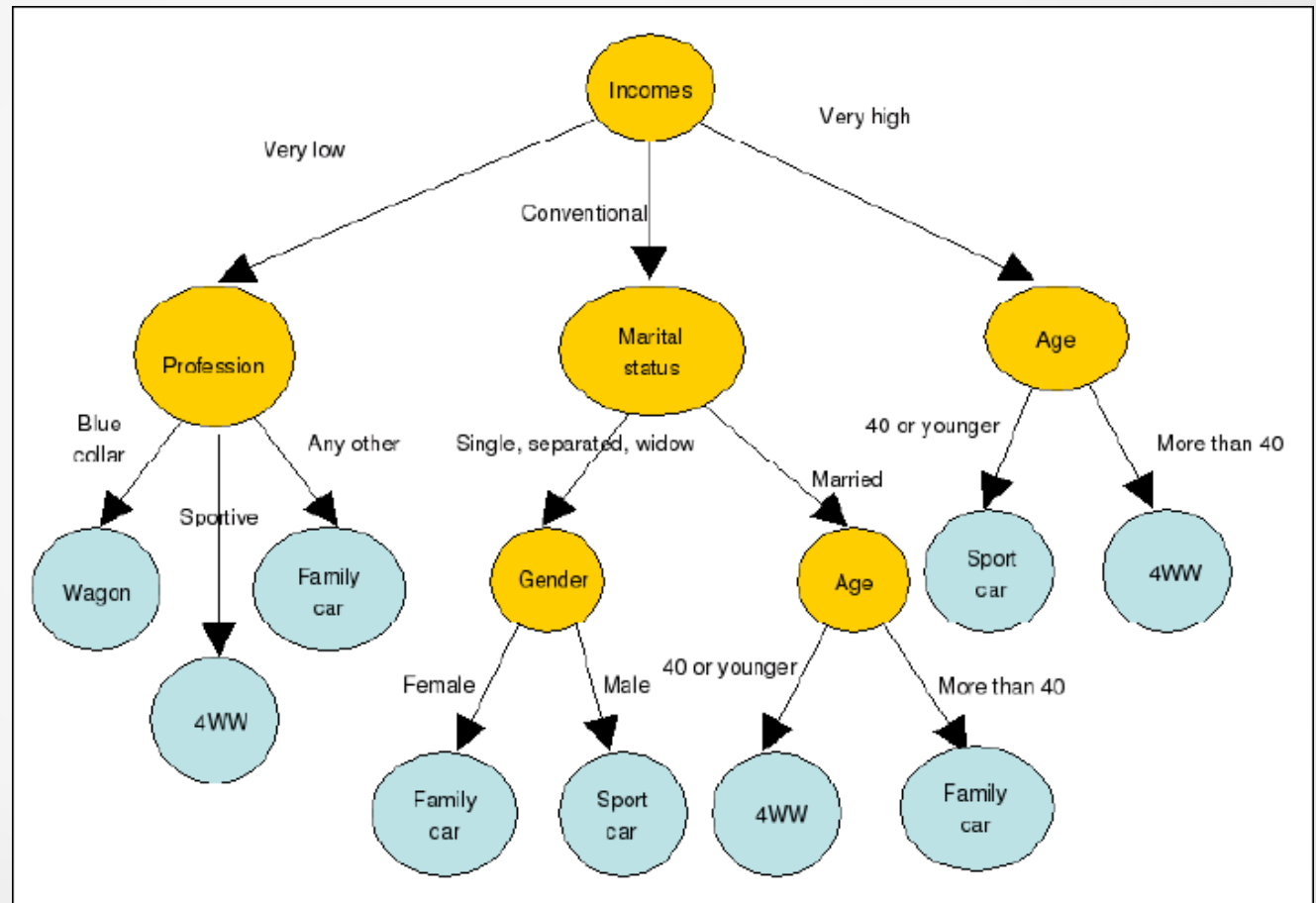5. Compras
6. Movimentação de Estoques
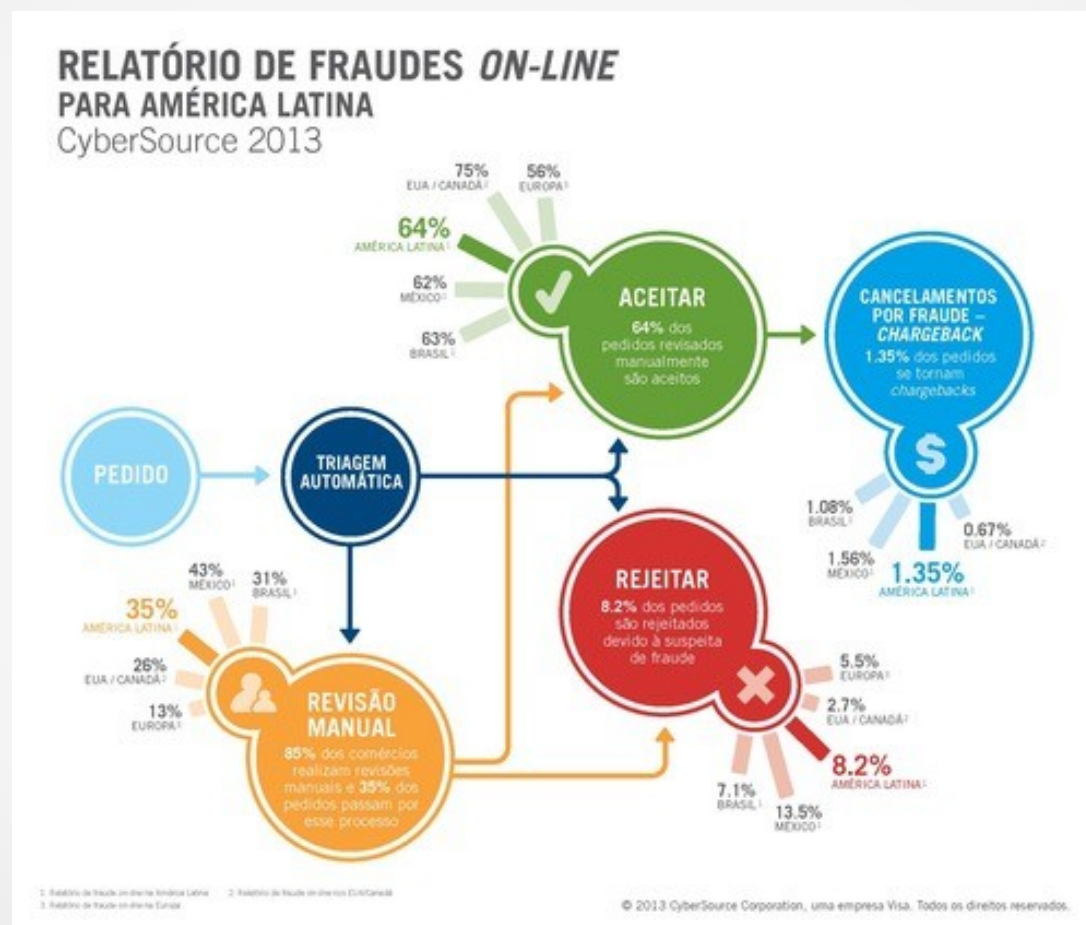
Algoritmos
- Naive Bayes
- SVM
- t-SNE
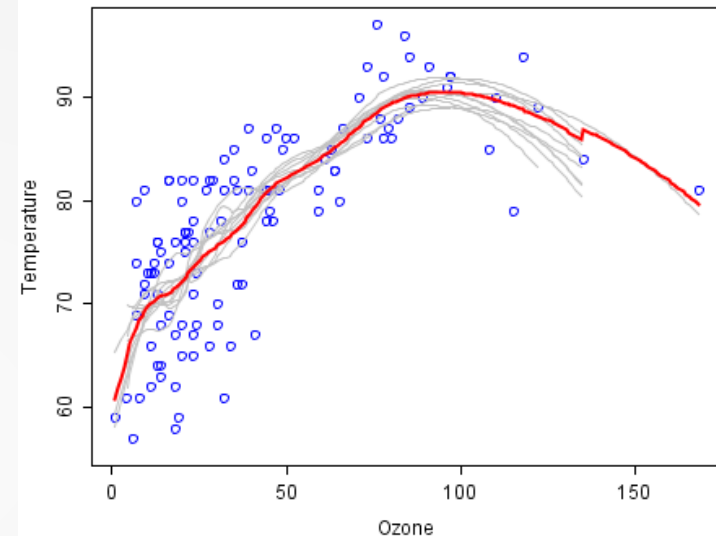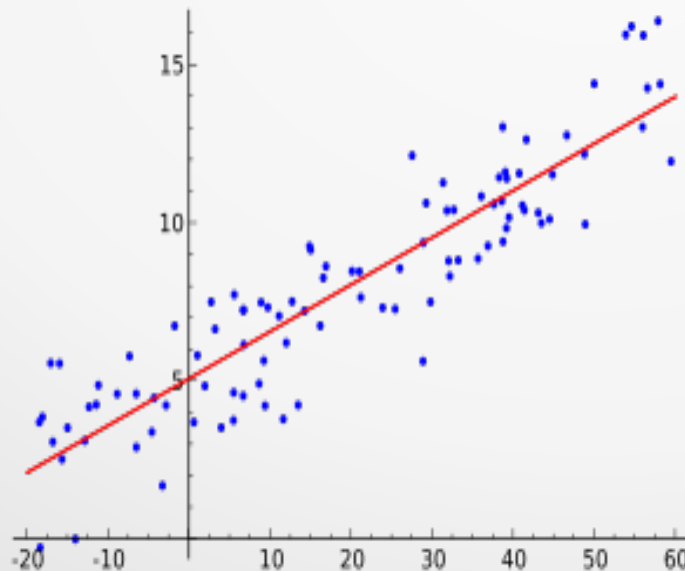
Segmentação de Mercado

- Geográfica
- Demográfica
- Psicográfica
- Comportamental

Naive Bayes
Random Forest
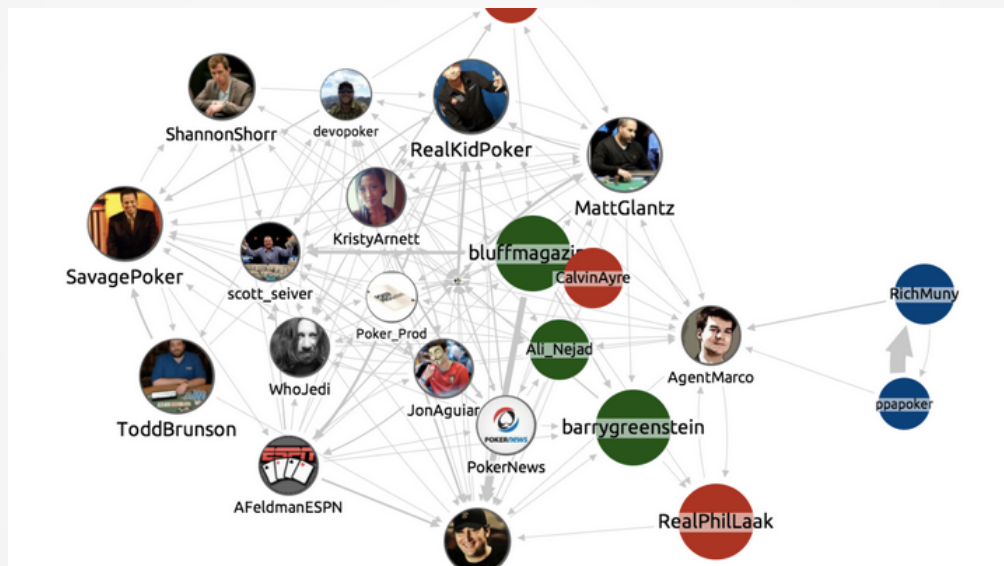Boosted Trees
K-NN

Sistemas de Predição

- Vendas

- Receitas

- Custos

- Manutenção

- Regressão Linear
- Regressão Múltipla
- Equações Estruturais
- Regressão Logística
- Ensemble Methods

Clusters

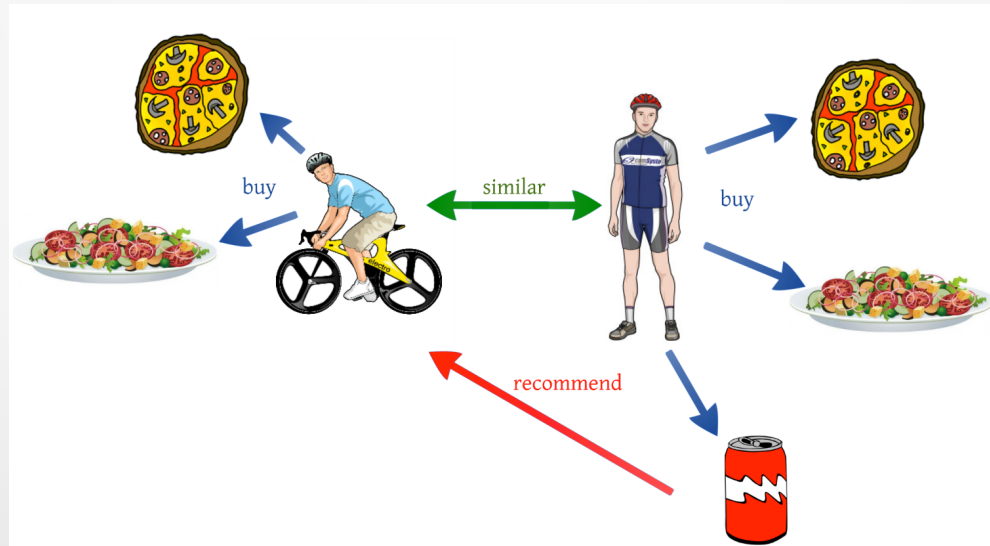- Análise de Redes Sociais

- Pesquisa de Marketing

Artificial neural network (ANN)
Nearest neighbor search
Neighbourhood components analysis
Latent class analysis
Affinity propagation

Sistemas de Recomendação

- Aplicações Web

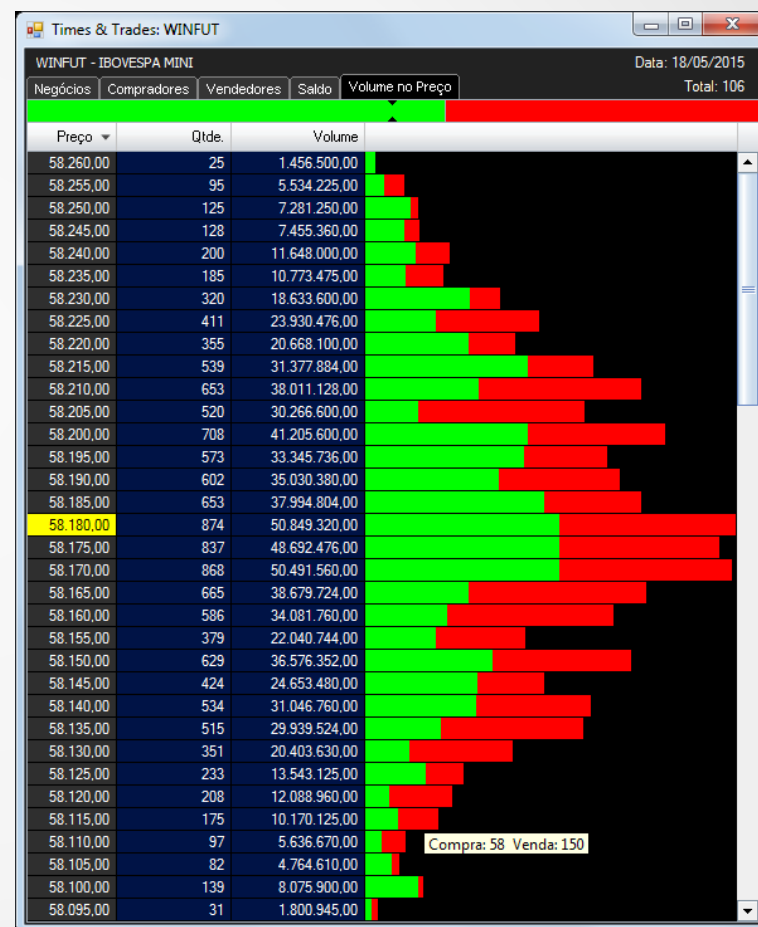- Chatbots

- Serviços

- Conteúdo vs Colaborativo

Python-recsys
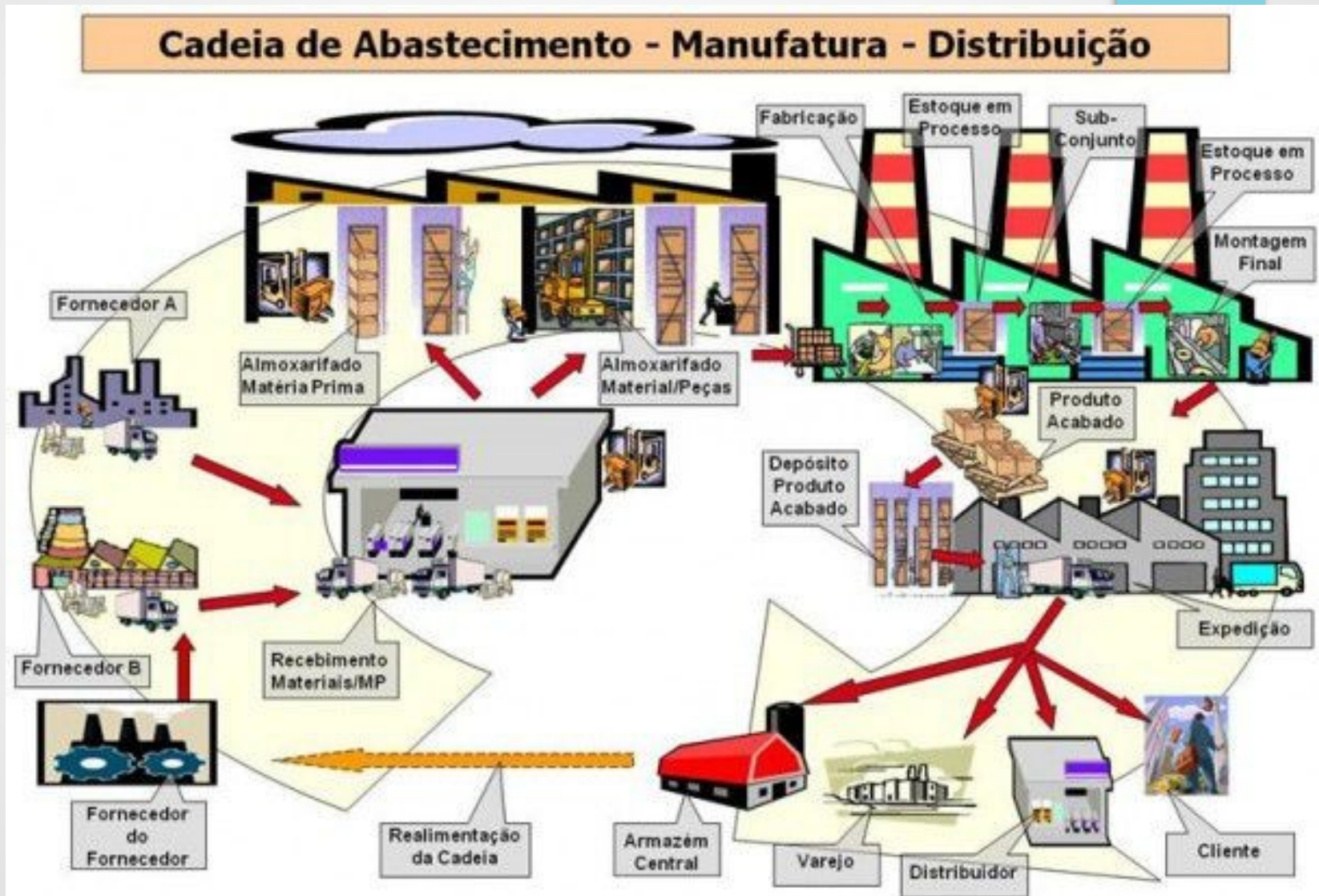GraphLab
Surprise

Finanças

- Financiamentos e Investimentos

- Custos

- Governança Corporativa

- Análise de Crédito

Deep Learning
Gradient Boost
Econometria
Cluster Hierárquico
Random Forest
Supervised Vector Machine

Cadeia de Suprimentos

Cadeia de Abastecimento - Manufatura - Distribuição

Cadeia de Suprimentos

Moving from a national stocking model to a hub-and-spoke model with 55 shipping and 161 selling locations

A 250% increase in physical locations

450,000 SKU-Locations consisting of both **parts and finished goods**

High product availability targets- Some customers need 'Same Day' pickup
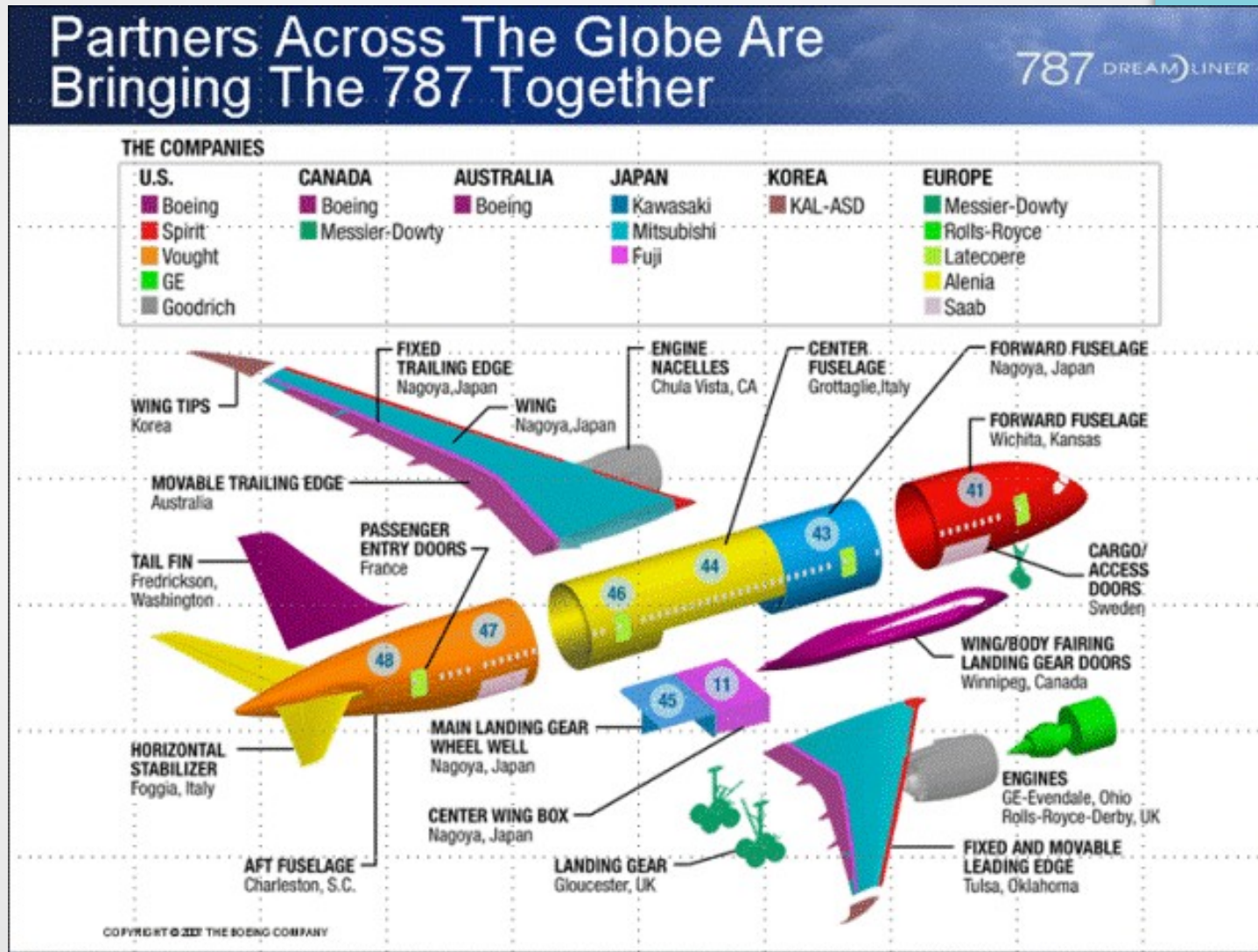
Highly variable independent demand
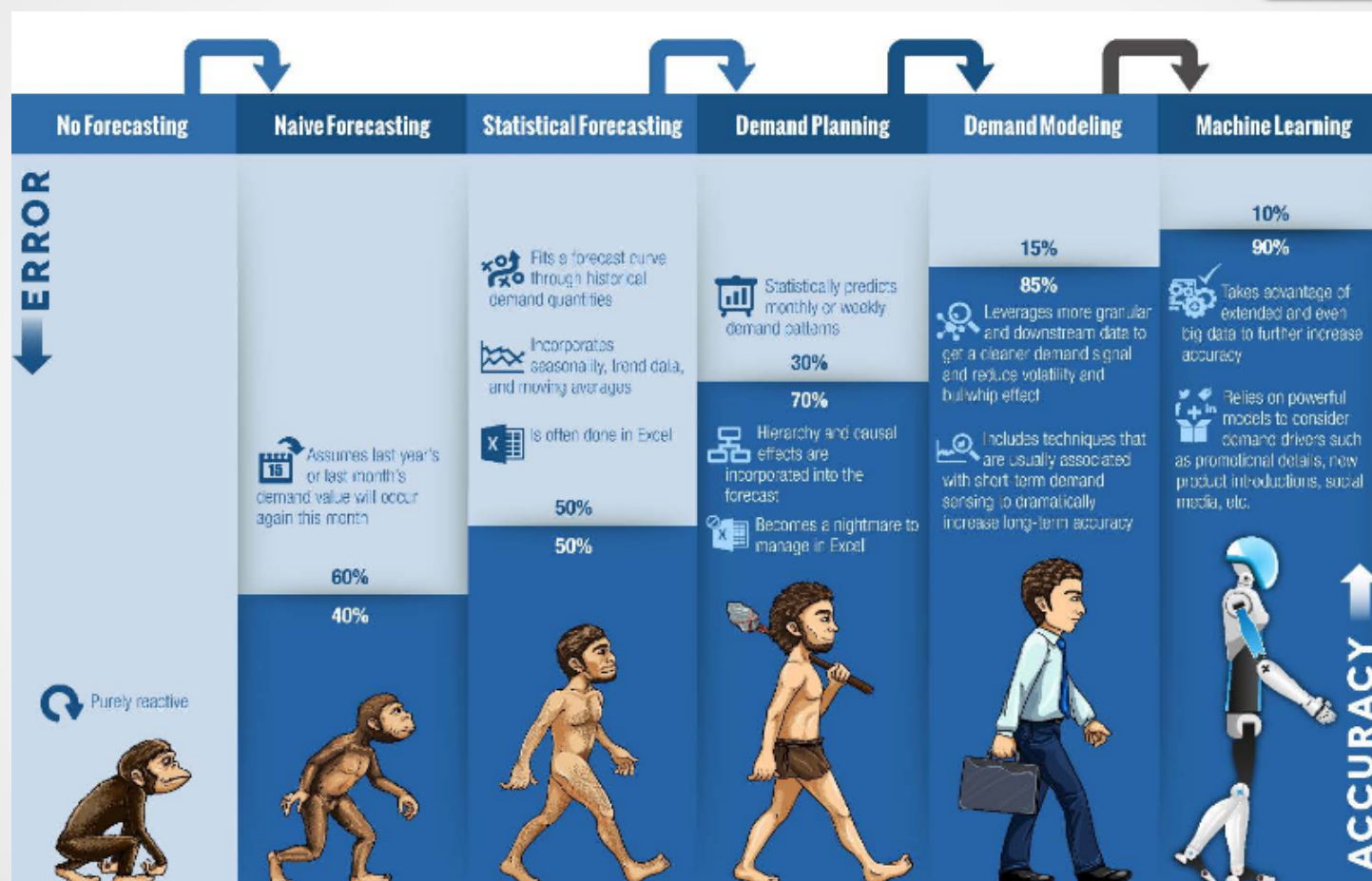
Highly seasonal demand *(AC and heating)*

Many new product introductions

Boeing Supply Chain

Previsão

Marketing

- Personalização e Customização

- Atendimento (ChatBot)

- Comportamento de Compra

- Fluxo de Visita Web

- Mobile App Usage

- Resposta a Campanhas

- Interações no Varejo
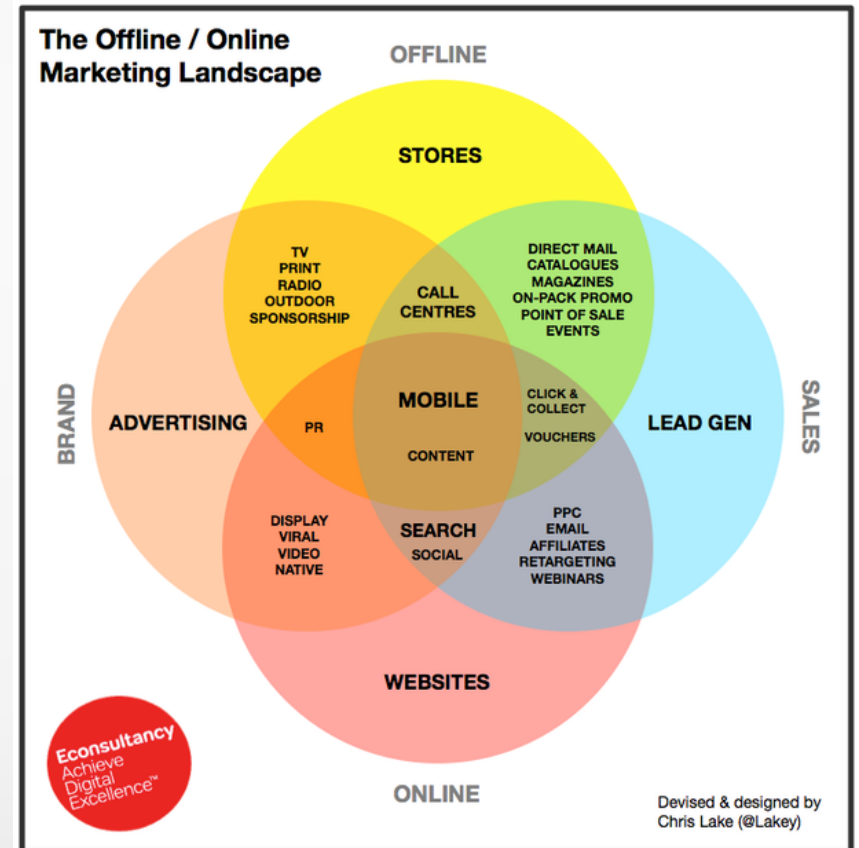
Algoritmos Marketing

- Natural Language Processing (NLP)

- Deep Learning

- Random Forest

- K-Means

- Reinforcement Learning

Reinforcement Learning

Agent State S_t^a

Observation O_t Reward R_t Action A_t

- Rules of the game are unknown.
- No supervisor, only a reward signal.
- Feedback is delayed.
- Agent's actions affect the subsequent data it receives.

Environmental State S_t^e
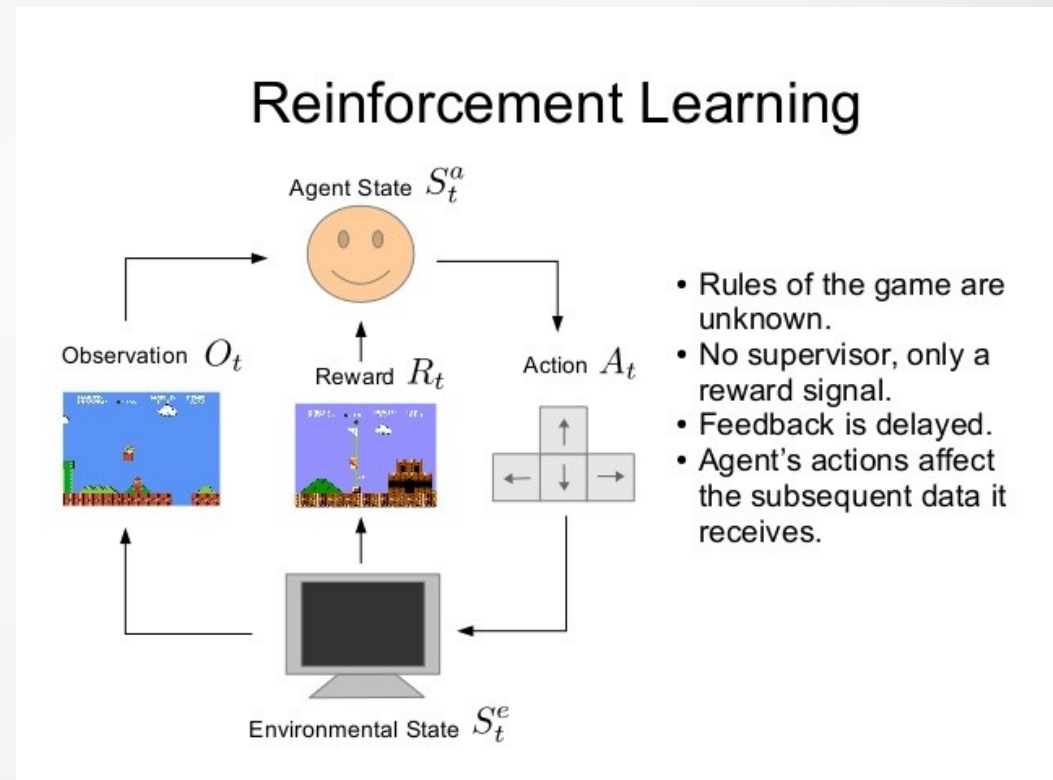
Marketing
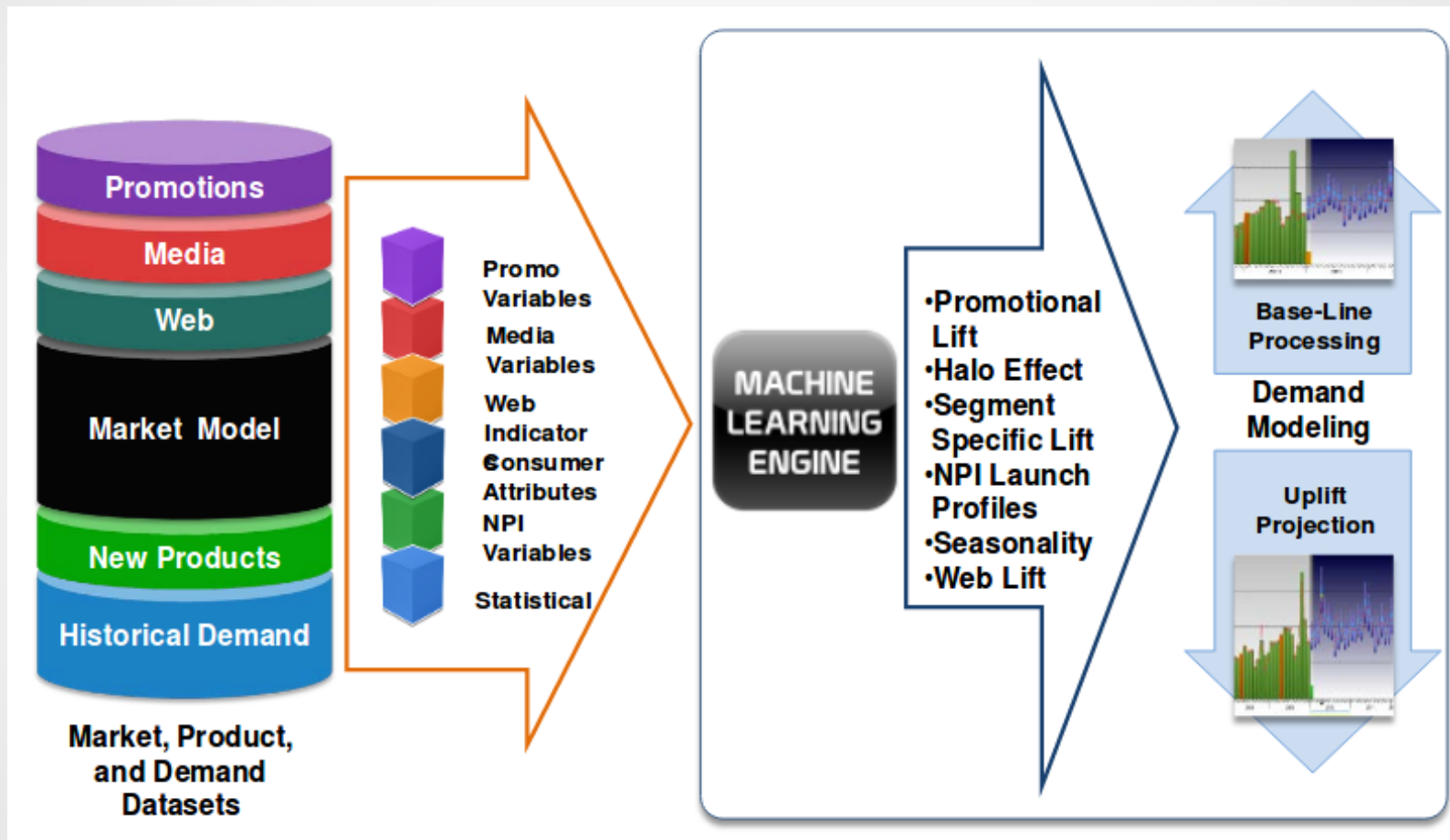
How Danone Used Predictive Commerce to TRANSFORM THEIR BUSINESS

ToolsGroup

DANONE'S PLANNING PROCESSES WERE DISCONNECTED AND DISJOINTED

Accounting
Supply Chain
Sales
Finance
Sales
Accounting
Sales
Logistics
Marketing
Supply Chain
Marketing
Finance
Logistics

PREDICTIVE COMMERCE ENABLED A COHESIVE PLANNING PROCESS TO IMPROVE DANONE'S FORECASTS

Sales & Marketing

ToolsGroup
Predictive Commerce
SO99+

Accounting & Finance   **Supply Chain & Logistics**

Managing demand volatility puts significant pressure on supply chain KPIs. **PREDICTIVE COMMERCE** is the key to meeting KPI challenges by analyzing both upstream and downstream data from internal and external sources of data – to produce surprisingly accurate forecasts.
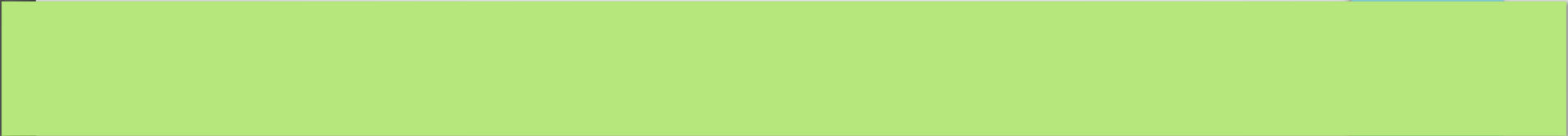
RESULTING IN A SIGNIFICANT IMPROVEMENT IN GROWTH AND RETURN ON INVESTMENT

Demand Shaping KPIs

2011 6%	2011 36%
2012 8%	2012 55%

Net ROI increased by 6% in 2011 and 8%.

Net uplift improved by 36% in 2011 and 55%.

Beyond the Numbers

Planners' workload reduced by 50%.

S&OP
Robust foundation of a value driven S&OP.

Across the Board Improvements

Total forecast error	reduced by 20%
Lost sales	reduced by 30%
Product Obsolescence	reduced by 30%
Forecast accuracy	improved to 92%
Service level goal	

37 consecutive months have exceeded 98.7% service level goal

Big data (Data Science) is like teenage sex:

everyone talks about it,

nobody really knows how to do it,

everyone thinks everyone else is doing it,

so everyone claims they are doing it...

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