


SAP Hybris 

Artificial Intelligence and Machine Learning in Digital Marketing

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WeLoveDigital

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**Facebook + approx.
3 Million 3rd party websites**
offer the possibility to press this button

1'250'000'000 Users per day

3'000'000'000 "Likes" per day

10

Likes create a **CUSTOMER PROFILE** equivalent to all historic data out of core insurance and CRM systems



≥



After 70 Likes **FACEBOOK KNOWS YOU** as good as your friends or working colleagues



≥



After 300

Likes Facebook is the
CLOSEST FRIEND
you will ever get



\geq



Customer access is getting monopolized and more expensive



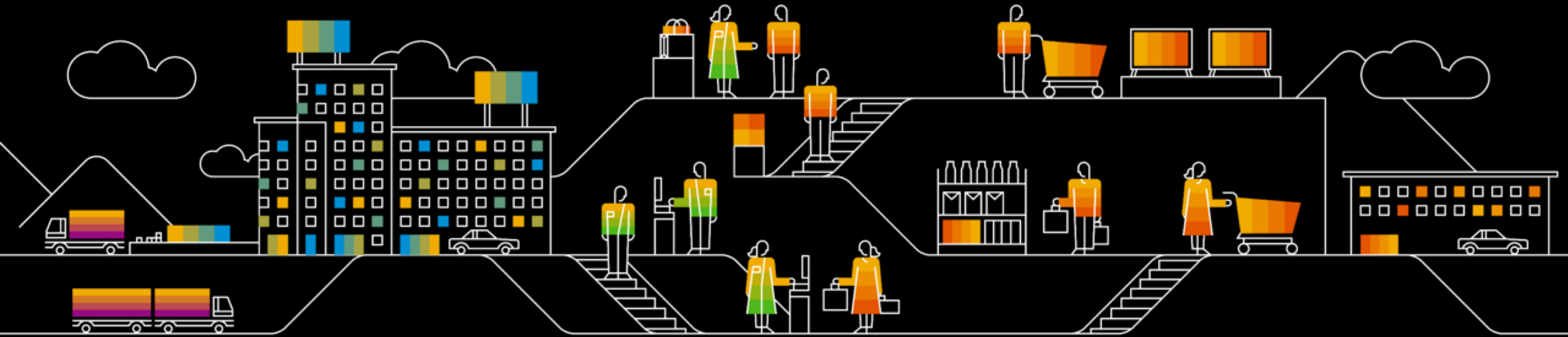
Use the **Force** the **right** way



**The Dark Side of Marketing
(DMPs)**



**SAP Hybris Identity & Consent
Management**



Emerging Systems of Intelligence

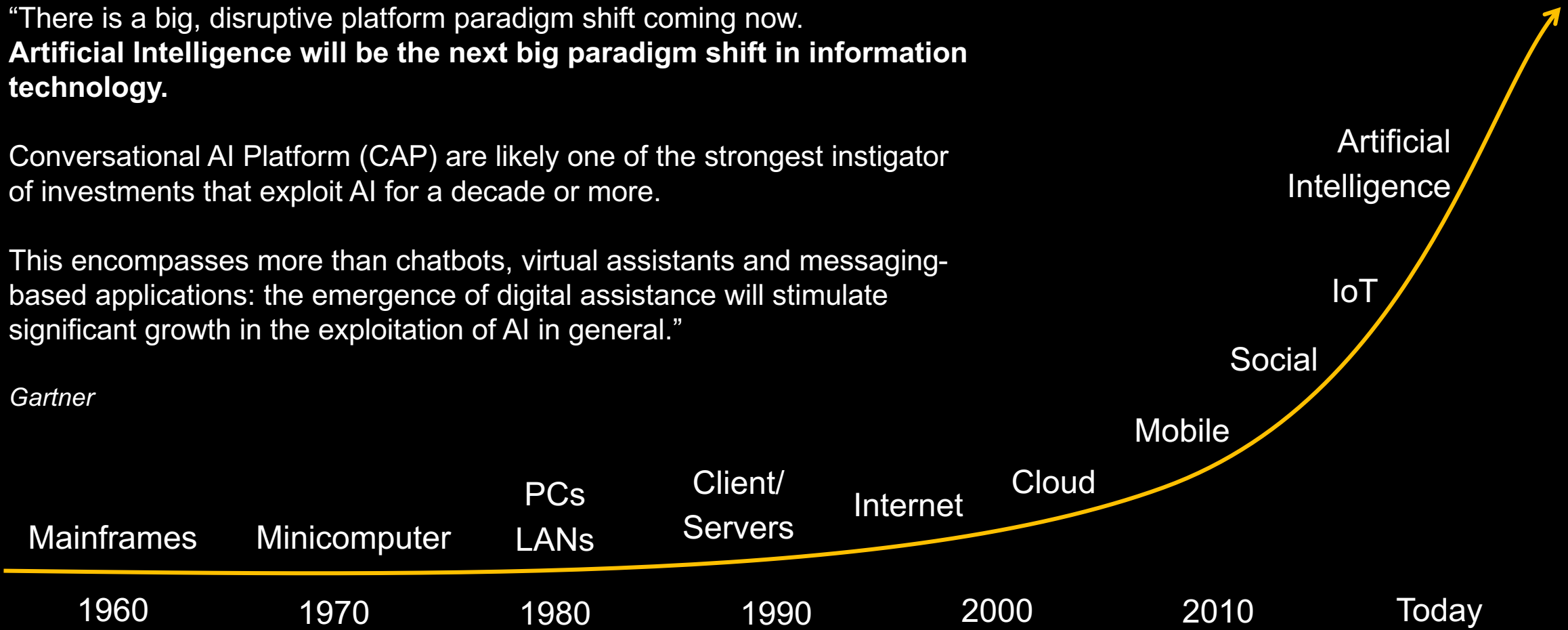
The Next Paradigm Shift in Technology

“There is a big, disruptive platform paradigm shift coming now.
Artificial Intelligence will be the next big paradigm shift in information technology.”

Conversational AI Platform (CAP) are likely one of the strongest instigator of investments that exploit AI for a decade or more.

This encompasses more than chatbots, virtual assistants and messaging-based applications: the emergence of digital assistance will stimulate significant growth in the exploitation of AI in general.”

Gartner



Rise of the machines

Implemented or plan
to implement

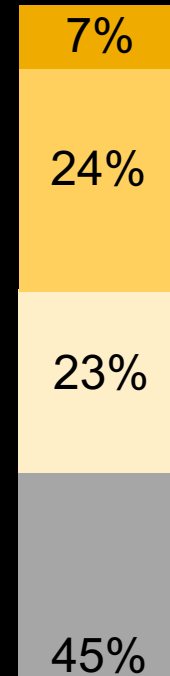
■ Have implemented

■ Will implement in
the next 12 months

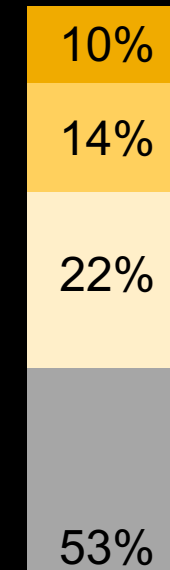
■ Will implement in
the next three
years

■ No current plans

55%



47%



Machine learning

Chatbots and virtual
customer assistants

Source: Gartner Survey Analysis: Customer
Experience Innovation 2017 — AI Now on the CX Map

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Market trends – Digital transformation

Emerging systems of intelligence



Artificial intelligence and machine learning, IoT, insights

By 2018, **75%** of enterprise and ISV development will include AI or ML. – IDC



Embedded machine learning, analytics providing built-in guidance

By 2019, **APIs** will be the primary mechanism to connect data, algorithms, and decision services. – IDC

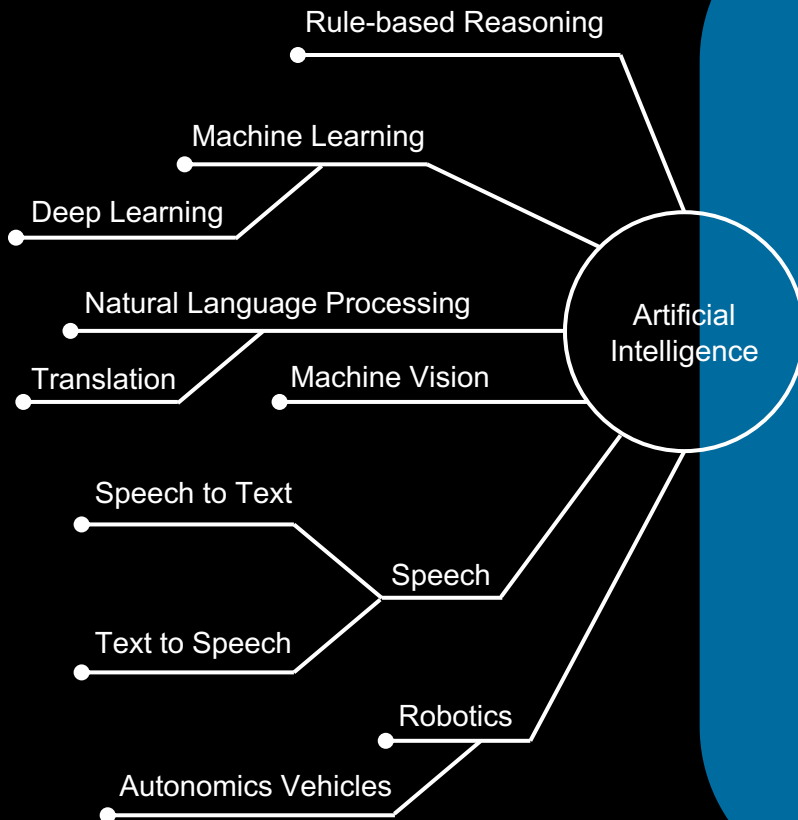


Conversational applications: the new user experience

By 2019, **natural-language generation** will be a standard feature of **90%** of modern BI platforms. – Gartner

Definitions: AI, ML and DL

AI areas of research



Artificial Intelligence (AI)

- Intelligence exhibited by machines
- Broadly defined to include any simulation of human intelligence
- Expanding and branching areas of research, development and investment
- Includes robotics, rule-based reasoning, natural language processing (NLP), knowledge representation techniques (knowledge graphs), ...

Machine Learning (ML)

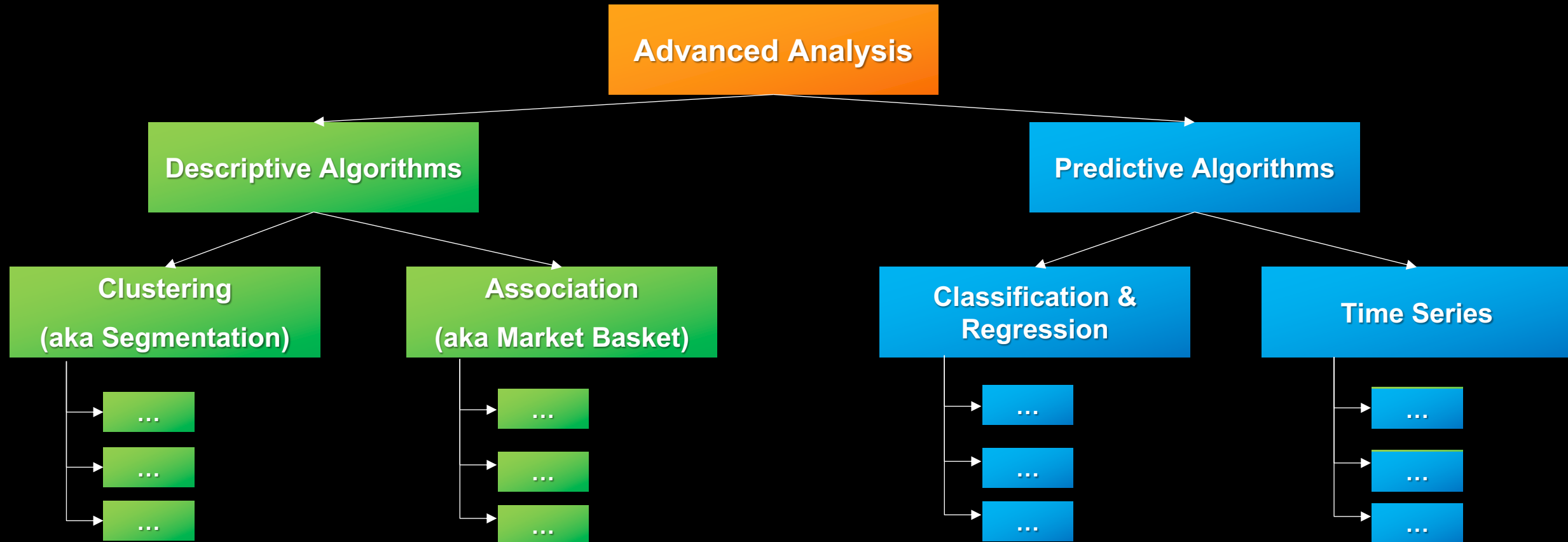
- A subfield of AI which aims to teach computers the ability to do tasks with data, without explicit programming
- Uses numerical and statistical approaches, including artificial neural network techniques to encode learning
- Models are built using “training” computation runs, can also train through usage

Deep Learning (DL)

- A subfield of ML that uses specialized computational techniques, typically multi-layer (2+) artificial neural networks
- Layering allows cascaded learning and abstraction levels (e.g. line recognition -> shape -> object -> scene)
- Computationally intensive enabled by clouds, GPUs, and increasingly more specialized HW such as FPGA and new custom hardware

The Basics

You need to know what the algorithms are for...and it helps to know how they work



Machine learning is the reality behind artificial intelligence

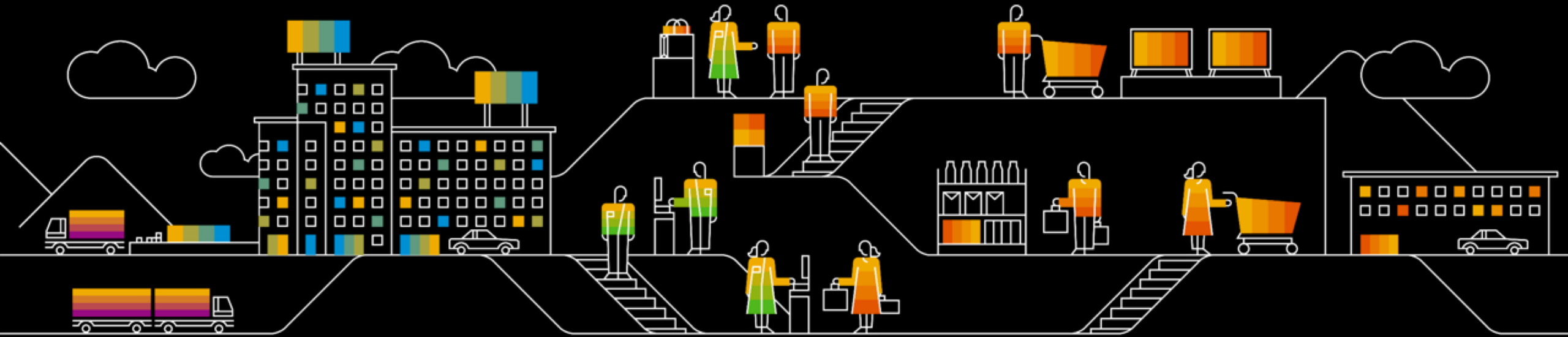
What is machine learning?

- Computers **learn from data** without being explicitly programmed.
- Machines can see, read, listen, understand, and interact.



Why now?

- **Big Data as fuel** (for example in SAP Hybris, the Internet of Things, Business Networks and SAP S/4HANA)
- Massive **improvements in hardware** (graphics processing unit [GPU] and multicore)
- Deep learning algorithms



Artificial Intelligence and Machine Learning in SAP Hybris Vision

SAP's vision for enterprise machine learning

SAP Leonardo Machine Learning

Create your own intelligent infrastructure

Automate Knowledge Work



- Transformational **HR** services



- Lights out **finance** operations



- Self-driving customer **service**
- Conversational **sales** bots
- Customer **retention** insights

Do the Impossible



- Image-based Ariba **commerce**
- Contextual Concur **travel** concierge



- Video-aware **marketing**
- Visual **store execution**



- Drone and satellite-based **asset management**



- Vision-enabled **manufacturing**
- Contextual **logistics**

SAP Cloud Platform and SAP HANA

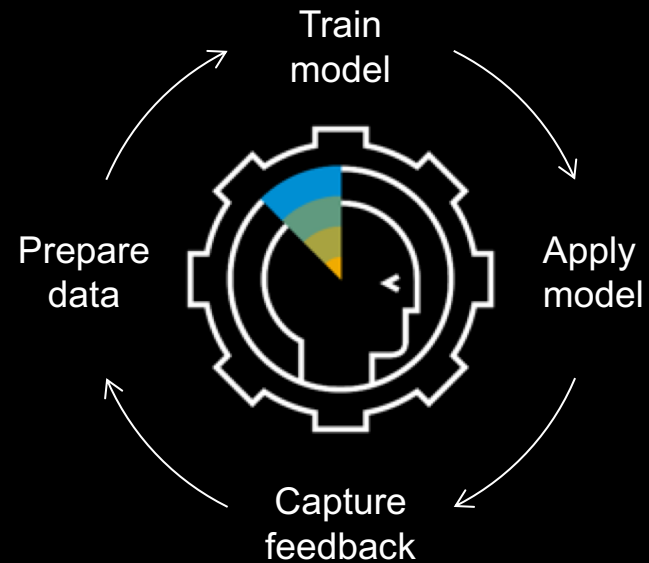
How enterprise data is transformed into business value

From data to insights

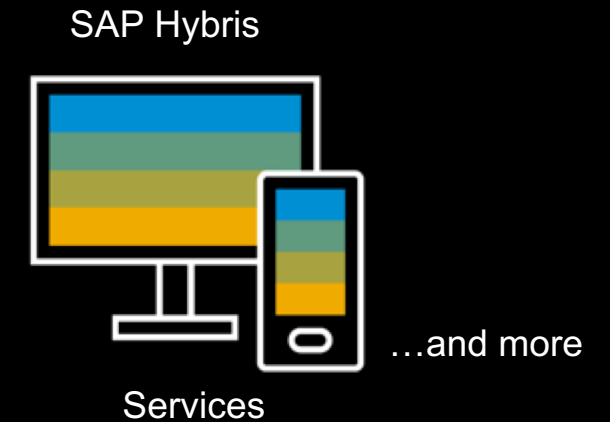
Input



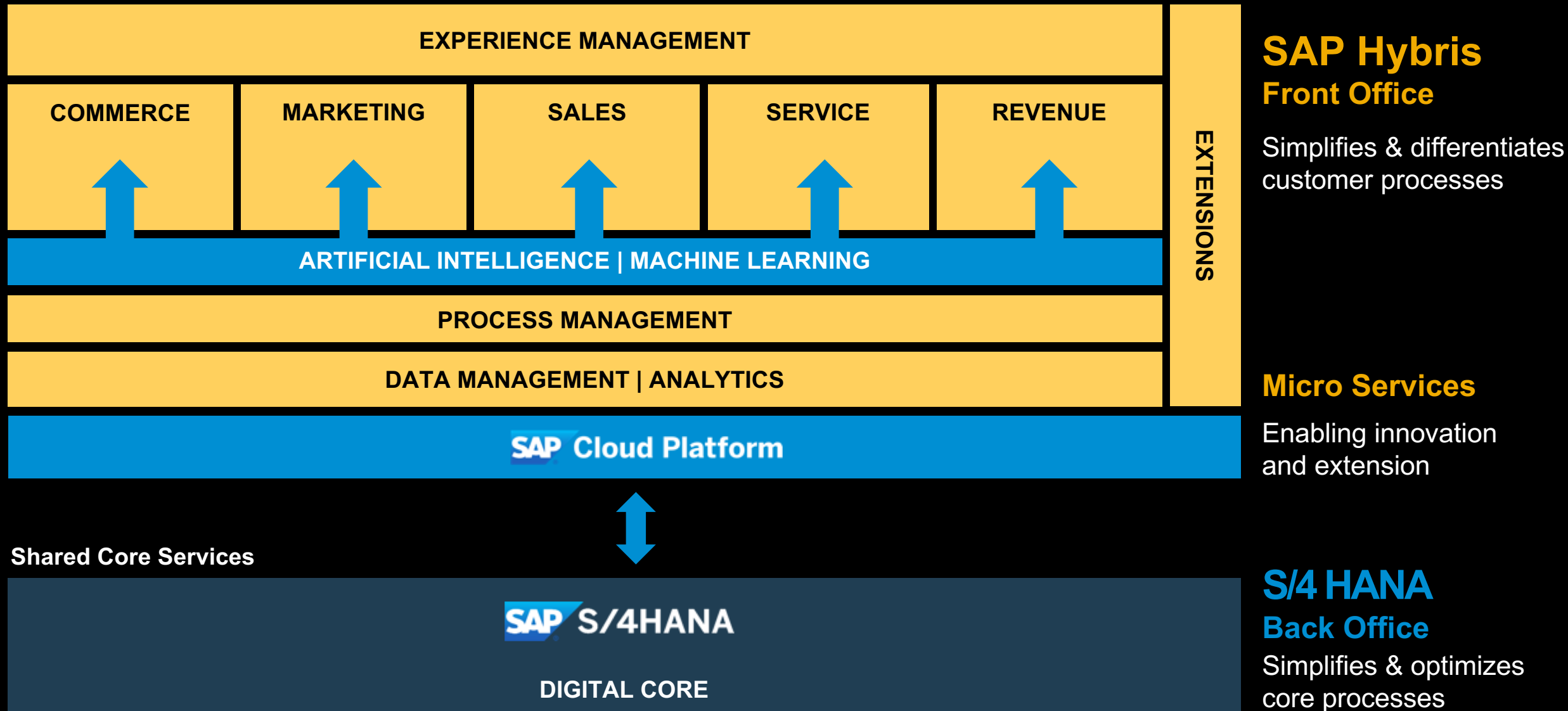
Machine learning



Output



Augmenting SAP Hybris (v) with Machine Learning Scenarios



SAP Hybris Machine Learning powered by SAP Leonardo

Leverage a platform with a wealth of options

End-User

Conversational Interfaces (e.g. SAP CoPilot)

Conversational Bots and Virtual Assistants (CX, UX)

Intelligent Scenarios & Apps

Best Products / Offers
Customer Attribution

Sentiment Analysis
Service Ticket Intelligence

Best Audience / Sending Time
Lead & Deal Intelligence

...

SAP Brand Impact
...

Integration of ML into existing applications

Standalone ML applications

Developer

Intelligent Services

Text/ Document Services
(e.g. Sentiment Analysis)

Image/Video Services
(e.g. Image Classification)

Speech/ Audio Services
(e.g. Voice Recognition)

Predictive Services
(e.g. Forecasting)

Conversational Services
(e.g. Intent Classification)

Structured Data Services
(e.g. Time Series Analysis)

Graph Services
(e.g. Link Recommender service)

Business Services
(e.g. Service Ticket Intelligence)

Data Science Platform & Tools

Chatbot-BUILDER

End to End Automation

ML Modelling & Model Storage

Data Exploration

In-Application Deployment

Production readiness

Data Integration & Preparation

Lifecycle Management

TensorFlow Integration

Data Scientist

SAP Leonardo Machine Learning Foundation on SAP Cloud Platform / SAP HANA Platform

What customers are saying

“Businesses thrive on data. With SAP Leonardo Machine Learning, BASF is able to derive learnings from our rich datasets, and to drive business process improvements that directly benefit our customers.”

Wiebe van der Horst, Chief Information Officer, BASF Group



“SAP is a trusted innovation partner for us. With SAP Leonardo Machine Learning, we are excited about the possibilities to broadly apply this exciting technology across our business.”

Michael Crowe, Chief Information Officer, Colgate-Palmolive

“Audi’s sponsorship team found the SAP Brand Impact solution a very useful tool. It can help Audi to evaluate its sponsorship exposure at high levels of operational excellence and transparency.”

Thomas Glas, Global Head of Audi Sports Marketing

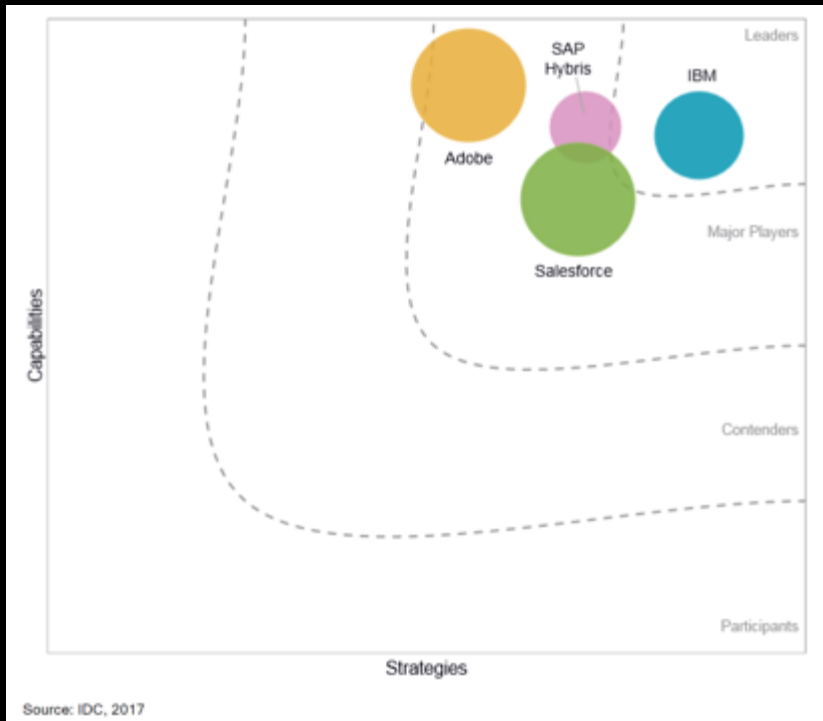


“We are impressed by the solution’s capabilities, precision and speed and see it as a great potential tool for our sales efforts, adding data and numbers to media exposure previously deemed unmeasurable.”

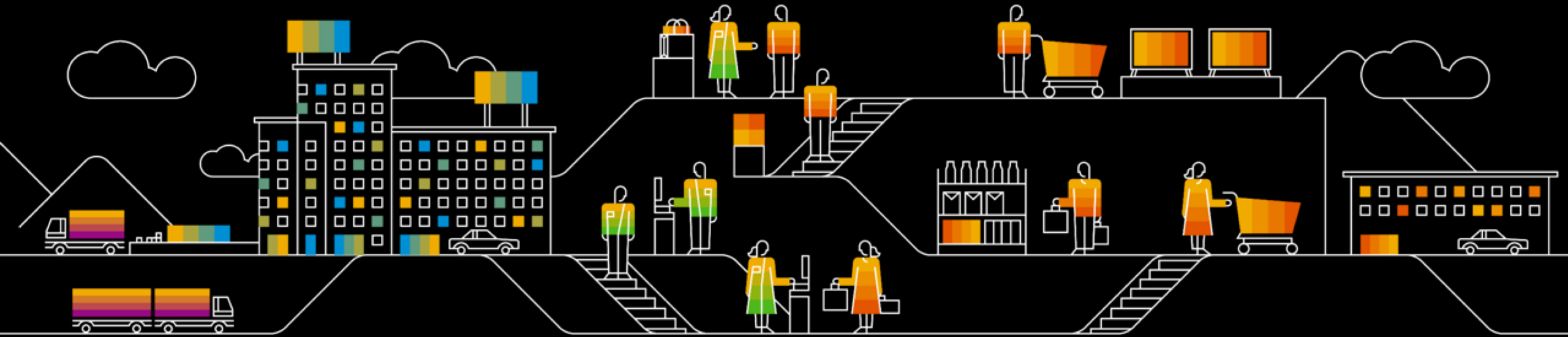
Source: [SAP press article](#)

Yaron Talpaz, Chief Marketing Officer, Maccabi Tel Aviv Basketball Club

SAP Hybris named as a Major Player in the IDC MarketScape



- This IDC MarketScape evaluated key customer engagement vendors with machine learning and artificial intelligence capabilities.
- SAP Hybris is positioned as a Major Player in this IDC MarketScape on AI in enterprise marketing clouds. SAP Hybris offers a full suite of customer-facing solutions including marketing, sales, commerce, revenue, and service. It has more than 3,000 customers across many regions and industries with a fairly even mix of B2C, B2B, and B2B2C use cases.
- SAP Hybris was early into the open API and microservices models that are critical to the underlying orchestration work needed to manage customer experience holistically across these functional systems. Therefore the report states that SAP Hybris Marketing Cloud solutions "give customers great opportunity to work with AI and ML across many use cases and levels of complexity."
- Curious? Please download a complimentary excerpt of the report: <https://www.hybris.com/de/gmc61-idc-report-ai-marketing>



AI / ML Scenarios in SAP Hybris Marketing Cloud

SAP Hybris Marketing Cloud

AI/ML Scenarios

AVAILABLE



Channel Affinity



Best Sending Time



Buying Propensity



Product / Offer Recommendations



Sentiment Analysis

IN PROGRESS



Lead Scoring



Customer Retention



Campaign Portfolio Optimization

POCs & PLANNED



Brand Impact POC



Facial Analysis POC



Augmented Shopping POC



Conversational AI



Data Driven Segmentation



Marketing Mix Optimization

Out-of-the-Box Solutions: Intelligent Scores

For responding to customer preferences

Availability: Today

Score	Framework
Consumer Buying Propensity	APL
Channel Affinity, for example Email Affinity, Push Notification Affinity	SAP Hana Rules Framework
Engagement Score	SQL Script-based
Interest Affinity	SAP Hana Rules Framework
Best Email Sending Time	SAP Hana Rules Framework
Best Push Notification Sending Time	SAP Hana Rules Framework
Lead Score	SAP Hana Rules Framework

What is it?

Predefined out-of-the-box scores included in SAP Hybris Marketing for selecting the best channel and best sending time for the customers with the highest buying propensity.

Business Problem

- Difficult to understand customer preferences
- Low conversion rates if customers are addressed with irrelevant offers via the wrong channels
- Low marketing ROI due to budget wasted on ineffective campaigns

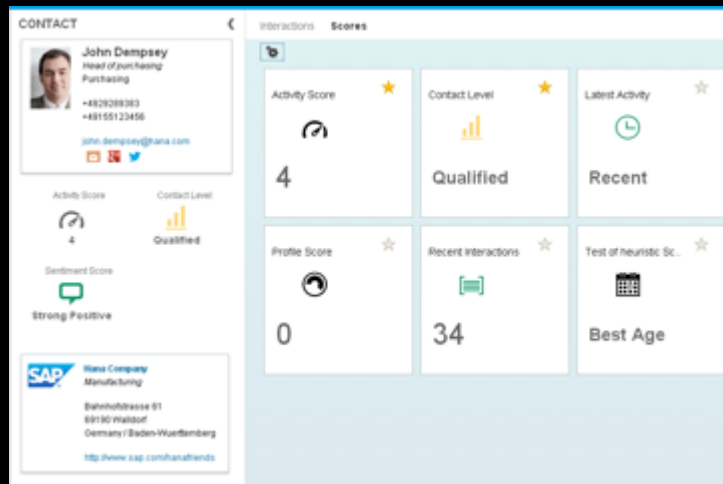
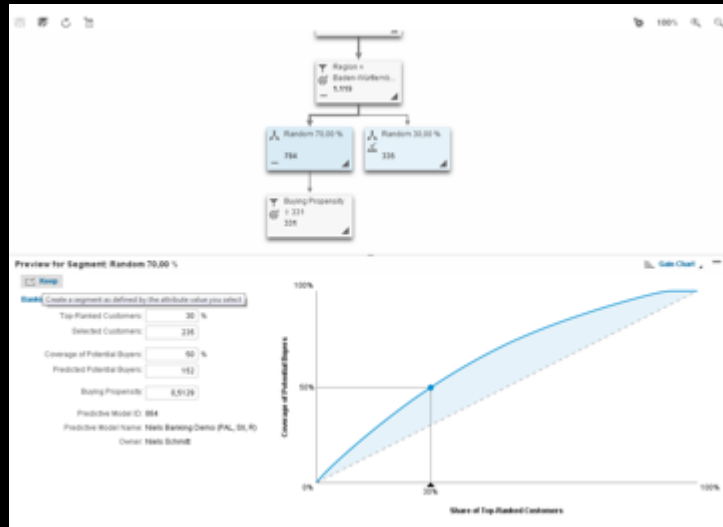
Key benefits

- Out-of-the-box scores providing insights into customer preferences
- Higher campaign efficiency due to better customer targeting

Score Builder & Predictive Studio

For creating custom scores

Availability: Today



What is it?

Flexible definition of custom scores based on simple rules or predictive binary classification models

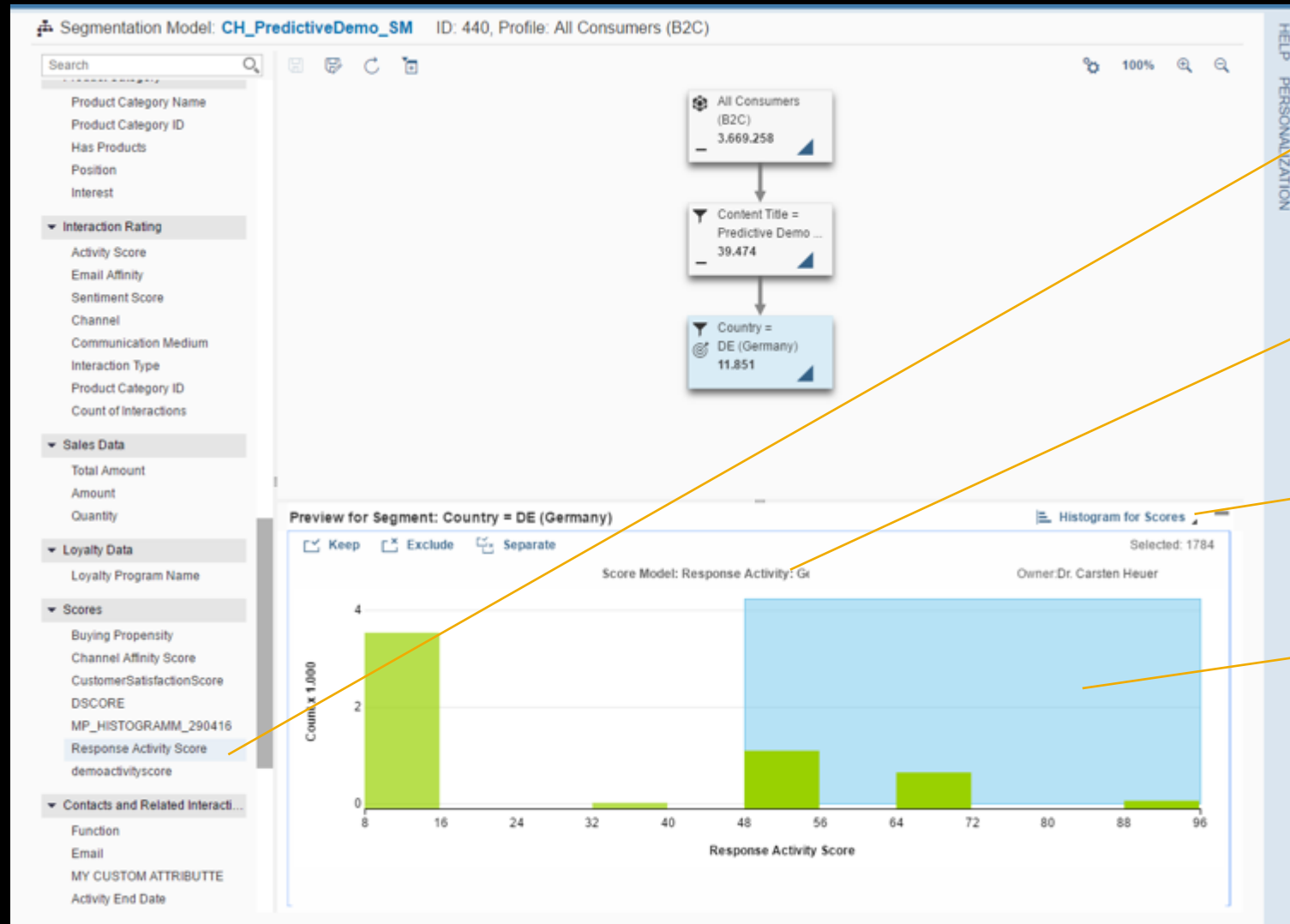
Business Problem

- Need for custom predictive scores most relevant to the business to enable insight-based marketing
- Lack or limitation of in-house data science experts
- Generation of predictive insights often outside of the application and business process context and thus unavailable to marketing experts or poorly integrated into marketing processes

Key benefits

- Flexible definition of custom binary classification scores
- High speed performance on big data & calculation of scores on the fly
- Optimization of business processes via integration of scores in various places: Segmentation, Contact Factsheet, Contact/Sentiment Engagement, ...
- Support for importing externally generated scores (Available: 1802)

Intelligent Scores - Consumption of Scores in Segmentation



Score appears in the defined attribute group. When both segment and score are selected the scores are calculated and the distribution of the score values is shown as histogram in the preview area.

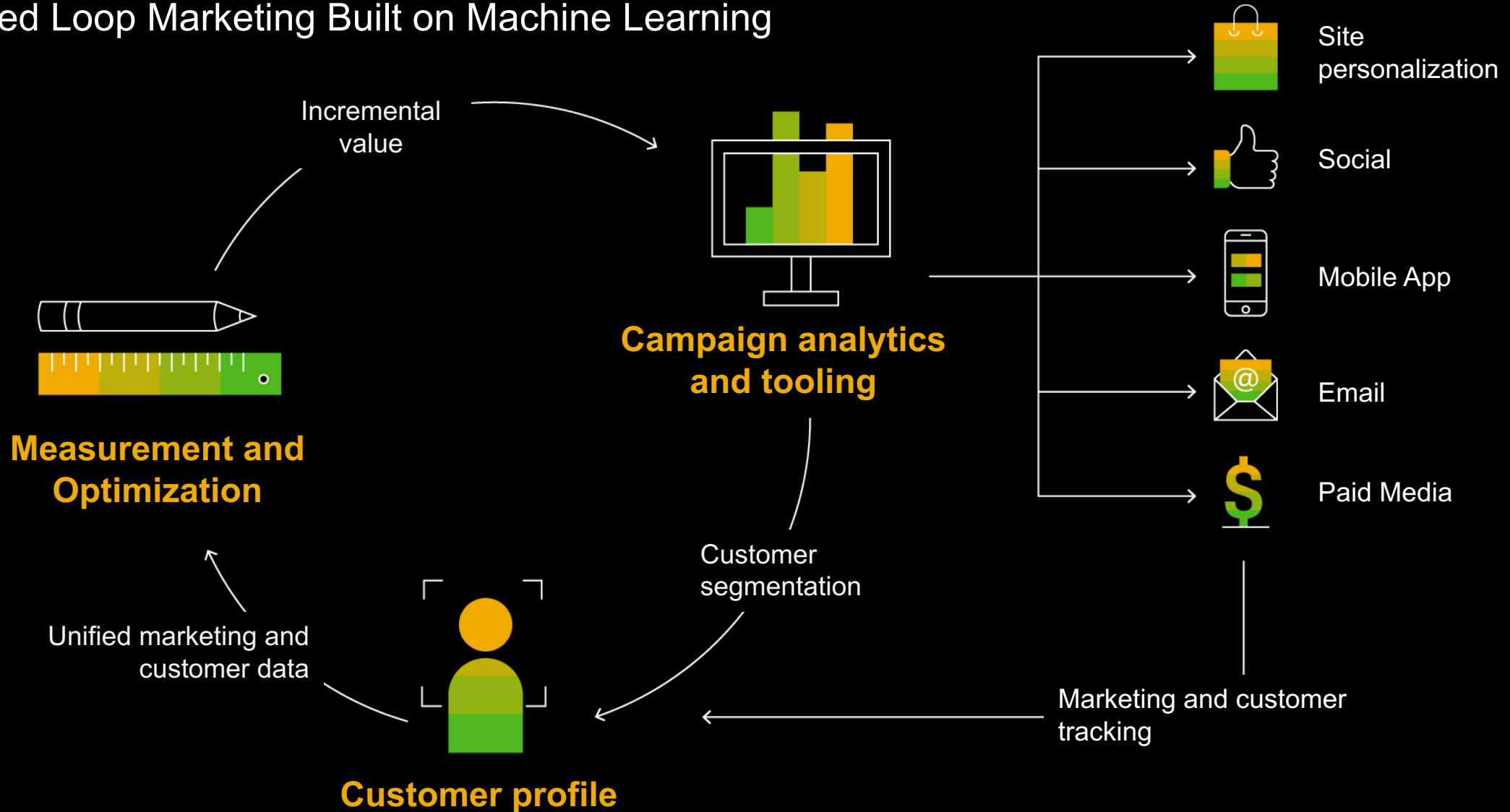
Score name and owner is shown. If the score is persisted the date and time of score calculation is displayed as well. Otherwise the score is calculated in real time; in this case no data/time information is given.

Histogram shows the distribution of score values for the selected segment.

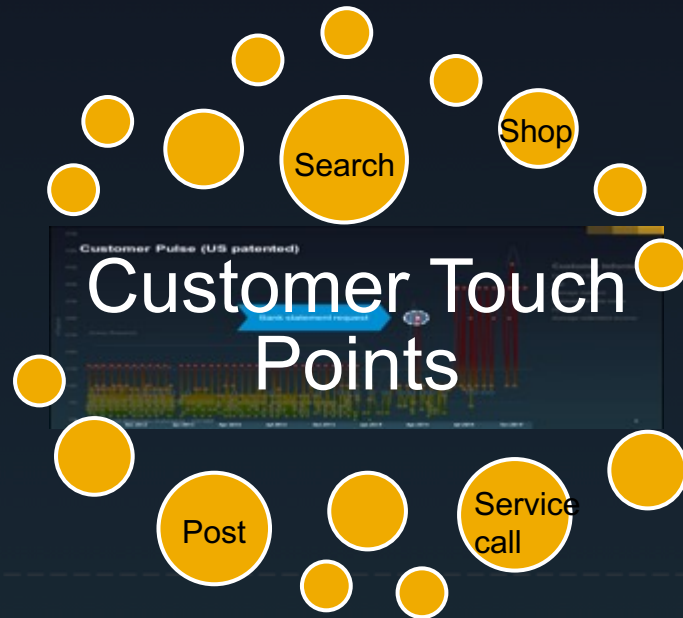
Marked Area which selects the share of top scoring members of the segment. Press Keep-button, if these should become the next sub-segment.

SAP Hybris Customer Attribution

Closed Loop Marketing Built on Machine Learning



Understand Customer Behavior by Tracking the Customer Pulse



Customer Information

Customer ID
Age
Average balance
Behavioural Risk Index
Products
Average estimated income

Collect Customer Data

Define the customer Pulse

Understand Customer Behavior by Tracking the Customer Pulse



Customer Behavior Apps

Lead Scoring

Product Buying Propensity

Customer Retention

Customer Information

Customer ID

Age

Average balance

Behavioural Risk Index

Products

Average estimated income

Collect Customer Data

Respond to the Customer Pulse

Lead Scoring

For focusing on the most promising leads



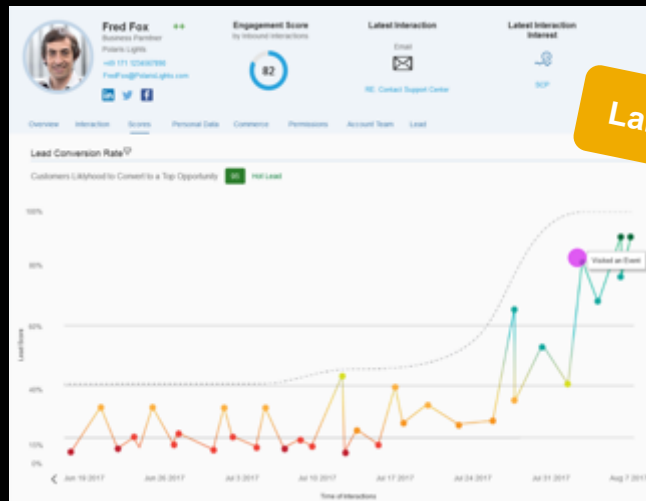
Lab Preview

What is it?

Lead scoring helps sales and marketing teams to focus on those leads which show the highest propensity to convert and become customers

Business Problem

- The majority of all B2B generated leads are not sales ready
- Lead nurturing is a very time, cost and resource intensive process
- High volume of low-propensity leads means wasted effort on sales teams



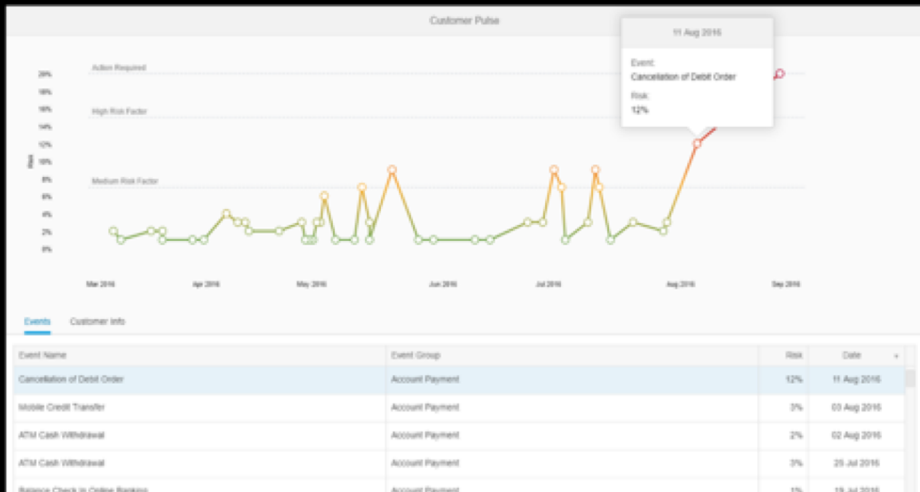
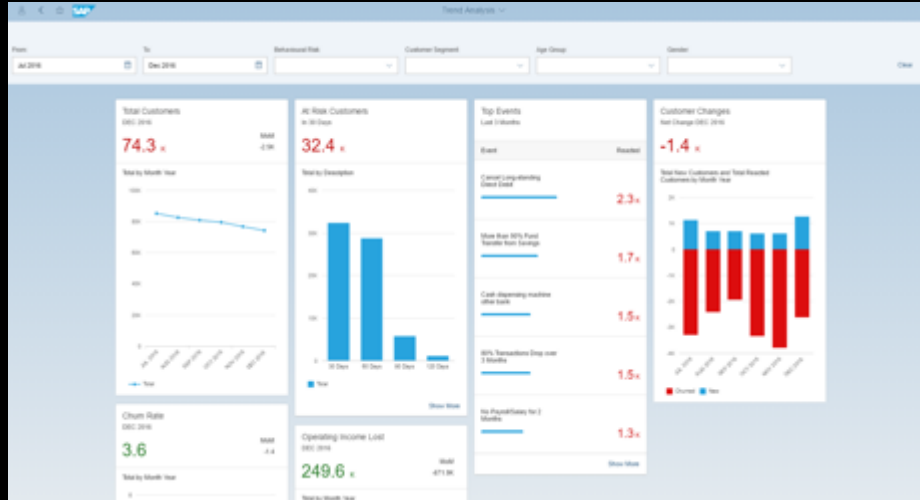
Lab Preview

Key benefits

- Better prioritization of leads with highest propensity to convert
- Cleaner pipeline with predictable forecasting
- Insights into events influencing lead conversion

Customer Retention

For preventing customer churn



What is it?

The customer retention solution helps sales and marketing teams to focus on the customer-at-risk and the key factors influencing customer churn

Business Problem

- Churning customers represent huge losses in revenue, cross and upsell opportunities as well as negative PR and influence on potential new customers
- Very effort and costs intensive to win back churned customers
- Challenge to identify customers' intent to churn early enough, so that churn still can be prevented

Key benefits

- Detects customers-at-risk at an early stage
- Automatically identifies the key events influencing customer churn
- Supports timely churn prevention by addressing root causes

Campaign Portfolio Optimization

For maximizing profitability and marketing ROI



Right customer, right channel, right offer and maximized profit =
large scale linear optimization problem

What is it?

The campaign portfolio optimization solution helps sales and marketing teams to maximize profitability and marketing ROI by optimizing the campaign portfolio considering business constraints such as channel capacities

Business Problem

- Difficult to maximize profitability and marketing ROI due to the large number of influencing parameters
- Campaign portfolio optimization often based on “trial and error” and simple raking of campaigns

Key benefits

- Helps to identify the optimal campaign portfolio based on buying propensity, channel affinity, channel capacity, channel costs, product revenue, products costs, etc.
- Allows what-if analysis

Facial Recognition POC

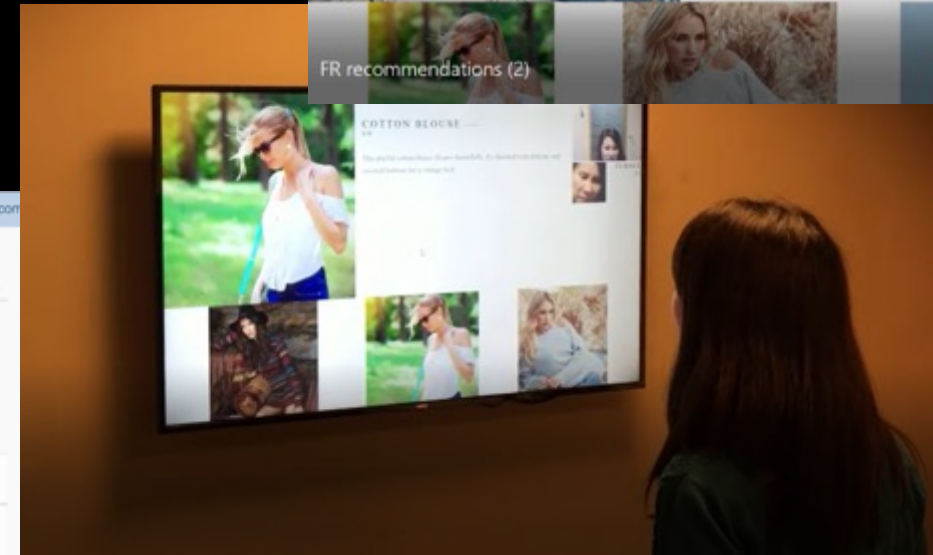
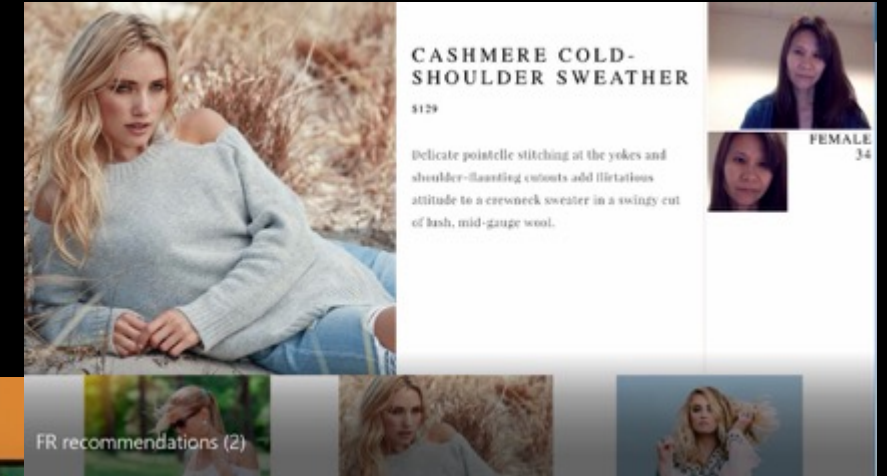
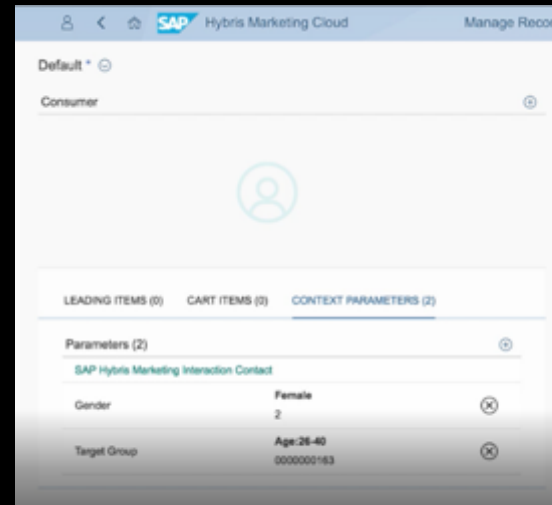
For interactive product recommendations based on gender and age

* Innovation – not part of standard delivery



Benefits

- Provide a seamless personalized shopping experience in real-time
- Product recommendations can be easily integrated into applications via SAP Cloud Platform
- By allowing consumers to interact with the display many use cases can be applied to increase conversion
- More insights can be provided by enabling tracking such as engagement level by different age groups



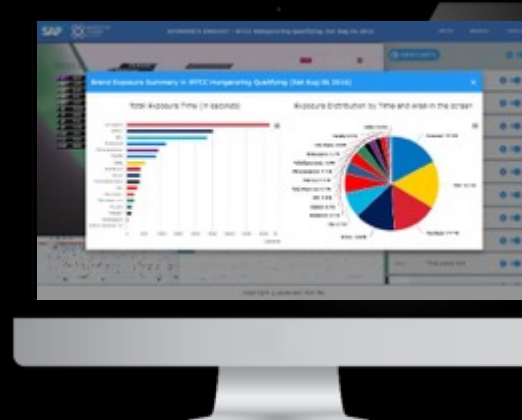
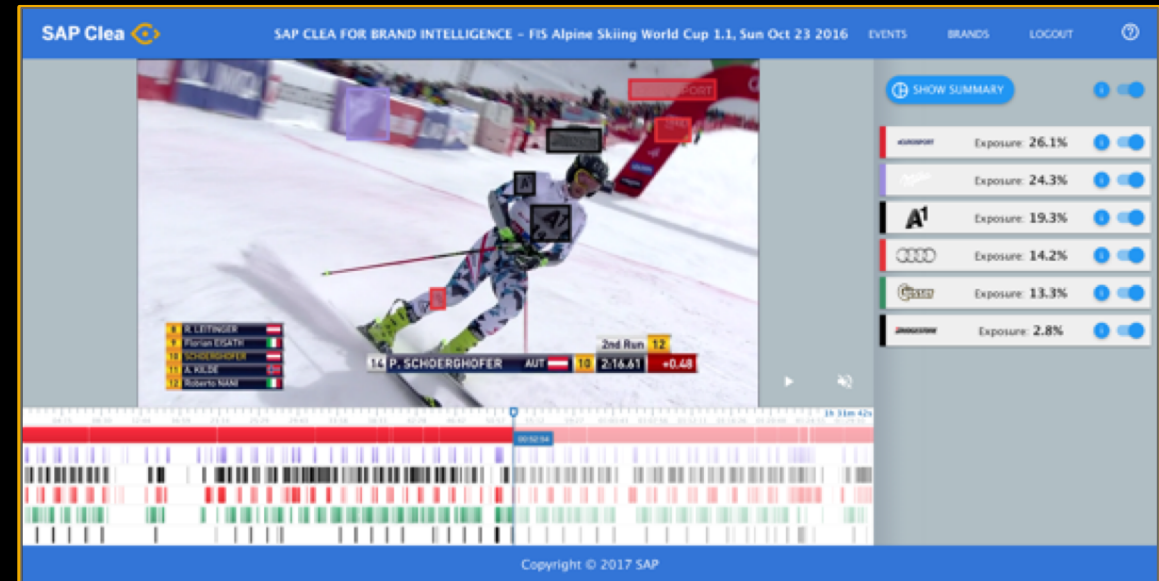
SAP Brand Impact POC

For analyzing brand exposure in videos and images



Benefits

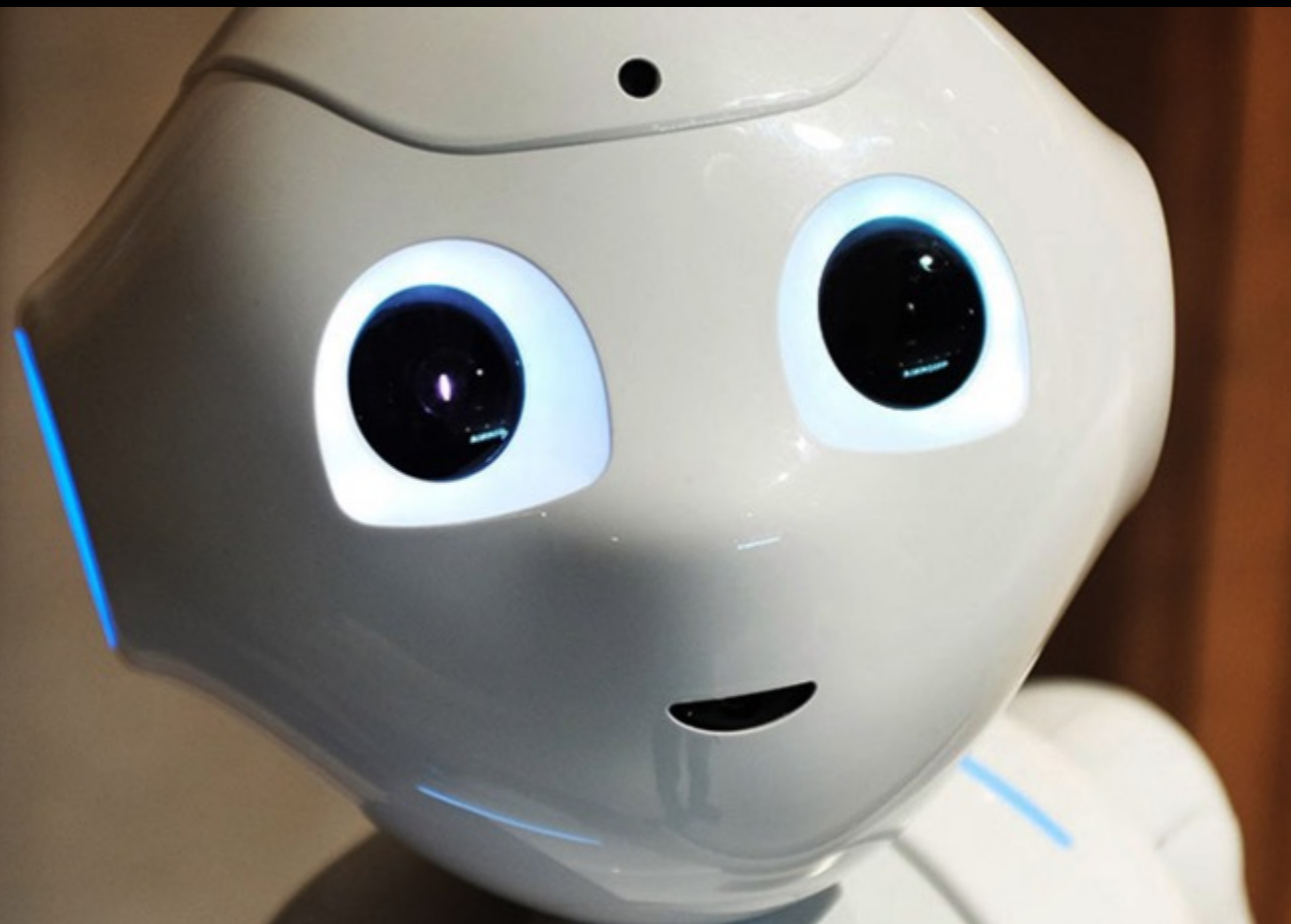
- Automatically analyzes brand exposure in videos and images by leveraging advanced computer vision techniques
- Dynamic output in near real-time speed
- Sophisticated indicators based on multiple metrics
- An interactive tool with additional insights
- Time annotated impact indicator API can be cross referenced with data from CRM, ERP or website statistics



<https://www.youtube.com/watch?v=sK2P2WmaXV0>

The future is coming

SAP Hybris innovations



<https://www.hybris.com/en/gmc50-digital-innovation>