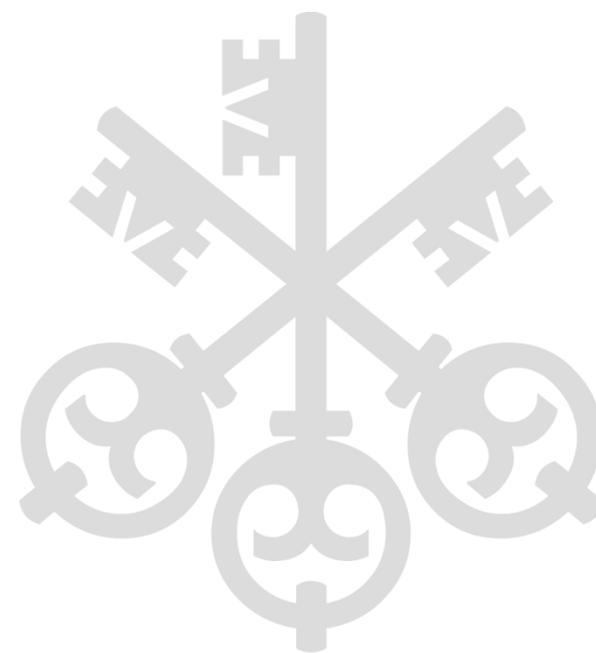# Creating value for clients through Data & Analytics

How we implemented client segmentation and launched a CoE in Data & Analytics

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UBS Switzerland

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Institute for Data Science, FHNW Switzerland

June 14, 2019

A brief history of the future of Artificial Intelligence

" *Machines will be capable, of doing any work that a man can do* – Herbert Simon

▶1980

1960

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▶2023

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2

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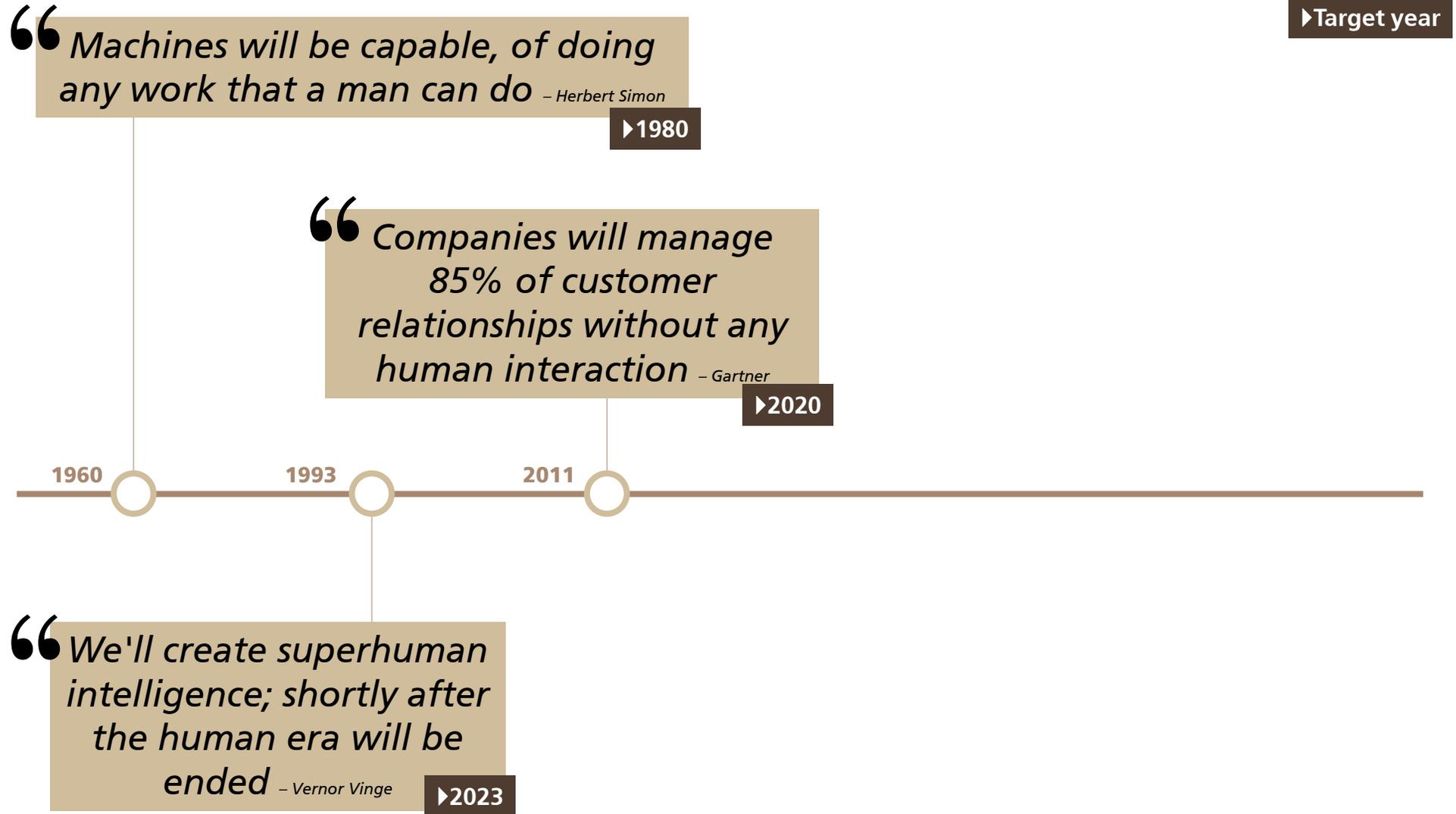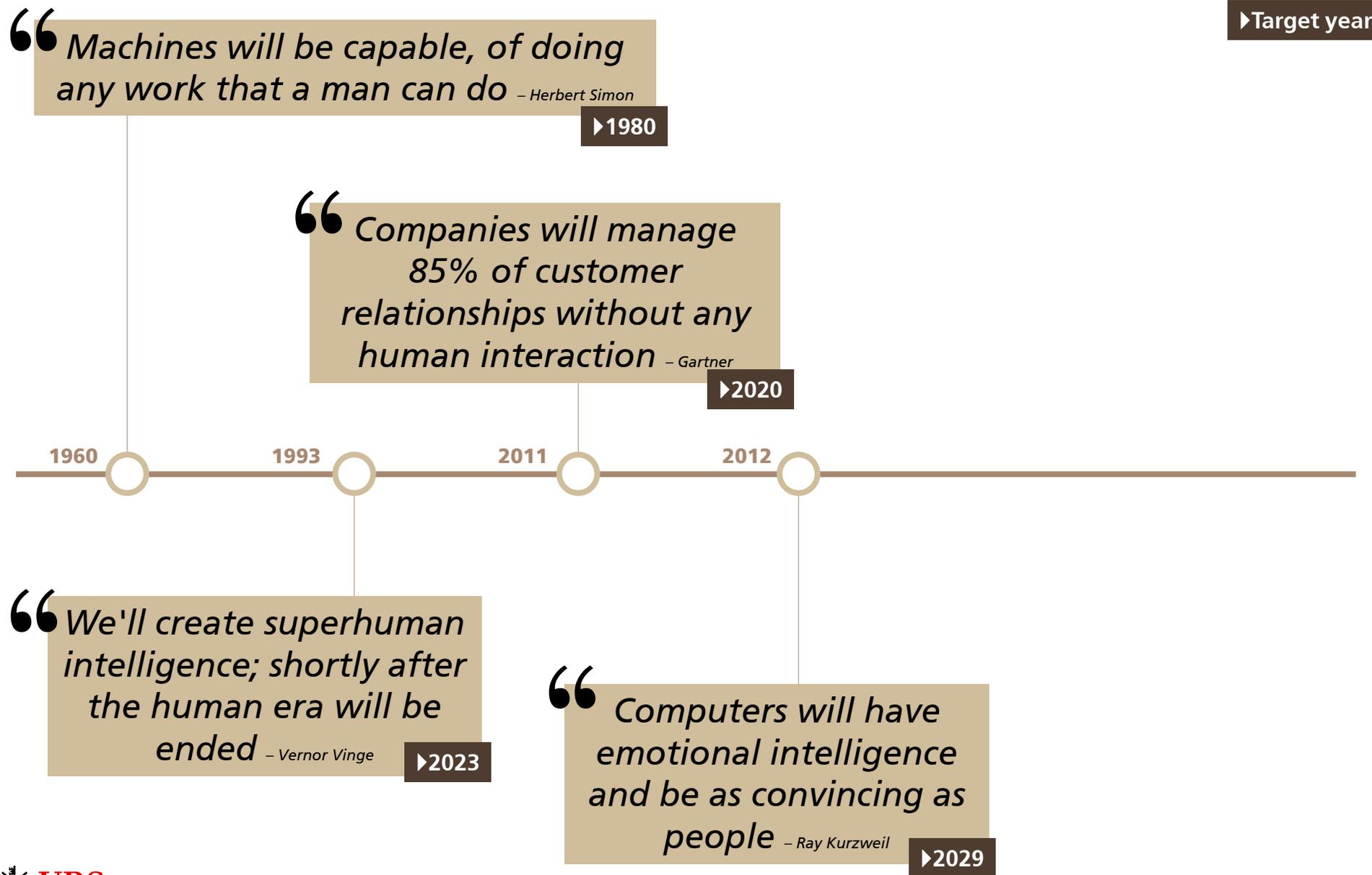
▶2020

1960 1993 2011

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With cognitive computing banks may grow revenues up to 30% – Global Banking & Finance Review

▶2022

▶Target year

1960 ○   1993 ○   2011 ○   2012 ○   2018 ○

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"*AI market will grow almost by a factor of 20* – Tractica
▶2025

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Center of Excellence to bring together D&A professionals, focus our efforts and scale up for business impact
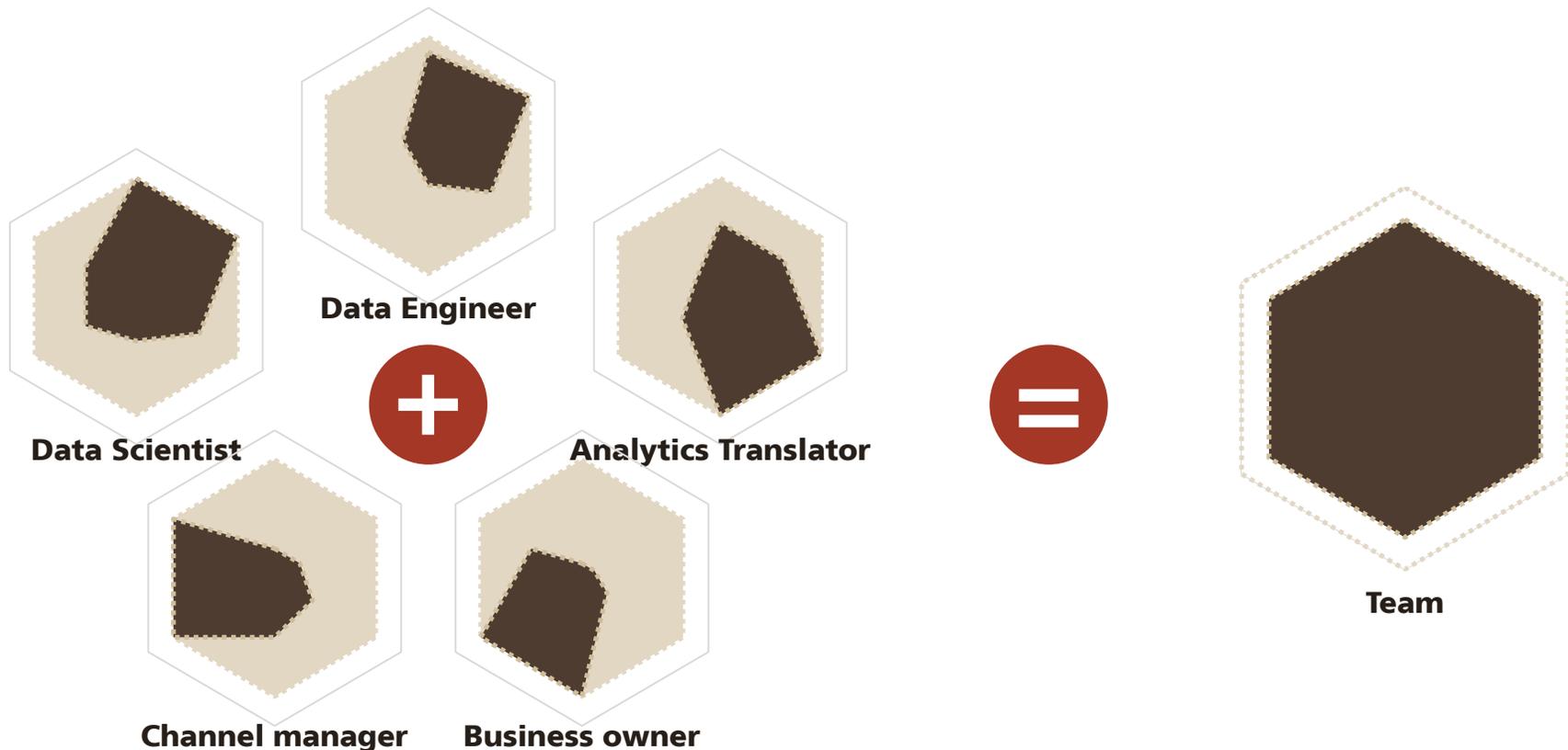

Data: Data provisioning and ingestion, data quality, data governance

People: Community, talent development, best practice sharing, know-how exchange

Analytics Use case execution, capability development

Responsibility Ethics, data protection, trustworthiness

Technology Platform, tools, big data capabilities

Reporting Standard and self-service reporting

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Data & Analytics Center of Excellence

✤ UBS

Analytics at scale
Establish dedicated roles for scaling up analytics execution

○ **Don't rely on a perfect data scientist** to cover all technical aspects or a **perfect analytics-savvy business owner** to drive a long-term analytics roadmap

○ **Implement dedicated Data & Analytics roles** such as *Analytics Translator* and *Data Engineer* to **balance the load** and **enable sustainable growth** of the team

Data Engineer

Data Scientist

Analytics Translator

Channel manager

Business owner

+ **=**

Team

Analytics at speed
Move from a use case oriented view…

Typical Analytics use cases in the banking industry

Targeted customer acquisition
Support acquisition of new clients

Next best action
Derive optimal next best action or next best offer for each client

Client retention
Identify unmet client needs and pro-actively resolve client issues

Fraud detection
Detect credit card and digital banking fraud

Call agent support
Improve efficiency and servicing of clients through contact center

Personal financial advice
Provide financial advice that is highly relevant to each individual client

Compliance monitoring
Ensure adherence to client and employee policies

Customer service
Optimize to improve client interactions and increase efficiency

Risk management
Data-driven risk management process

Chatbot & virtual assistants
Provide automated digital contact channel for client requests

Customer lifetime value
Optimize lifetime view of clients with focus on client development

Process optimization
Optimize end-to-end processes through process mining and automation

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Analytics at speed
… to vertical use cases built on top of horizontal capabilities

Start building **horizontal capabilities** that will enable multiple use cases

Accelerate execution of **use cases** through re-use of horizontal capabilities

Adopt **test & learn** to confirm use case value or move on quickly

Next Best Action

Personal financial advice

Process optimization

Customer service

Compliance monitoring

Chatbot & virtual assistants

Risk management

DT
Decision Tree Ensembles

Graph
Graph network analysis

DNN
Deep Learning

Anomaly
Anomaly detection

NLP
Natural Language Processing

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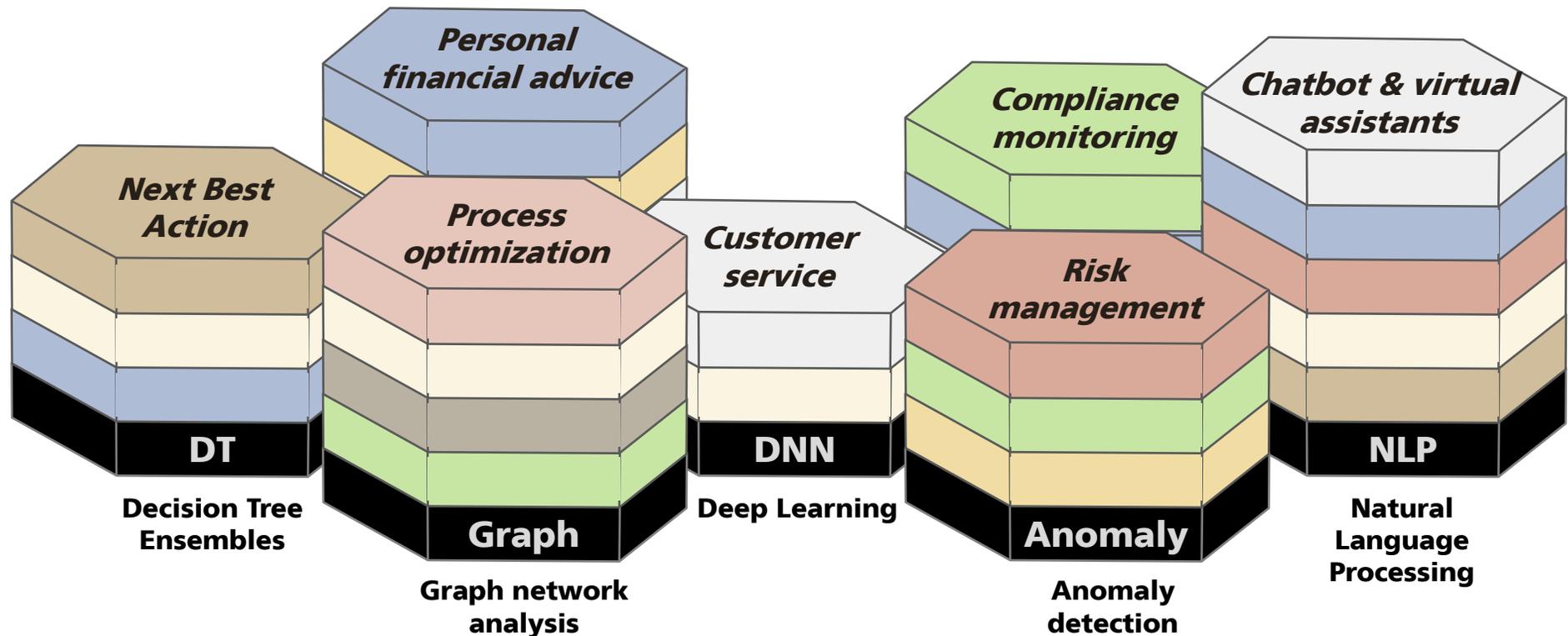
Use case
Offer professional investment advice to the right client

The goal is to understand **clients' investment needs** and offer involvement of an investment specialist

Approach the right clients with investment offering by applying a **predictive model**
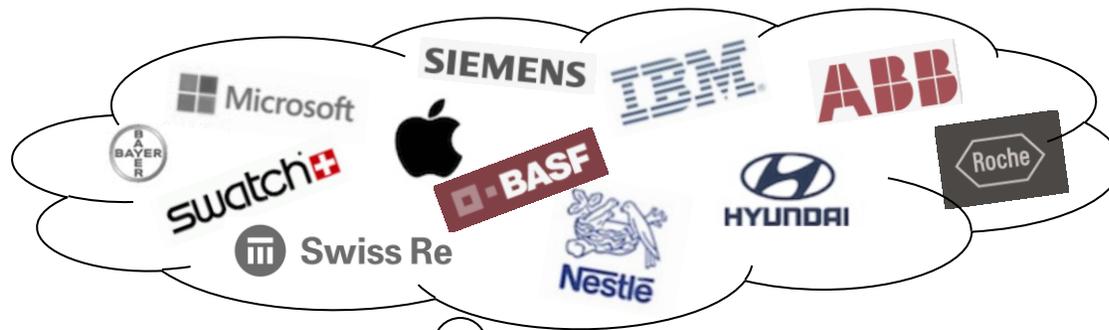
Client

Investment specialist

Predictive modeling
How to properly set up an analytical target

Learn from the past, i.e. learn from clients who successfully received *investment advice*

Collect target clients across several months to **stabilize model** predictions over time

Analyze impact of *investment advice* on development potential and its realization

Refine target selection if needed to target sustainably happy clients

Legend: Client history (grey), Lag (yellow), Event investment specialist advice (blue)

Month history: 12 11 10 9 8 7 6 5 4 3 2 1
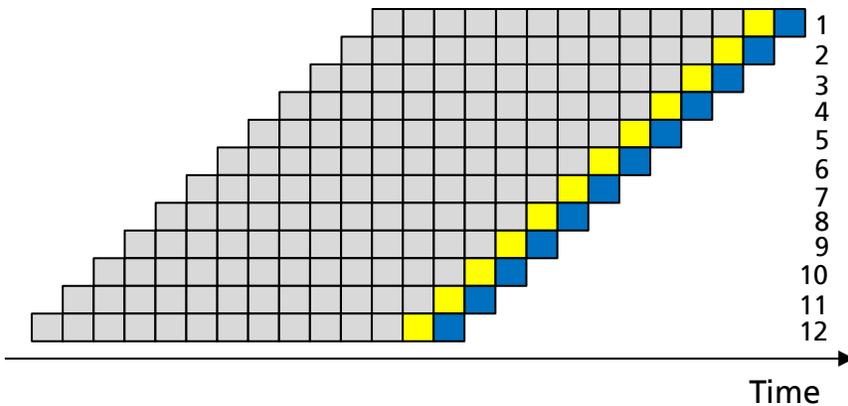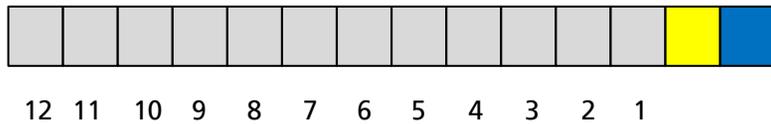
Client development (pre- vs. post event)
Values indexed at median

Investment advice — Upper quartile, Median, Lower quartile

No action — Median

Month: -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12
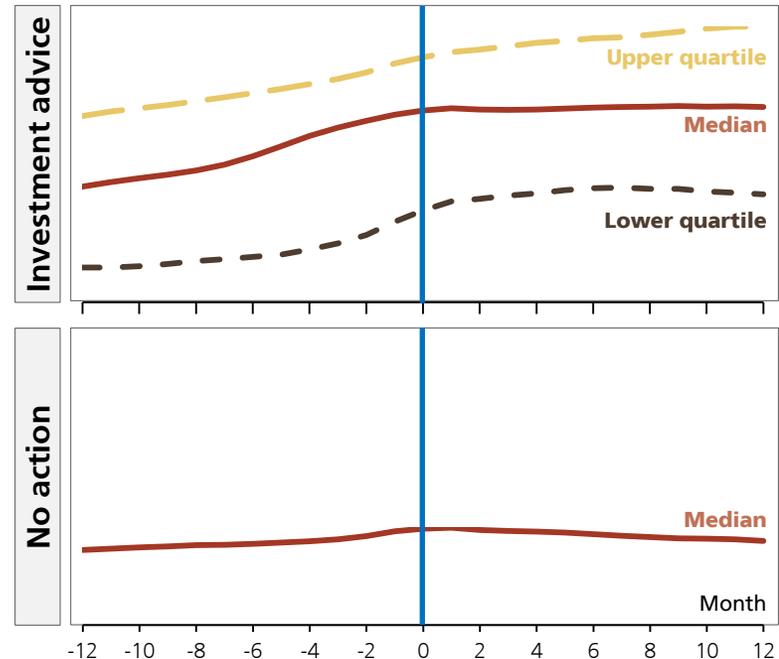
Predictive modeling
How to express client behavior through features

Client behavior is reflected by **temporal characteristics** across multiple financial attributes

A fast and effective way is to **represent time series** by simple **distributional parameters** and **correlation** properties
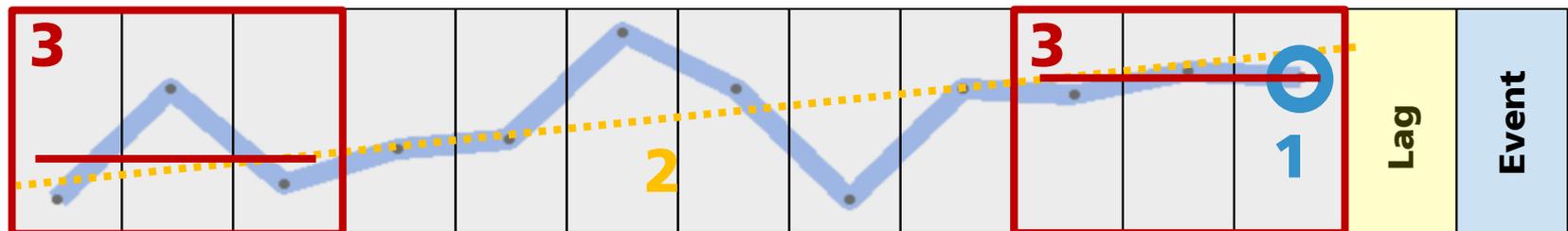
Minimum	**1**	Situation before event	**2**	Linear trend
Maximum		Stand. deviation		Spearman correlation
Median		Median abs. deviation		# positive 1st differences
Mean	**3**	Δ Median 1st vs last 3 months		....

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Predictive modeling
How to measure success

🎯 **Campaign success**
Fewer leads, higher targeting precision and conversion rates

👍 **Client success**:
Buy into investment advice, benefit from contract-based solutions

| **In lab** (independent test set) | **In field** (productive environment) |
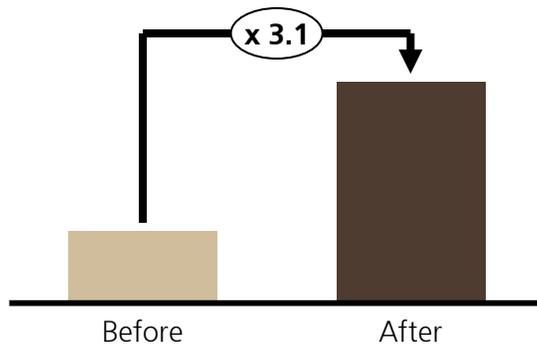
Lead prioritization (In lab): Before → After, -80%
Lead prioritization (In field): Before → After, -80%

Client conversion rate (In lab): Before → After, x 3.1
Client conversion rate (In field): Before → After, x 2.6

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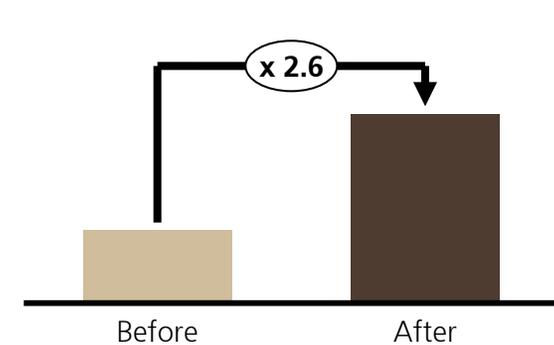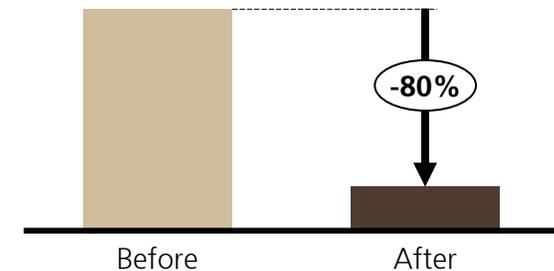
Predictive modeling
How to explain and translate model results

○ Assess the overall **main drivers** of a model
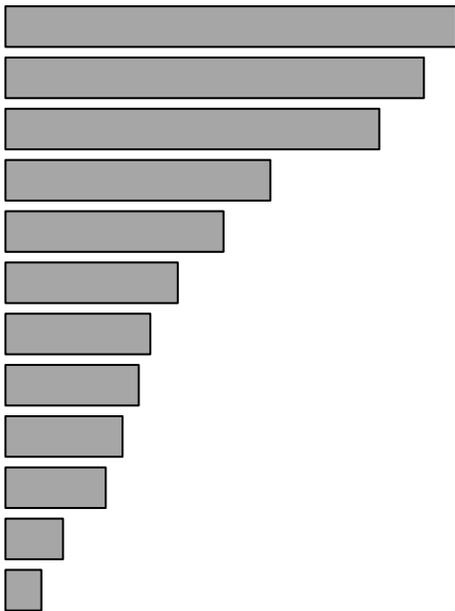
○ Identify **main drivers** on an individual **client** basis

○ Provide **consumer-ready insights**

Variable importance

Aimed at model developers and data scientists
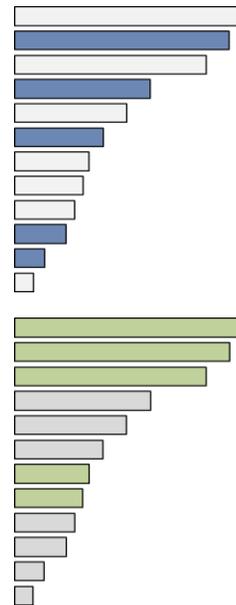
Client A

Client B

Aimed at model developers and data scientists

Client fact sheets

UBS Client A
…
…
…
…

UBS Client B
…
…
…
…

UBS
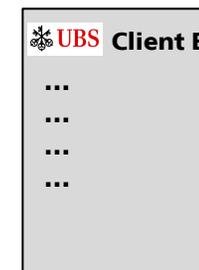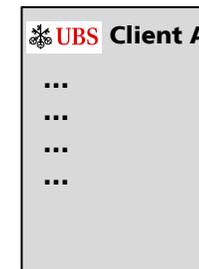
Investment specialist

Aimed at investment specialists

Thank you

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