The Power of Big Data & Advanced Analytics in Marketing

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McKinsey&Company

Agenda

Evolution of Marketing

The Rise of Advanced Analytics

Becoming Digital – Transformation along use cases

Getting there – Starting points for the journey

Marketing is at an infliction point to re-invent its operating system to compete in today's digital world

Marketing has been evolving over the past 20 years...

From traditional	To digital
Mad men	Math men
Broadcast media	Fragment channels
Static	Interactive
TV	Digital
Agencies	Platform

Furthermore, the dynamics of marketing in a digital economy have fundamentally changed

The dynamics of marketing have changed ...

From traditional	To digital
One-off	Always-on
Push	"On-demand"
Mass	Personalized
Paid	Owned + earned + paid
Siloed brand & performance	Customer-centric 360-deg marketing
Pre-planned	Agile, always-on, real-time
Produce	Produce, measure, optimize

There is significant value to capture for those who do it right

⬆ 20% in sales **productivity** through **personalized targeting**

⬇ 25% Reduction in **attrition** rates through a **multivariate predictive model**

⬆ 160% in **cross-selling success** after life **stage segmentation** of customers

⬆ 35% Expected increase in **annual revenue** through **digital marketing revamp** of **organization**

⬆ 200% in **online conversions after 3 months of SEM optimization**

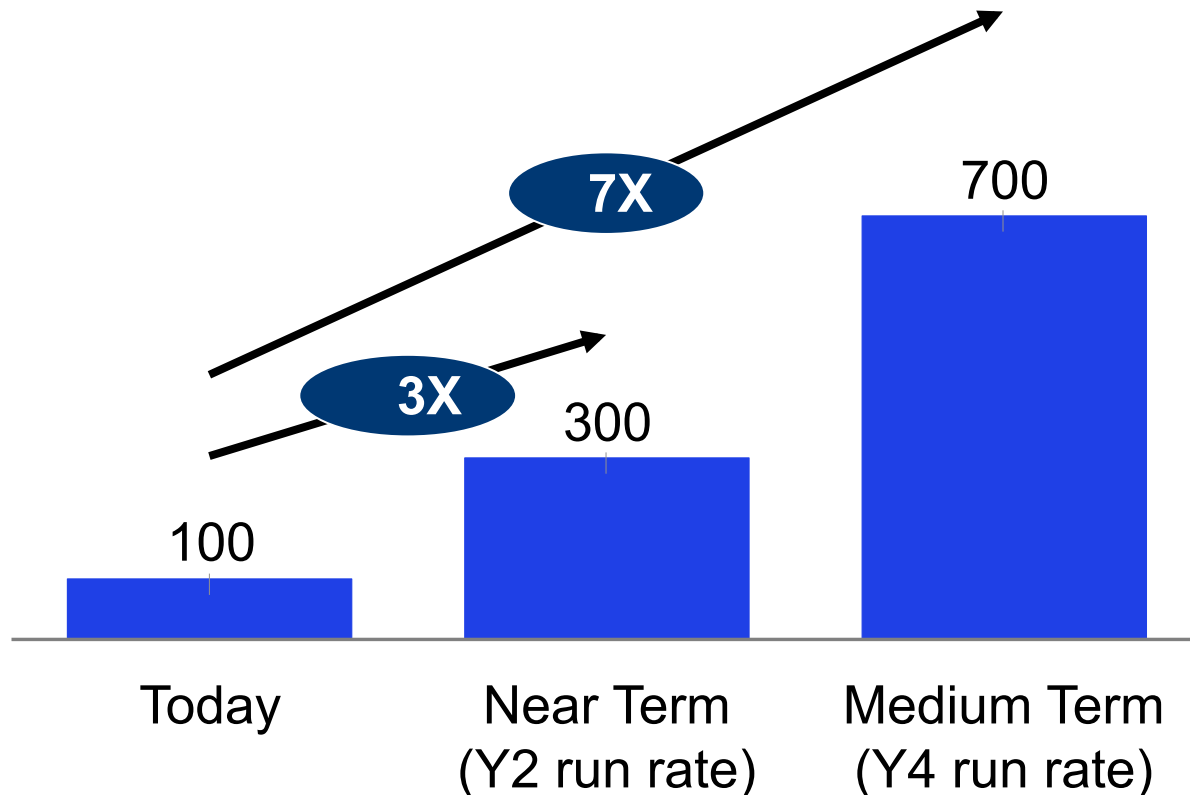**⬆ 8-10 NPS points for large bank through optimization of digital campaigns**

⬇ 66% cost per customer acquisition through SEM optimization

A global bank is on the path to $700 million + incremental revenue from a digital marketing transformation

Revenue, $ millions

$700M+ annual revenue across 20+ markets

7X	
3X	
100 (Today)	
300 (Near Term, Y2 run rate)	
700 (Medium Term, Y4 run rate)	

85%

of value capture through **five** core initiatives

1 SEO improvements

2 Landing page optimization

3 Optimizing the buy flow conversion rate

4 Media spend optimization

5 Cross-sell
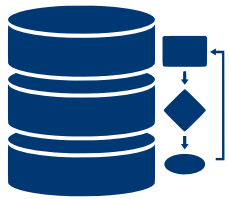
Agenda

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Quick definitions

☐ Details to follow

Big Data

A massive volume of **structured or unstructured data** that has relevance to an organization's outcomes

Advanced Analytics

The **systematic approach** of applying quantitative methods to **data** sets for **insight generation**

Machine learning

Data **analysis** method that allows a **computer to learn** without being explicitly programmed; **automated analytical model building**
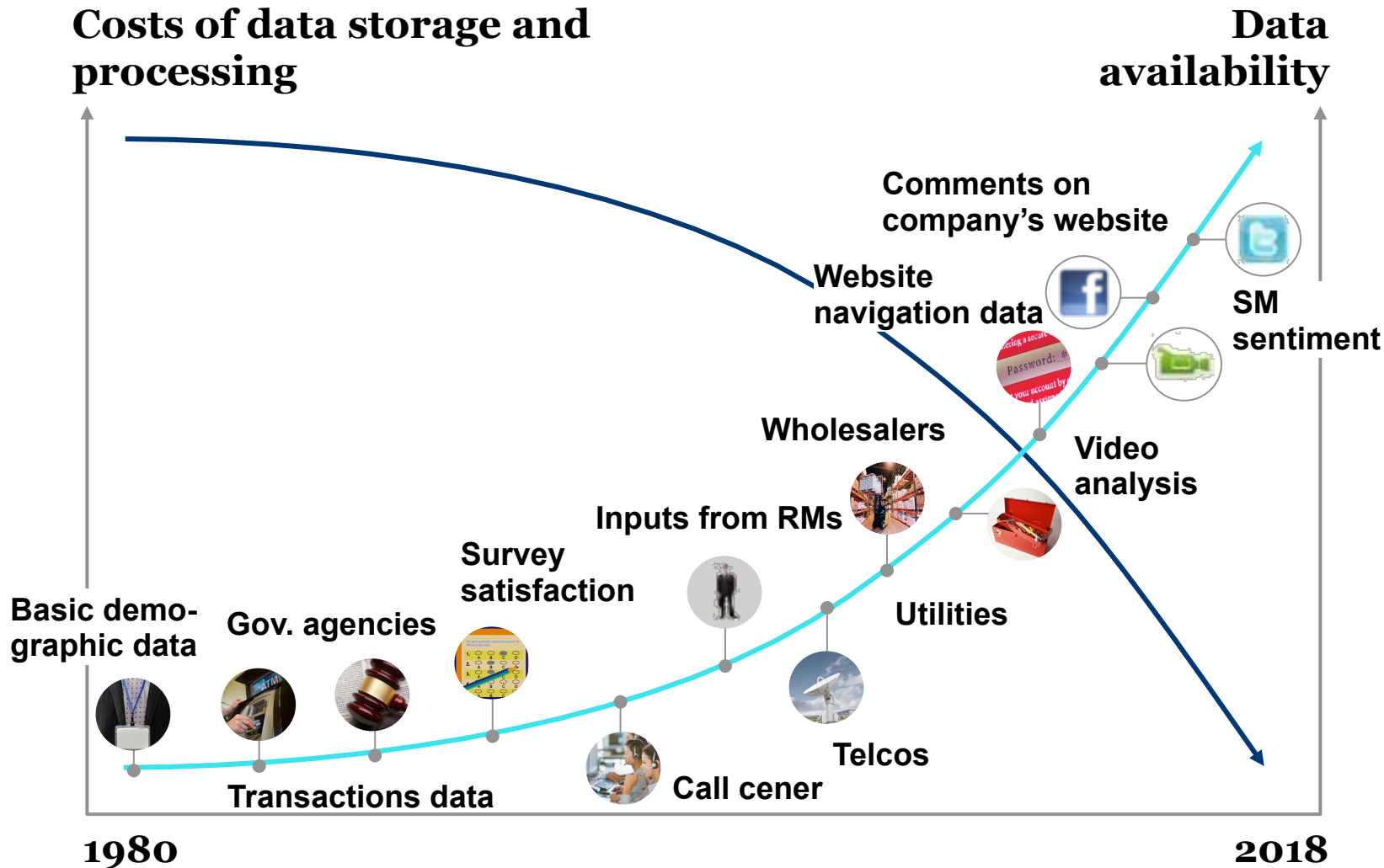
Advanced visualization

Dynamic **iteration of data** through the **use of models** that allows users to **interact with data in a visual way**

Big Data availability has boomed in the past years while cost of storage and processing has drastically decreased
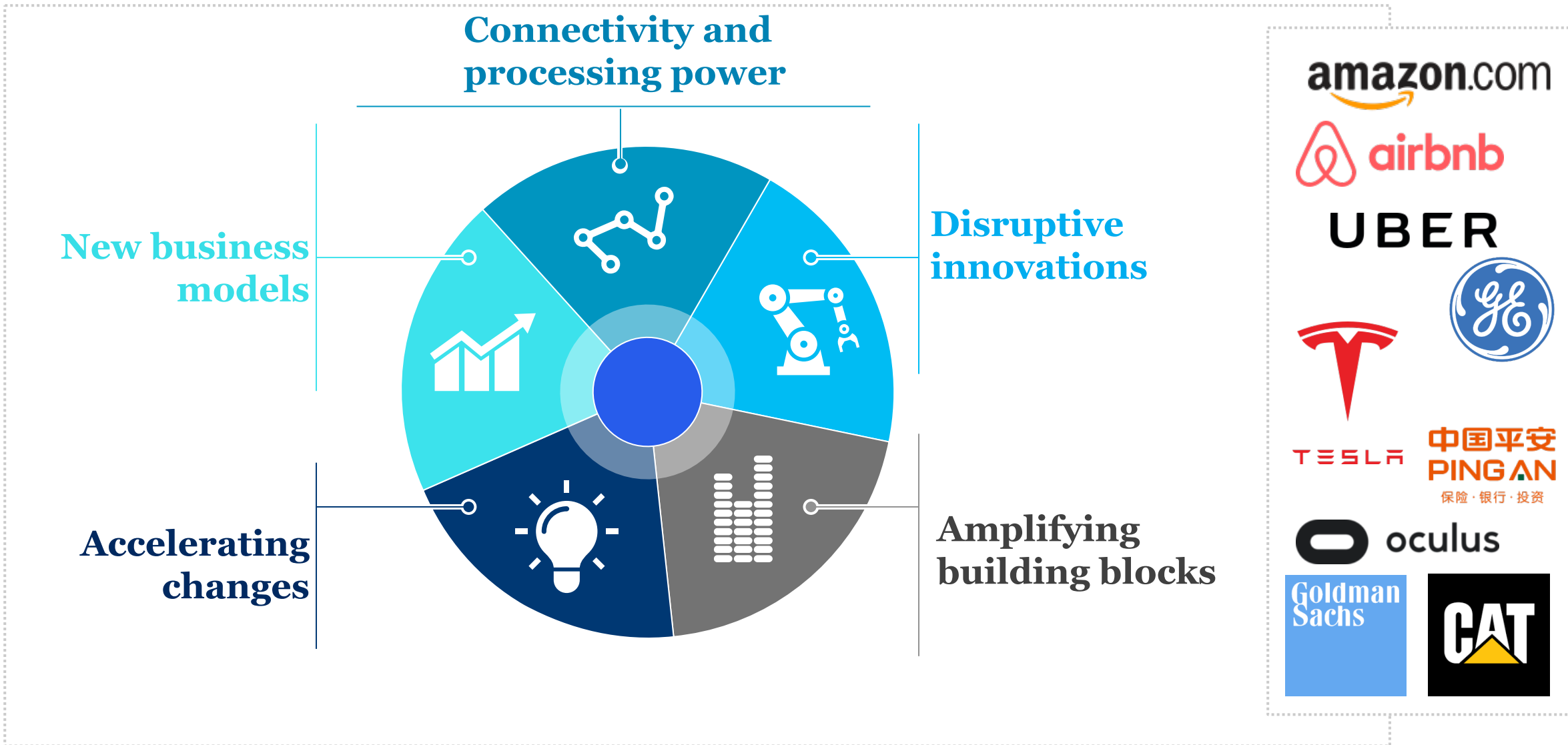
NON EXHAUSTIVE   EXPLANATORY

Costs of data storage and processing

Data availability

Comments on company's website

Website navigation data

SM sentiment

Video analysis

Wholesalers

Inputs from RMs

Utilities

Survey satisfaction

Basic demo-graphic data

Gov. agencies

Telcos

Transactions data

Call cener

1980

2018

Ability to apply Advanced Analytics to **unstructured data**

Multiple technologies coming together within AA space

- Machine learning
- Visualization
- Sentiment analysis
- 3D simulation
- Artificial Intelligence

The Digital and Advanced Analytics revolution is redefining many industries in many areas of their businesses

Connectivity and processing power

New business models

Disruptive innovations

Accelerating changes

Amplifying building blocks

amazon.com
airbnb
UBER
GE
TESLA
中国平安 PING AN
保险·银行·投资
oculus
Goldman Sachs
CAT

General Electric has been known as "the digital company that is also an industrial company"


- CEO defined **clear vision** to entirely restructure into an analytics company

- Masses of data used to drive machine **productivity and reliability**

- **"Hardware as a Service"** the future business model

- $1B investment in **Predix Platform**

Amazon is leveraging data and analytics to expand from the digital world to the physical world

amazon

- Amazon **ecosystem** drives **virtuous circle** of customer access points and data

- **Analytics capabilities applied widely –** for pricing, personalization, space allocation, product search…

- Capabilities enabled move **from digital to physical** – **Amazon Go**
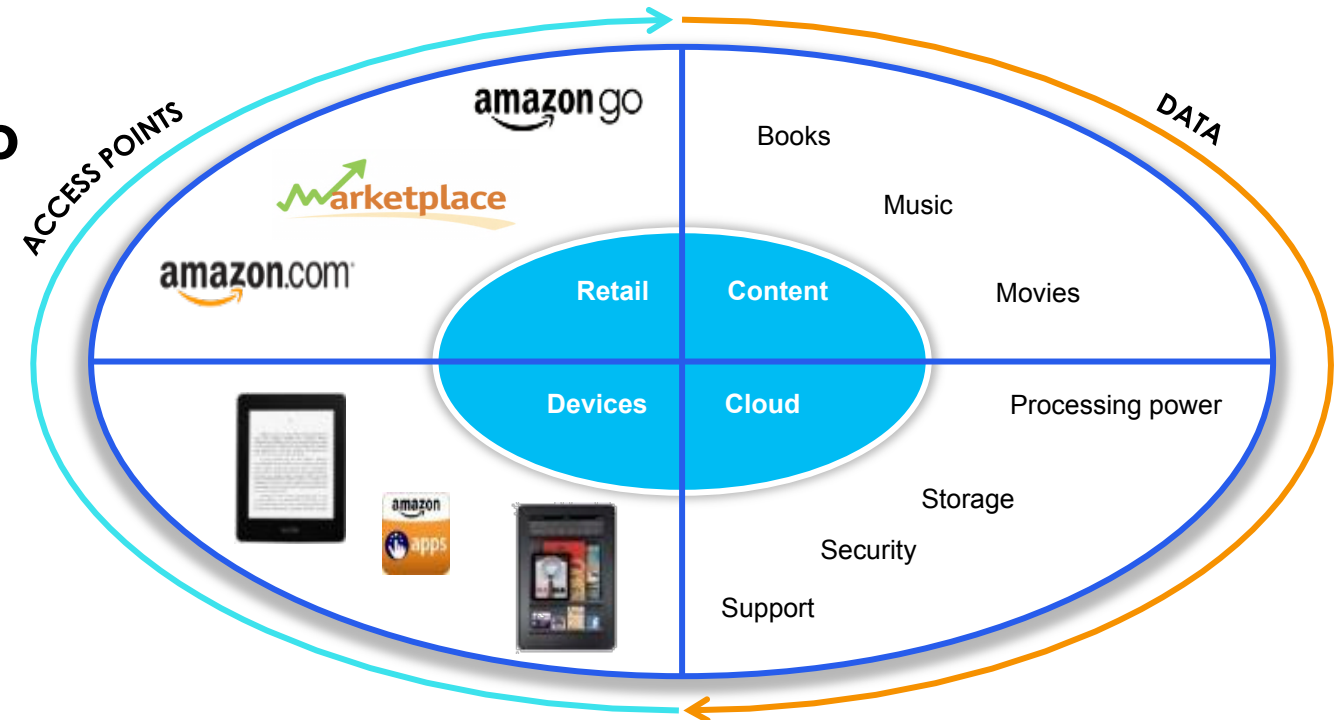
Machine Learning is at the cutting edge of advanced analytics and is providing organizations with a new way of seeing and solving problems
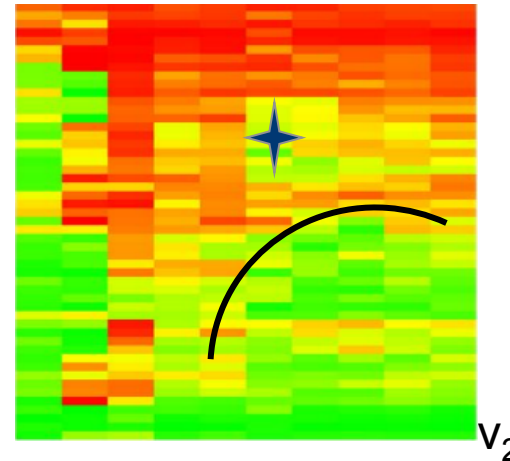
■ Self-cure   ■ Full default
■ Partial payment   ✦ Our client
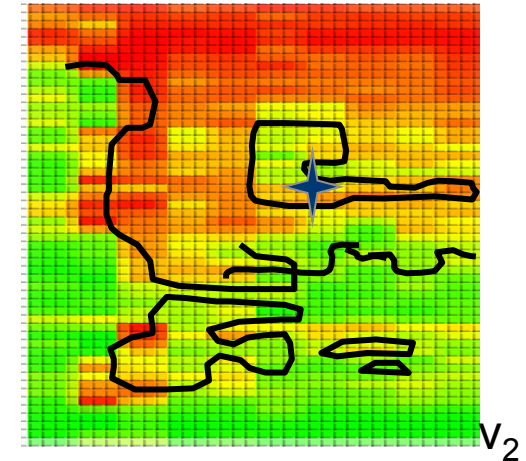
The actual phenomenon
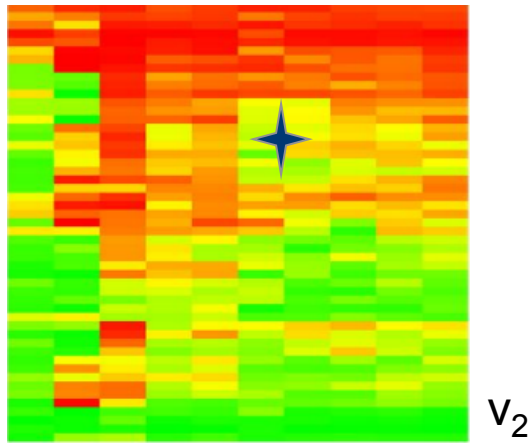
Real life phenomena exhibit complex non-linear patterns

How traditional stats sees it

Traditional stats fits predetermined "shape" into the phenomenon

How Machine Learning sees it

ML algorithms simultaneously run over data spotting & recording patterns

These algorithms «learn» with every bit of additional information as they identify new business patterns

Lessons learnt from data organization set-up in multinational companies

" Surprisingly **few companies** know **where and how** analytics can **create value** "

" The talent **challenge** is not only to find **data scientists** but also to **groom 'translators'** "

" Data science is the easy part. Getting the **right data**, and getting the **data ready for analyses**, is much **more difficult** "

" Embedding analytics is as much about **change management** as it is about data science "
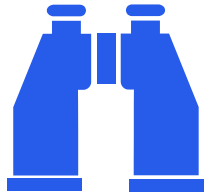
Agenda

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Becoming Digital – Transformation along use cases

Getting there – Starting points for the journey

Driving impact and success from Advanced Analytics require three key elements

1. A vision
Senior leader- and sponsorship

2. Use cases
Concrete applications with quick impact

3. The foundations
Organizational and technical prerequisites

1 Build a vision for your company – examples from others

Vision

Use cases

Foundations

" We're not there yet, but **we envision a system** where I could literally see, on my laptop, **any product at any moment** as it goes through the manufacturing line of any one of our plants **showing me the costs** of that product at the same time "

McDonald, CEO P&G, 2013

" [Insight] is used **all over the business,** not just in marketing but in the property program, **decisions** on which **product ranges to stock** and in understanding how different types of **customers are responding** to what we do "

Caroline Bradley, Marketing Director

2 Identify use cases – overview of potential commercial levers

Focus of today

Commercial use cases

| | **Internal optimization** | | **Other use cases** |

Vision

- Assortment optimization
- Next Product to buy

Supply chain

- Workforce optimization

Data as an asset
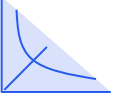
Fraud/theft detection

Use cases

Customer segmentation

Promotion

Predictive Maintenance

Demand forecasting

Risk/bad debt prediction

People Analytics

Foundations

Pricing

- Store location

- Mark. mix optimization
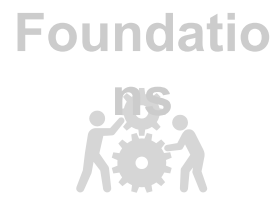
2A End-to-end assortment optimization approach is helping a leading European grocery retailer to grow sales by 11%

Vision

Use cases

Foundations

Situation

- Largest **retailers in Ukraine**

- 5-months **E2E grocery assortment optimization** project

What they did

- New **management processes and tools**

- **Customer Decision Tree** to have insights about **consumer behaviors**

- Developed **Navigator's manual**

Impact[1]

Sales growth, %

11	3	8
Total impact	Macro space re-allocation	CDT & better SKU list
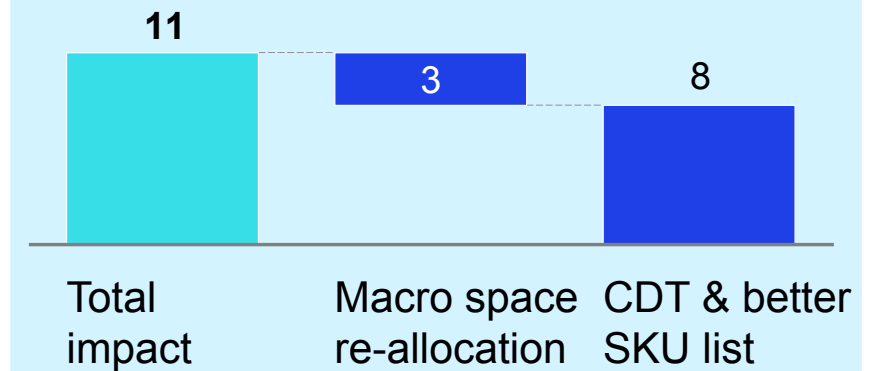
- Fast implementation and impact seen in **4 weeks pilot**

- 4tree CDT **changes semimanual** category management **processes**

- Innovative and **user friendly solution** embraced by category team

- **No up-front investment**

1 Based on results of 1-st wave of roll-out

2B A leading retailer is leveraging algorithms to power new personalized tactics to increase digital marketing conversion rate

Vision

Use cases

Foundations

Personalize content to build engagement…

Targeting — Target customers with recent purchase

Timing — Trigger based vs. daily mass emails,

Merchan-dising — Showcase unique, relevant SKUs based on last basket

Creative — Reference customer name and last purchase in subject line, hero image and copy

Landing page — Send customers to department relevant landing pages

…driven by new Big Data algorithms

Past shopping behavior

1   2   3

- Trigger emails
- Landing pages
- On-site placements
- Off-site targeting
- Coupons and offers

Multichannel delivery

Next Product to Buy algorithm

Product

Last	Next	Probability
		75%
		67%
		33%

Specific product recommendations

1 Based on results of 1-st wave of roll-out

2C A consumer electronics company increased $400m+ in annual incremental value by leveraging Big Data transformation on marketing

Vision

Situation

- Desire to **leverage "Big Data"** to optimize:
  – Business growth
  – Operations
  – Product design
  – ROI
- **Lack of:**
  – Integration of data
  – Analytical capability
  – Organizational structure
  – Culture

Use cases

Foundations

What they did

- Integrated **360° view** of the **customer** and their **behavior**
- Cross-functional hypothesis **workshops**
- Built 3 "**insight factories**"
- **Capability building**

Impact

Improved profitability by +25%

New operating model

New data architecture design

1 Based on results of 1-st wave of roll-out

2C The channel and promotion strategies were optimized to ensure "right product, right channel, right price"…

Vision

- Uncovered **differences** in **customer value** by **product by channel…**

LTV by product by channel, $ per unit sold

	Entry Priced	Mid Market	High End
Channel 1	83	251	299
Channel 2	83	247	308
Channel 3	60	206	252
Channel 4	79	203	284
Channel 5	68	203	264
Channel 6	67	203	264
Channel 7	57	196	264
Channel 8	66	191	238
Channel 9	55	183	241
Difference High to Low channel	83-55%	251-183%	308-238%
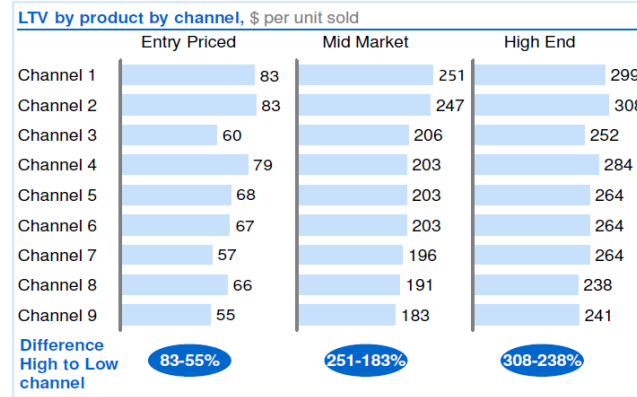
… and used that information to **optimize product range by channels**

Employed a number of tactics (including marketing and promos, channel incentives, etc.) to differentially drive volume by printer type to increase overall value generated for the business

Use cases

- **Re-allocated spend to different channels** and tactics…

FY13 Revenue ($ Millions) — **Sales lift by partner and promotion type[1]**

Promotion type: ■ Sales lift >1 ■ Sales lift <1
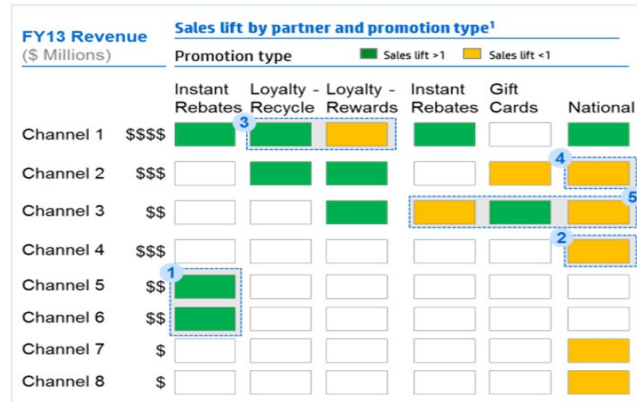
… as well as to **different products** based on the stage in **their product lifecycle**

Promos on Decline and Sunset ink SKUs have significantly lower RoI than Growth and Mature

	Growth	Mature	Decline	Sunset	Total
Revenue ($M)	2	1,261	1,299	221	2,783
Promo spend ($M)	0.2	50.5	39.2	7.0	96.8
Promo RoI (%)	459%	22%	-18%	-42%	2%

Weighted average: 24% / -21%

Potential to reinvest spend away from decline and sunset SKUs to mature and decline SKUs and achieve a 45%[1] improvement in RoI
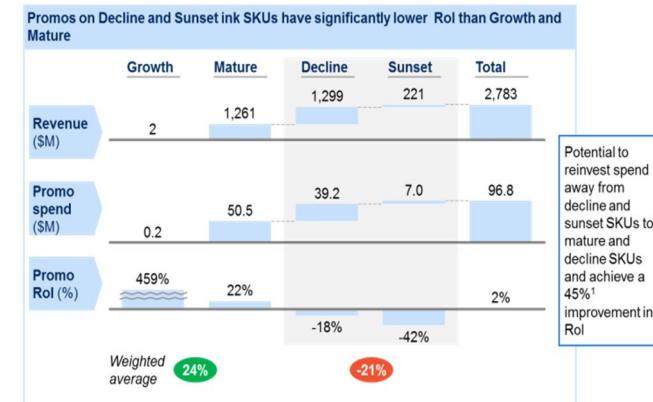
Foundations

2C ...as well as marketing resources and customer targeting strategies to generate the greatest ROI on marketing spend

Vision

- **Re-deployed resources** to **higher value** geos

Heatmap shows device profitability

Key insights
- Consumers in Essex county use this device 2X more than Suffolk county
- Devices purchased from Retailer A use 70% more than Retailer B

- **Re-deployed spend** away **from lower ROI** tactics - ATL and coupons

Return on Marketing Investment by Lever
$ LTV return per dollar spent

In-store labor | ATL | Coupons

Redeployed spend from lower ROI ATL and coupon to higher ROI in-store labor tactic

Use cases

- Identified **key attributes** of their highest value customers…

Customer attributes positively correlated with profitability (determined from M2M data)

Most significant zipcodes
Interest in electronics
Past entertainment purchase
Interest in arts and crafts
Interest in photography
Chartiable giving
Enrolled in online course
Interest in gardening
Interest in the arts
Past electronics purchase
Home owner
Children
Movie collector
International travel
Interest in exercise/jogging
Antiques/collectibles
Grandchildren
Has regular american express
Interest in cooking
Parent
Interset in cooking
Male
Interest in golf
Education level
Age

Customer attributes negatively correlated with profitability (determined from M2M data)

Home value
Shops via mail order
Shops online
Enters sweepstakes
Interet in home furnishing
Interest in autos
Interset in RV-ing
Past apparel purchase
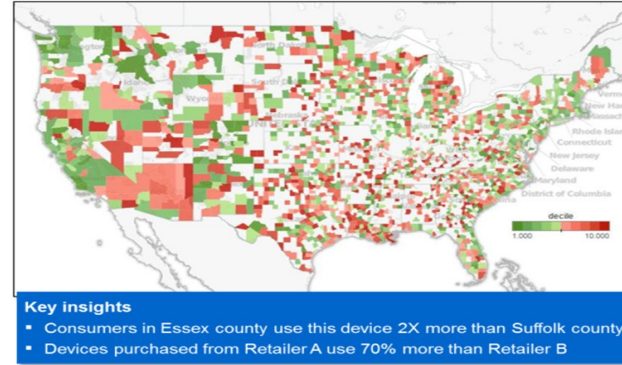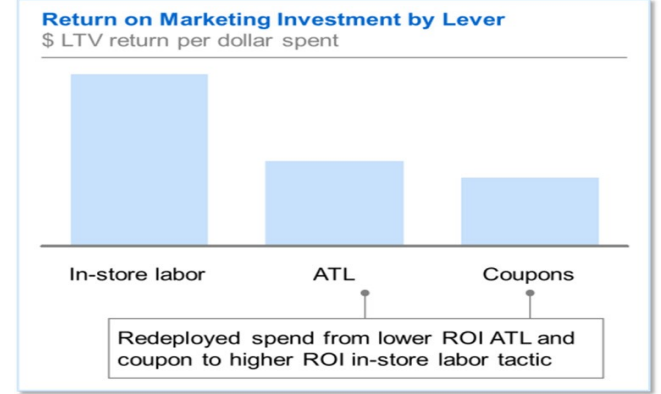Dog owner
Finishing
Interest in healthy cooking
Interest in fashion
Interest in investing
Past gift purchase
Plays in casinos
Reads best sellers

- We took 330 demographic variables and identified the 42 variables that are statistically significant
- Allows for specific targeted

- … and built a **targeting engine** to **prioritize acquisition** prospects

- Facilitate **up-sell and churn reduction**

Marketing can incorporate data from the LTV model to inform persona development:

	Persona A	Persona B	Persona C	Persona D
Persona[1]	Persona A	Persona B	Persona C	Persona D
Description	Focused on moving up in the world, they are yet to have children, enjoy an income >$150k and rent homes	Over 61 years old, heavy spenders, and enjoy taking photos of their growing families and travel heavily	These families of three or less live in high-value home deciles and spend heavily	Young, heavy spenders interested in the arts; their cultured lives are focused on experiences
Product	Product family 4	Product family 2	Product family 1	Product family 2
Usage	16.7 cc / month; **27% lift** above average product family 4 customer	5.8 cc / month; **37% lift** above average product family 2 customer	5.1 cc / month; **39% lift** above average product family 1 customer	4.9 cc / month; **15% lift** above average product family 2 customer
Sample value preposition[2]	For those preparing for the big meeting, the XX is the printer that offers superior quality and speed	For those who need to make their memories last, the XX is the printer that offers ease, affordability and photo print quality	For those who need efficiency, the XX is the printer that offers professional quality and ease of use	For the those who want to document their lives, theXXS is the printer that offers beautiful design and photo print quality

Foundations

2D A Brazilian telco restructured its call center S2S approach improving new sales levels more than 50%

Vision

Use cases

Foundations

Situation

- A Brazilian Telco wanted **to increase** the volume of **S2S calls closed with a sale**

What they did

Numbers in millions (except ratios)

Total calls	20	
Identified calls	14	← 70%
Identified consumer calls	12	← 85%
Consumer x-sell calls	3	← 24%
Calls with a closed sale	0.09	2.9%
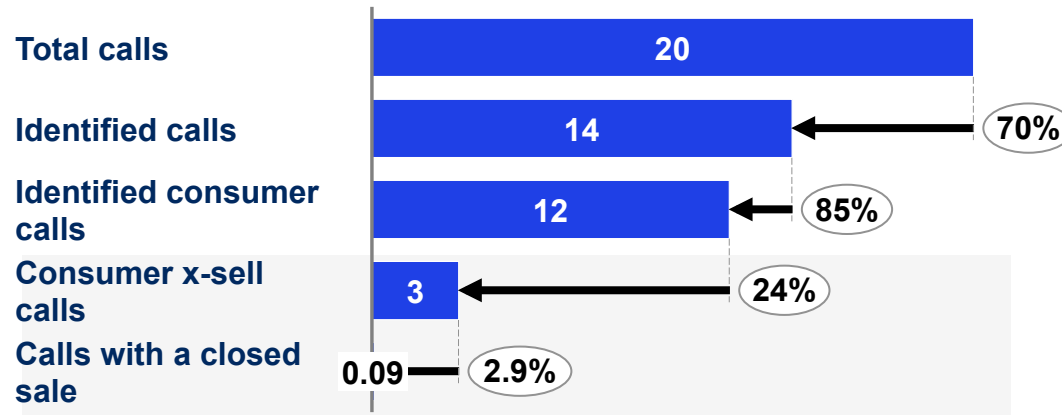
Performance of the Machine Learning model on the Test data set

Cumulative uplift vs average of S2S sale in next month (%)

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
3,6	3,2	2,9	2,6	2,3	2,1	1,9	1,7	1,6	1,5	1,5	1,4	1,3	1,2	1,2	1,2	1,1	1,1	1,0	1,0

Percentile model score
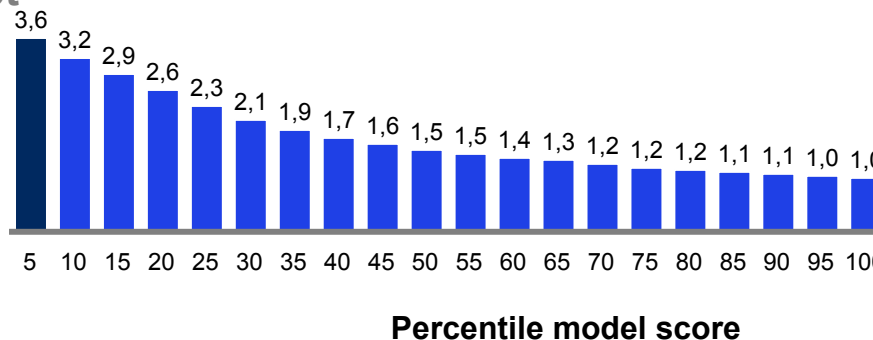
Impact[1]

- **Production levels increased** more than **50%** 4 weeks after implementation

- **Hit ratios improved** more than **20%** for a comparable customer base

1 Based on results of 1-st wave of roll-out

2E A Japanese retailer used advanced analytics to identify 1,000 new profitable locations based on previously unknown measures of success

CLIENT EXAMPLE

Vision

Use cases

Foundations

Situation

- Japanese retailer **seeking to roll out new stores**

- Recent **store openings had been disappointing**

SPARKBEYOND

What they did

- Used **AI platform** to create a **model** to extract **key performance drivers**

- Leveraged:

  – **Internal data sources**: transaction log data, labor,…

  – **External sources**: weather, news, maps, retail stores in the area, demographics,…

- Tested thousands of:

  – Potential **drivers of value**

  – Identified **drivers of store performance**

Impact

- **1,000 new store locations identified** that would be **profitable** with the current format
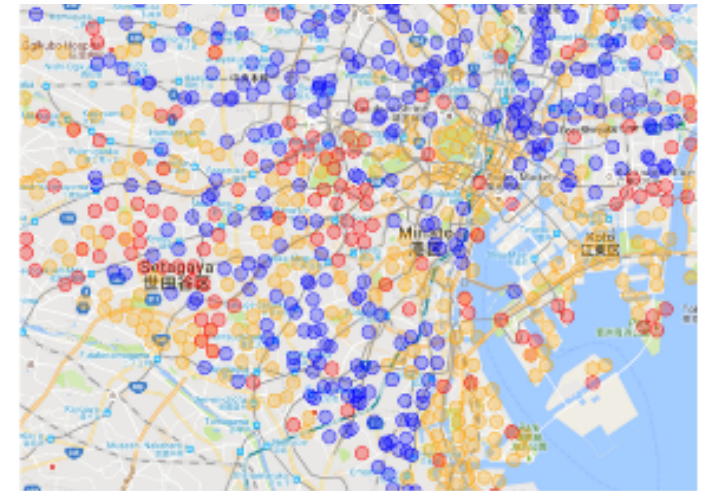
③ Foundations - Overview

Vision

Use cases

Foundations

Technical and people foundations

Big Data IT

Analytics

Data

Employees

New operating model

**Culture
and mindset**

**Ⓐ Process and
governance**
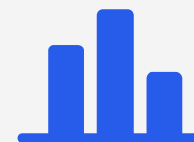
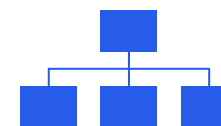**Ⓑ Performance
management**

Organization

3A Use cases are implemented in "factory" settings: intense collaboration on pilots with operational staff, outside "normal" office...

Vision

Use cases

Foundations

Example: Category Accelerator

- A 'think-outside-the-box' environment in a **dedicated project space**

- Participants include

  – A **dedicated team** on the client side

  – **Navigators** to facilitate

  – **Analysts** to prepare Big Data inputs

- **Work on pilot use-case** (e.g. assortment optimization) category by category: turning insights from BigData into actions
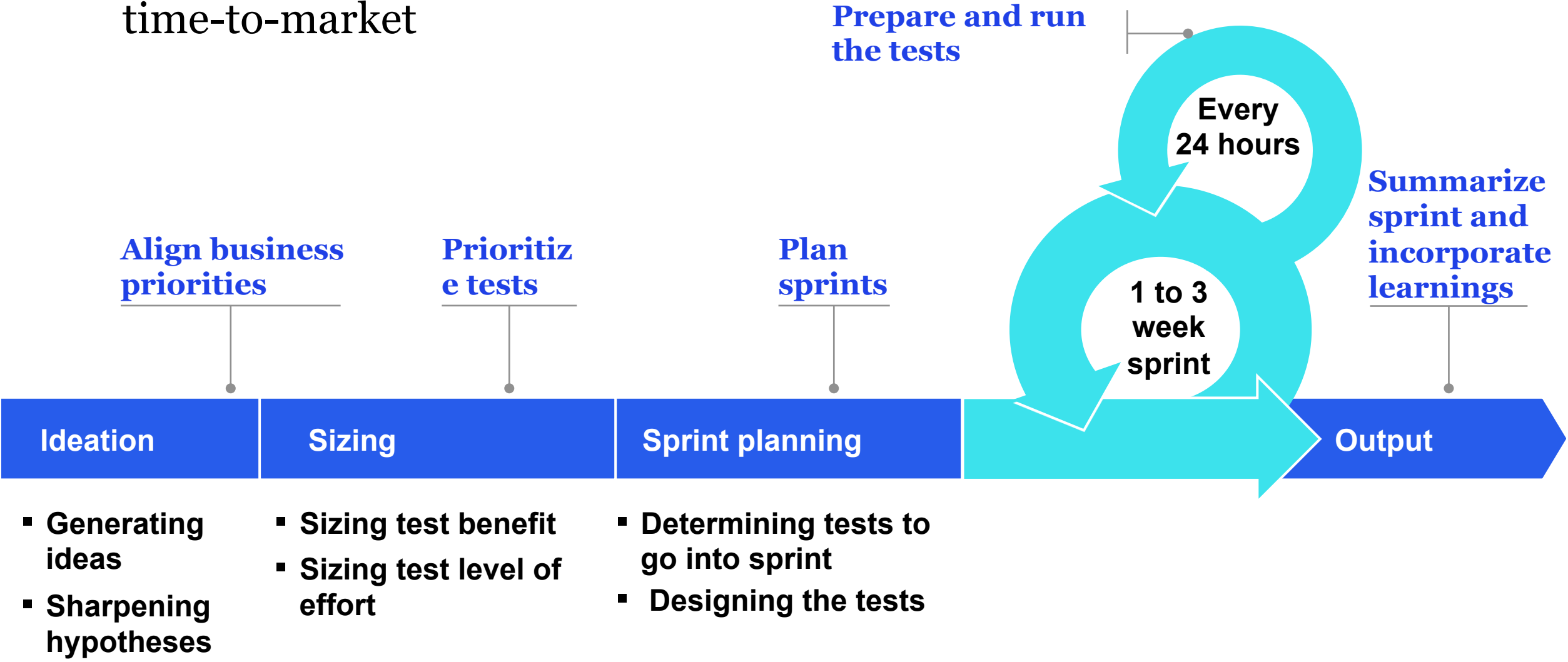

Each category in the Category Accelerator is assigned a pod

Visual management and tracking

3A ...using the 5-step Agile operating model to increase protifability and time-to-market

Prepare and run the tests

Every 24 hours

Summarize sprint and incorporate learnings

Align business priorities

Prioritize tests

Plan sprints

1 to 3 week sprint

Ideation	Sizing	Sprint planning	Output

- **Generating ideas**
- **Sharpening hypotheses**

- **Sizing test benefit**
- **Sizing test level of effort**

- **Determining tests to go into sprint**
- **Designing the tests**

3A Applying MVP and test and learn process allowed a client to dramatically reduce TTM and effectiveness on email marketing campaigns
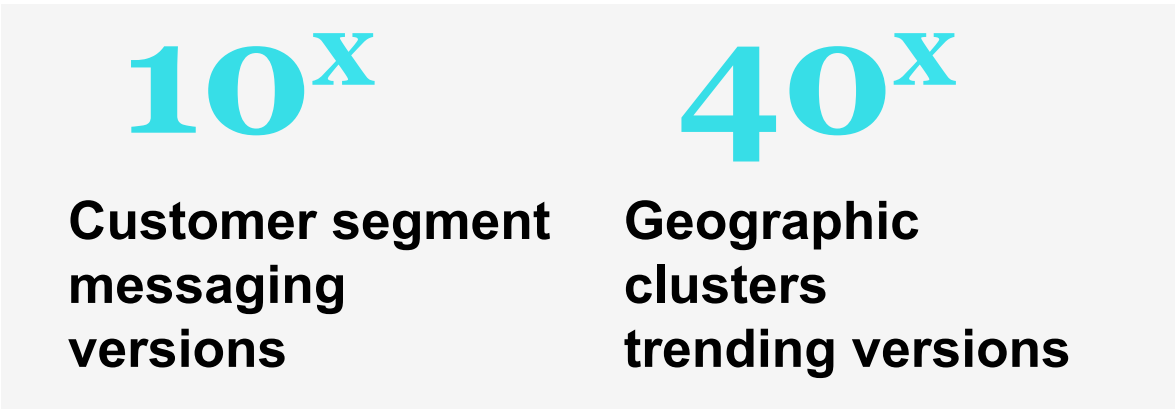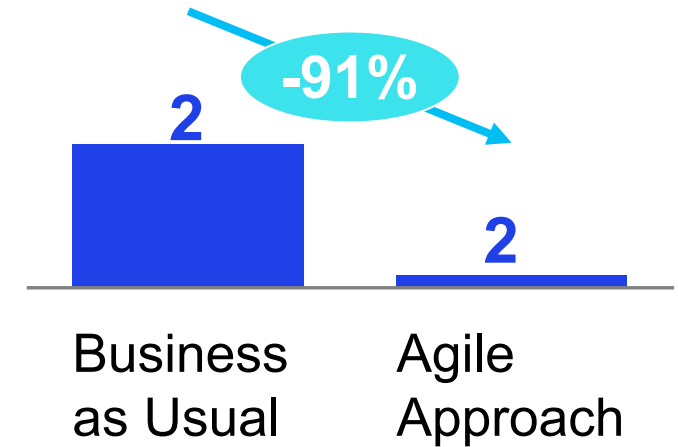
CLIENT EXAMPLE

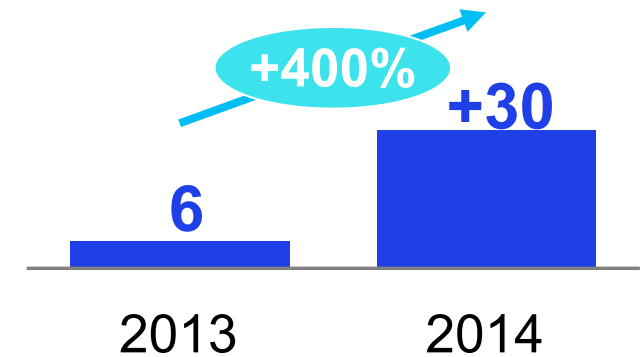## From 1 email to thousands of targeted versions....

...with accelerated cycle times & test cadence

4^X

Customer lifecycle offer versions

100^X

Product category merchandise versions

10^X

Customer segment messaging versions

40^X

Geographic clusters trending versions

Marketing cycle times
E2E weeks required

-91%

2
Business as Usual

2
Agile Approach

Monthly test cadence
Tests per month

+400%

6
2013

+30
2014

3B In order to ensure effectiveness in performance management it is necessary to establish KPIs to the end-to-end funnel

Marketing cost, €   **Lead Generation**   **Lead Processing**   **Lead Conversion**   **Sales, €**

	Lead Generation	Lead Processing	Lead Conversion
Short term	▪ Total leads ▪ Leads from priority segments	▪ Total number of steps (forms, clicks, etc.) ▪ Average time required for completion of journey	▪ Closing ratio (%) ▪ Total Sales
Medium term	▪ Position in search engines ▪ Social sentiment	▪ Contact center follow up on online needs	▪ Digital marketing return on investment ▪ Cost per sale

Agenda

The Evolution of Marketing

The Rise of Advanced Analytics

Becoming Digital – Transformation along use cases

**Getting there – Starting points for the journey**

You can start by implementing a high-impact use-case while laying the foundations for an Advanced Analytics transformation…

1 Identify a **core business problem** that could have a **clear bottom line impact**

2 Develop the **use case** and business plan designing **data requirements** and sources

3 In parallel, articulate Advanced Analytics **vision** and strategy and…

4 … set-up the **right organizational structure** and **grow/acquire required talent** to deliver scaled-up impact

... which could be operationalized in a 3 phase transformation

INITIAL IDEAS/DISCUSSION STARTER

1. Use-case prioritization and pilot

- List possible **Big Data/ Advanced Analytics use cases**
- Prioritize along **ROI/profit** and ease of implementation
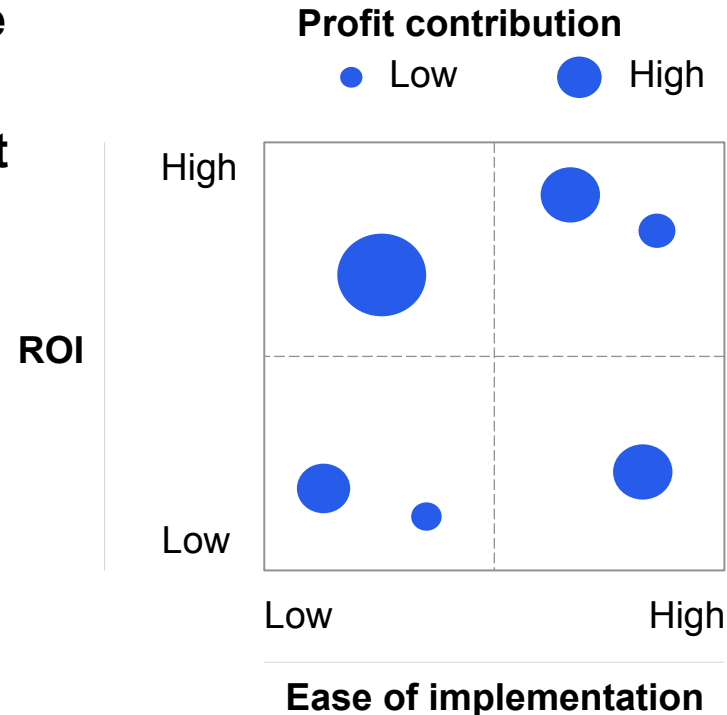
2. Use-case rocket

- Pick **one (or some) specific use cases** and **implement in pilot** setting

Profit contribution

● Low ● High

ROI

High

Low

Low High

Ease of implementation

3. Full scale transformation

- 18-24 months full **analytic** and **commercial transformation**
- Including **1 or 2 use cases** from:
  - Assortment optimization
  - Promotion optimization
  - Price optimization
  - Vendor negotiations
- Possibility to include a workstream to **build / improve foundations:**
  - IT infrastructure
  - Organizational model

Thanks