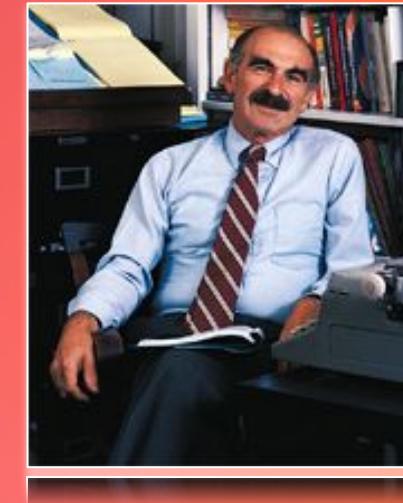


Introduction to Big Data (Analytics)

Prof. Dr. Jan Kirenz
HdM Stuttgart

1960

Companies are too focused on producing goods or services and don't spend enough time understanding what customers want or need.



T. Levitt

From customer experience (CX) to

business of experience (BX)

2021

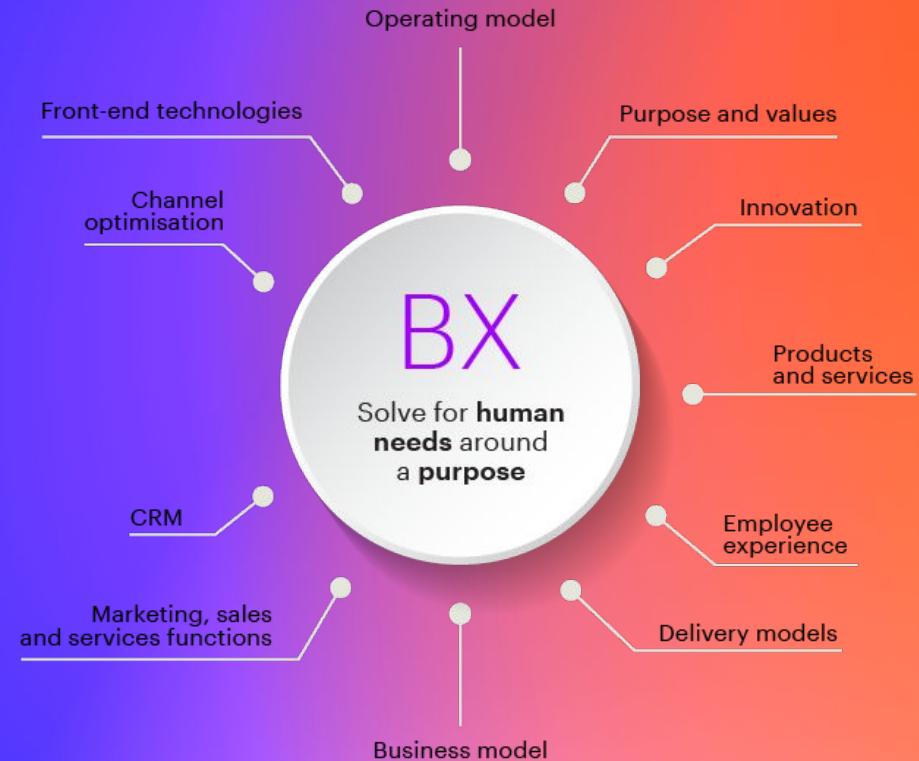


From customer experience (CX) to



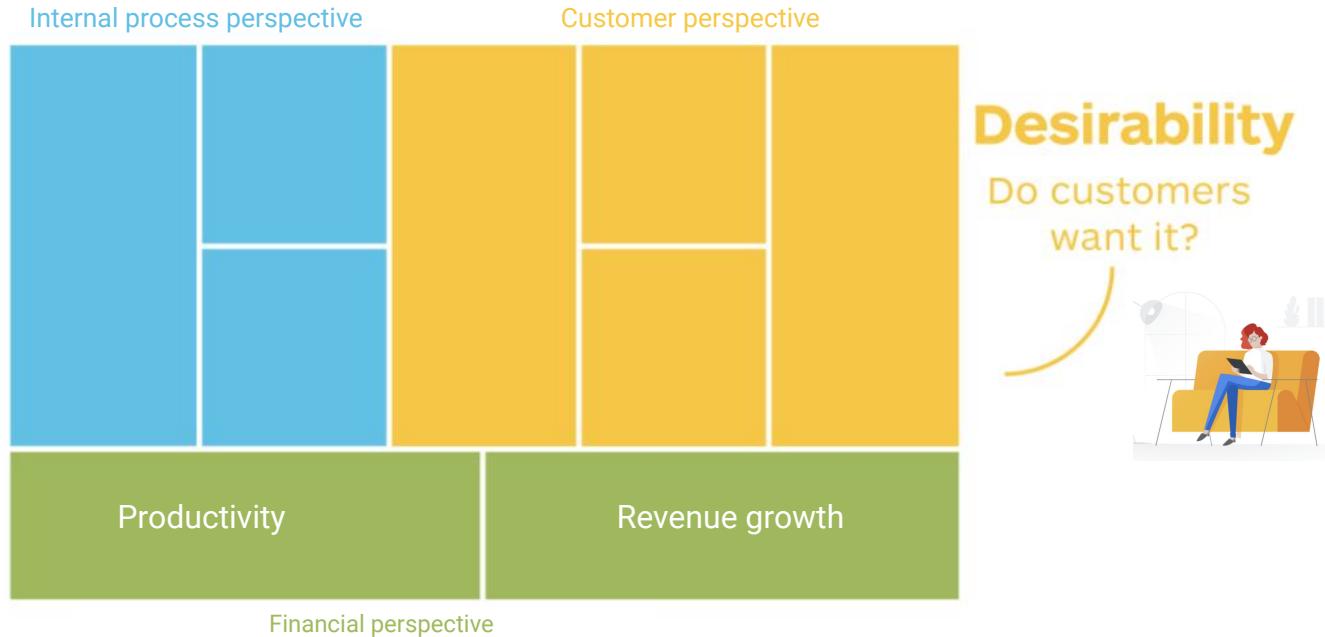
business of experience (BX)

2021

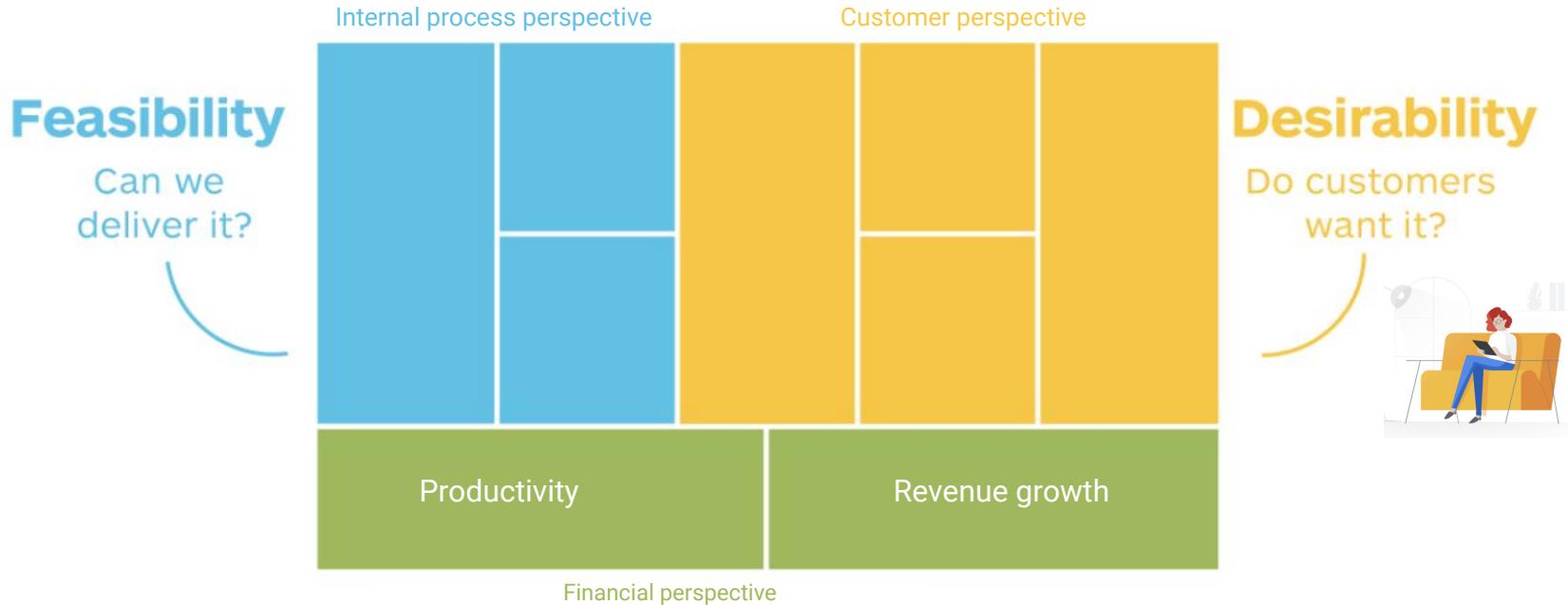


	CX thinking	BX thinking	Ways BX comes to life
CEO	Maximize profitability.	Profit from purpose + experience.	Prioritizing purpose, innovation and delivering holistic experiences to drive business success (i.e., profit).
Marketing and Brand	Making people want things.	Making things people want.	Shaping brand evolution by recognizing brand is built on experiences that connect customers to what they want, not the other way around.
Sales	Focus on the product the company wants to sell.	Focus on the outcome the customer wants.	Ensure the experience is available at defining moments that matter in a consumer's life
Product Development	Making products easy to use.	Making products that continually adapt to how customers use them.	Investment in insight/design research combined with big data to spot user-driven opportunities.
Talent	Using traditional metrics based on employee performance within a function (onboarding, annual reviews, etc.)	Inspiring and incentivizing behaviors that drive better outcomes for the entire organization.	Empowering employees to feel accountable for customer outcomes.
Tech and Data	Enabling business processes at greater scale.	Enabling customer-centricity at greater scale.	Unlocking efficiencies that can be reinvested to drive continuous performance and innovation.
Operations	Providing efficiency for the company that often limits growth.	Providing efficiency for the customer and the experience that enables them to drive growth.	Measuring customer operational efficiency, engaging operations in innovation from the get-go.
Supply chain	Moving products and goods to consumers.	Making it easy for consumers to get products and services when and where they want them.	Providing customers with visibility into sourcing and progress of their orders, and innovating last-mile experience to exceed expectations.

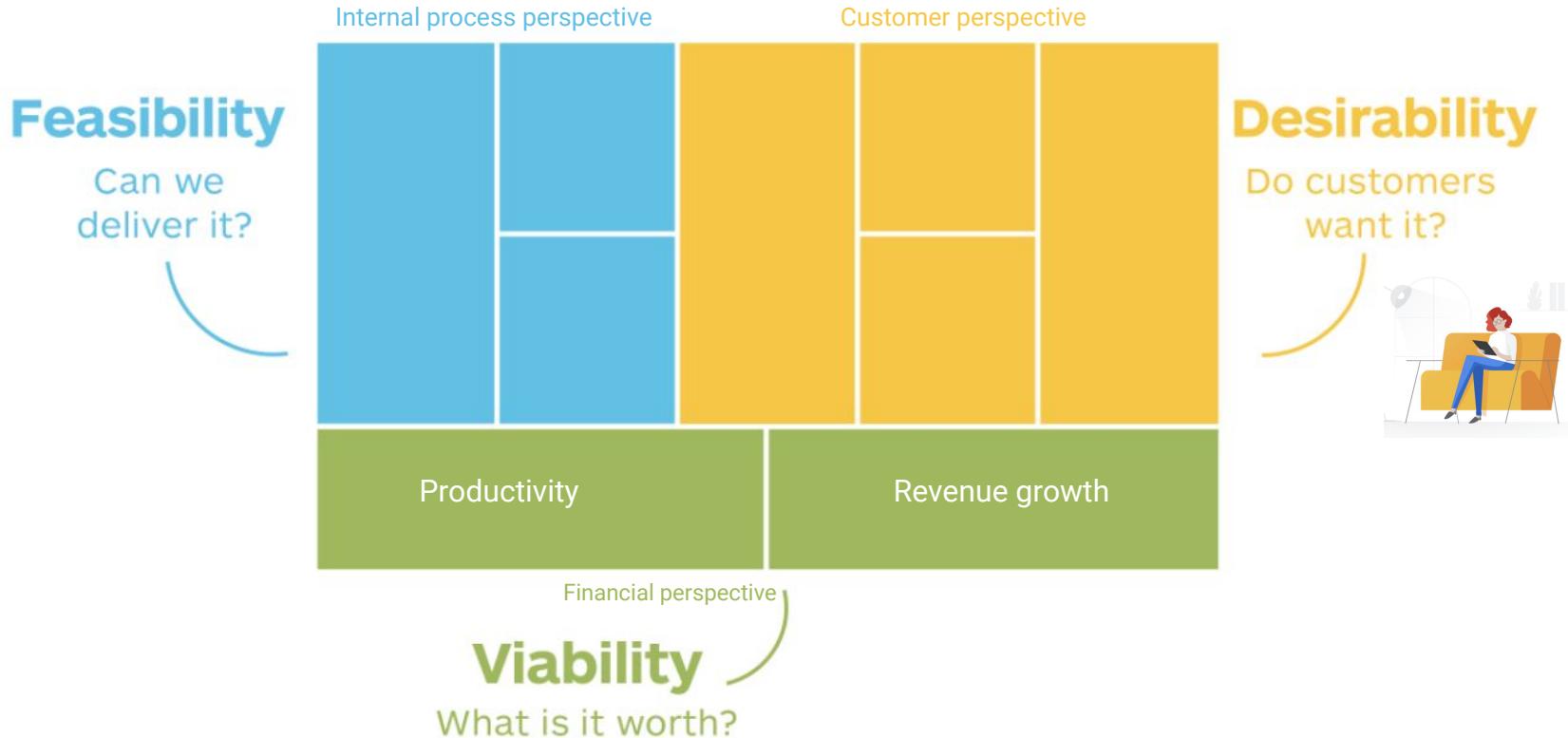
How do we create, deliver and capture value?



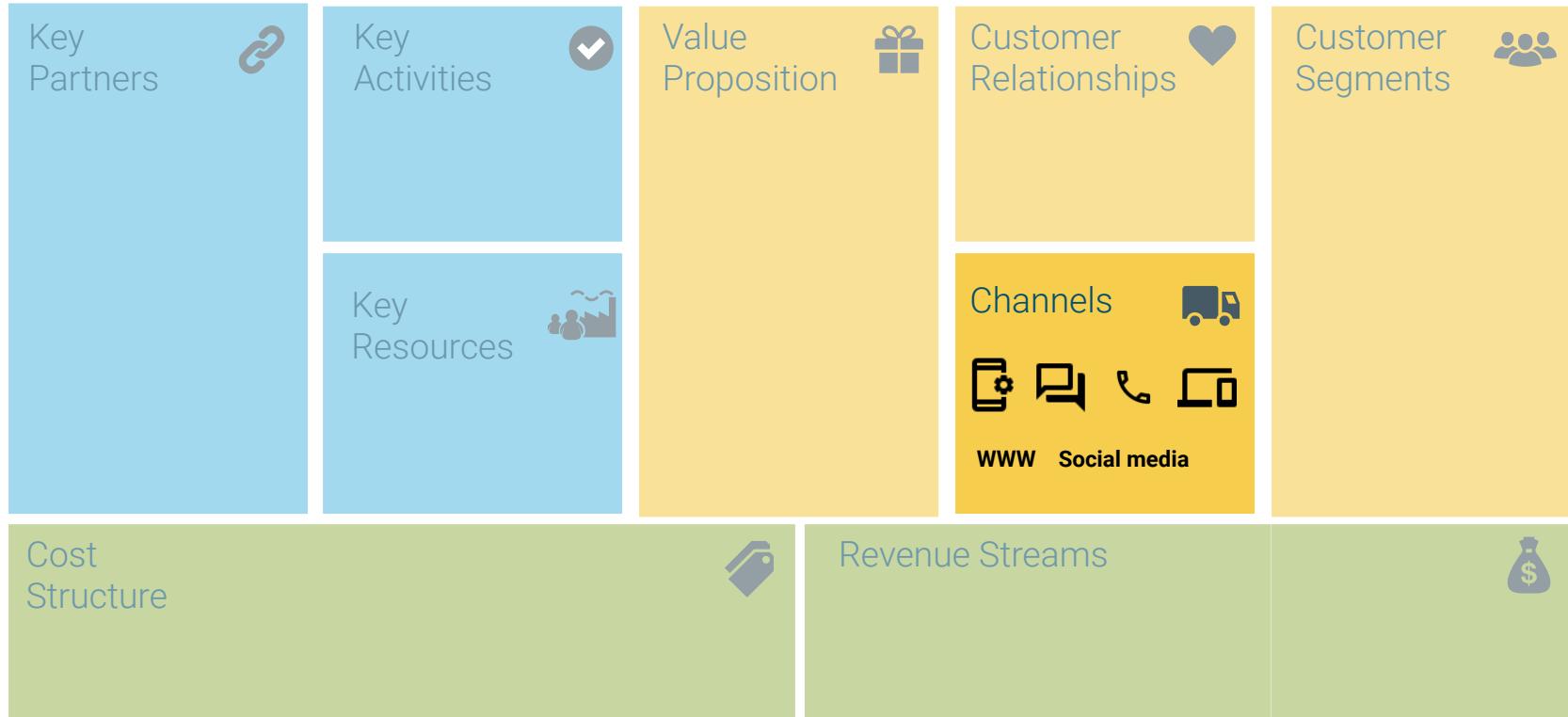
How do we create, deliver and capture value?



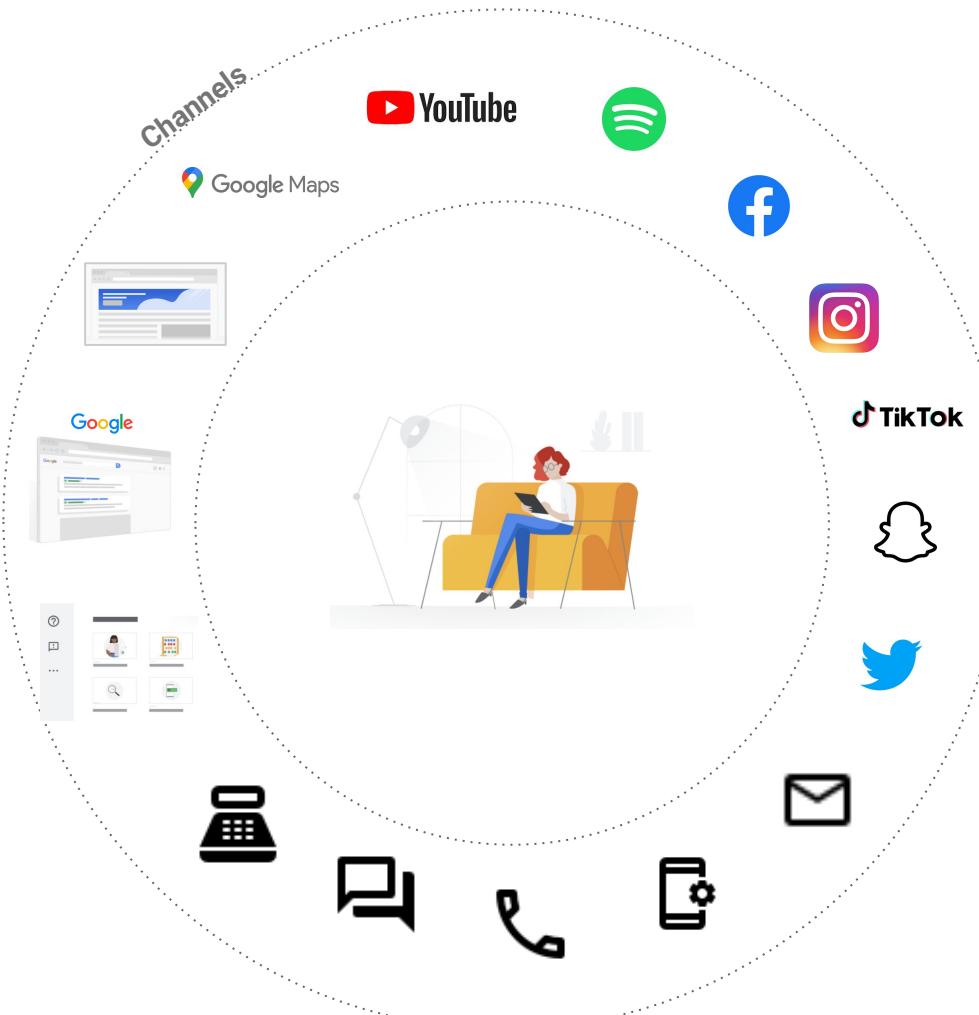
How do we create, deliver and capture value?



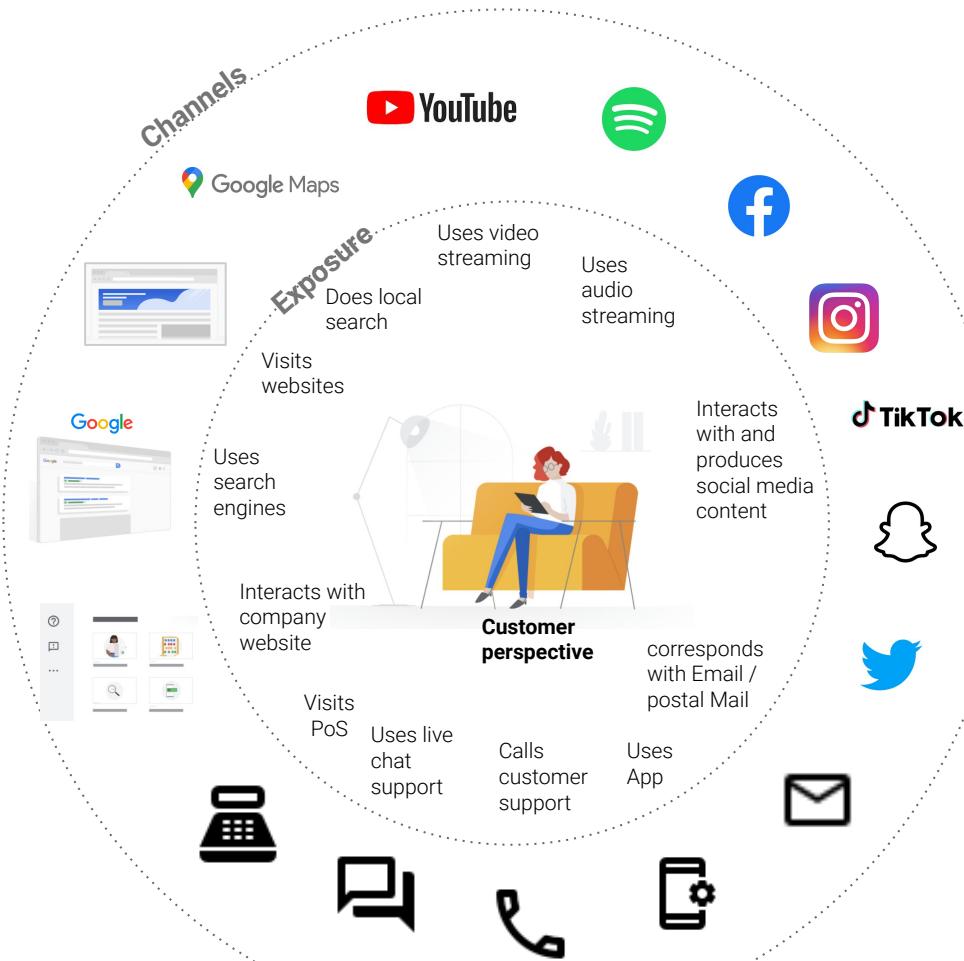
Business Model Canvas: Channels



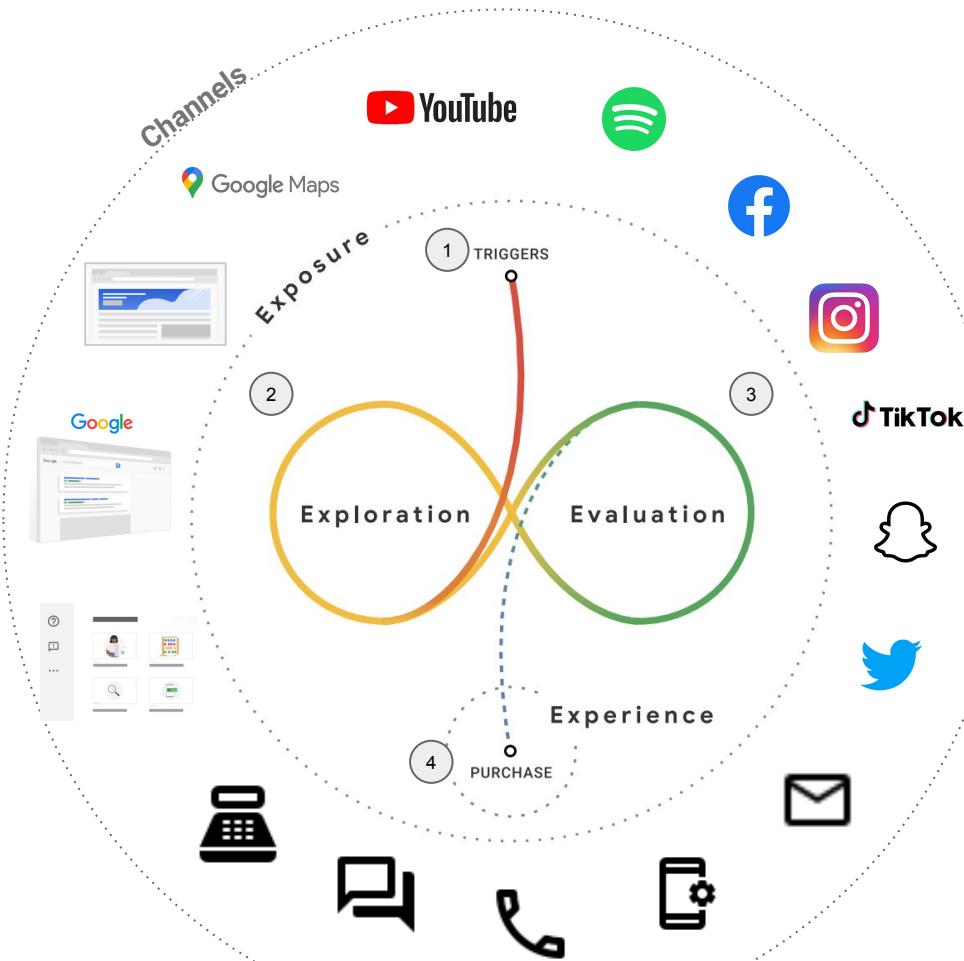
Customer channels



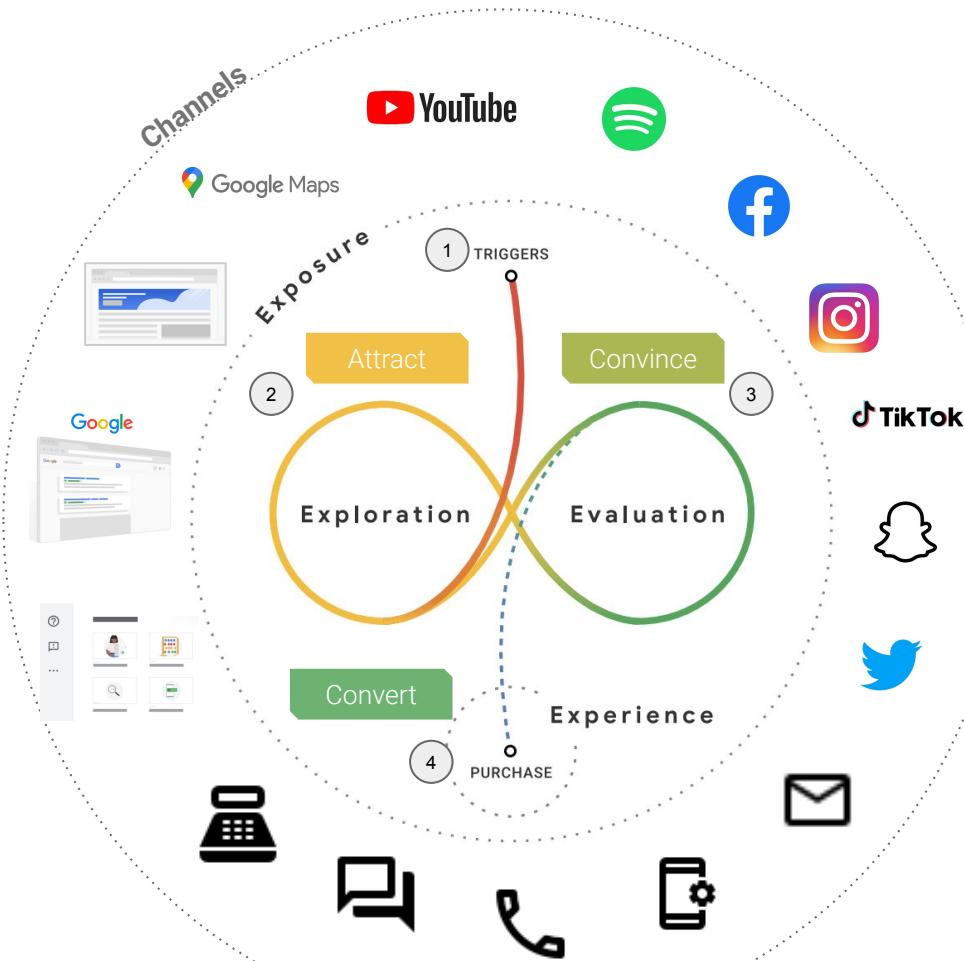
Customer channels



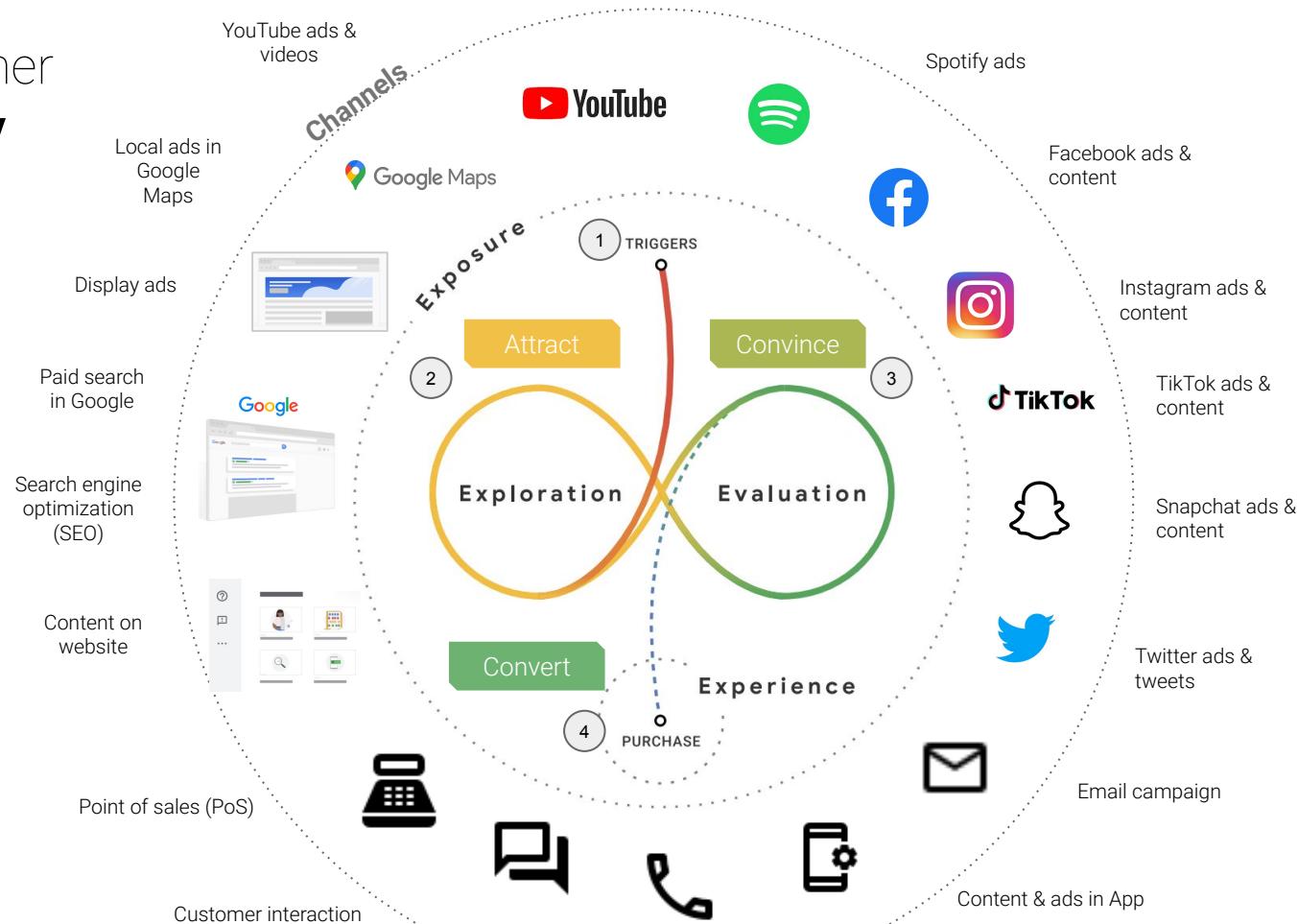
Customer journey



Customer journey

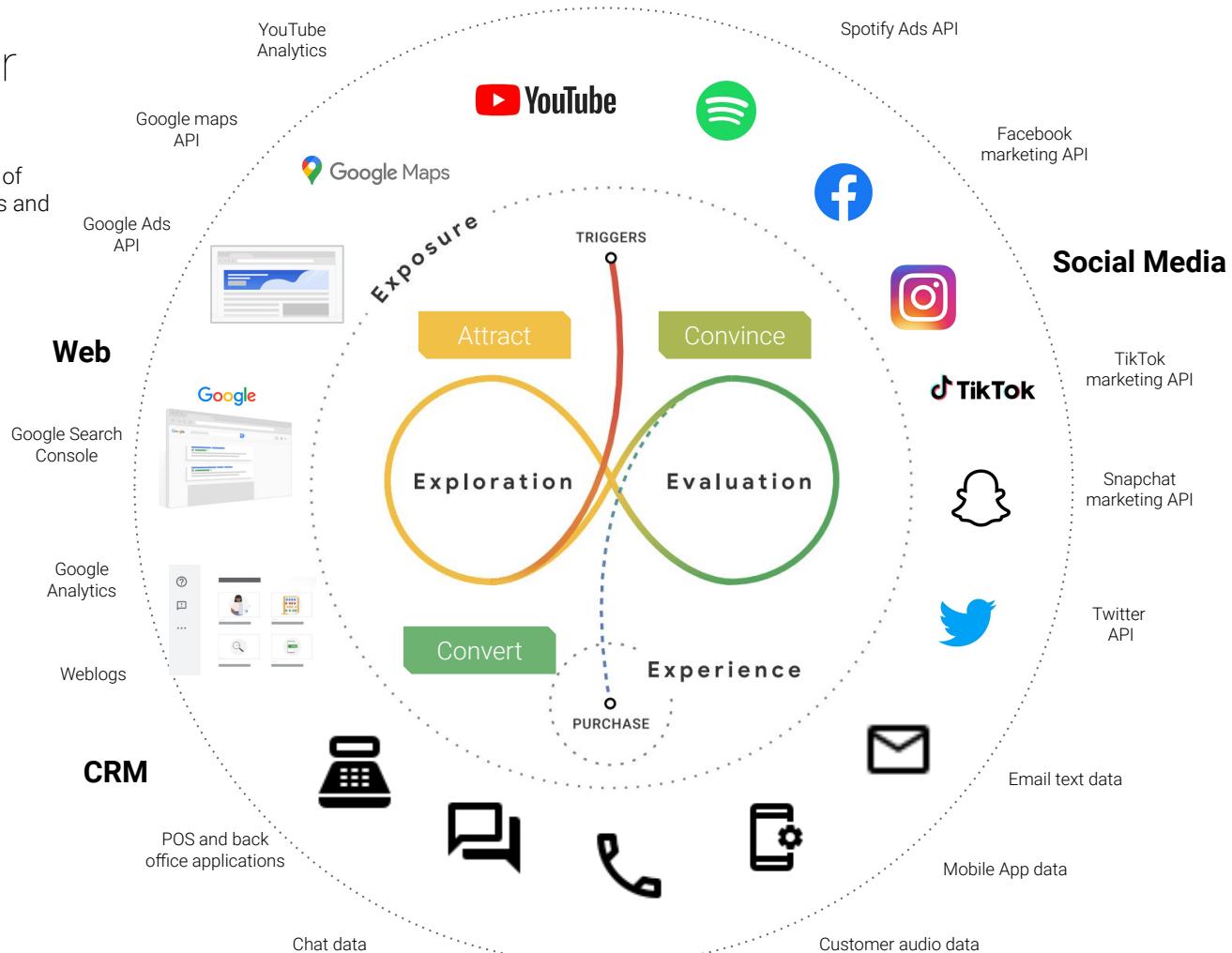


Customer journey



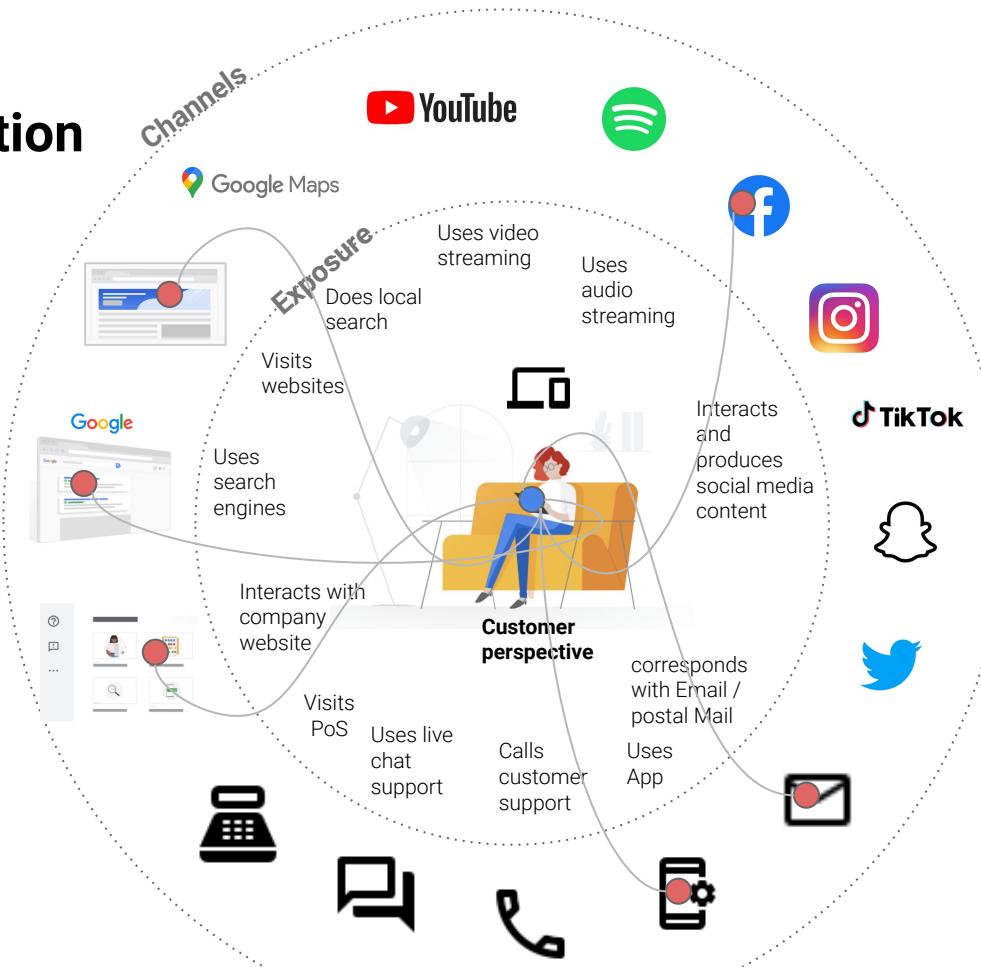
Customer data

Data as (by)product of running the business and serving users



Customer identity resolution

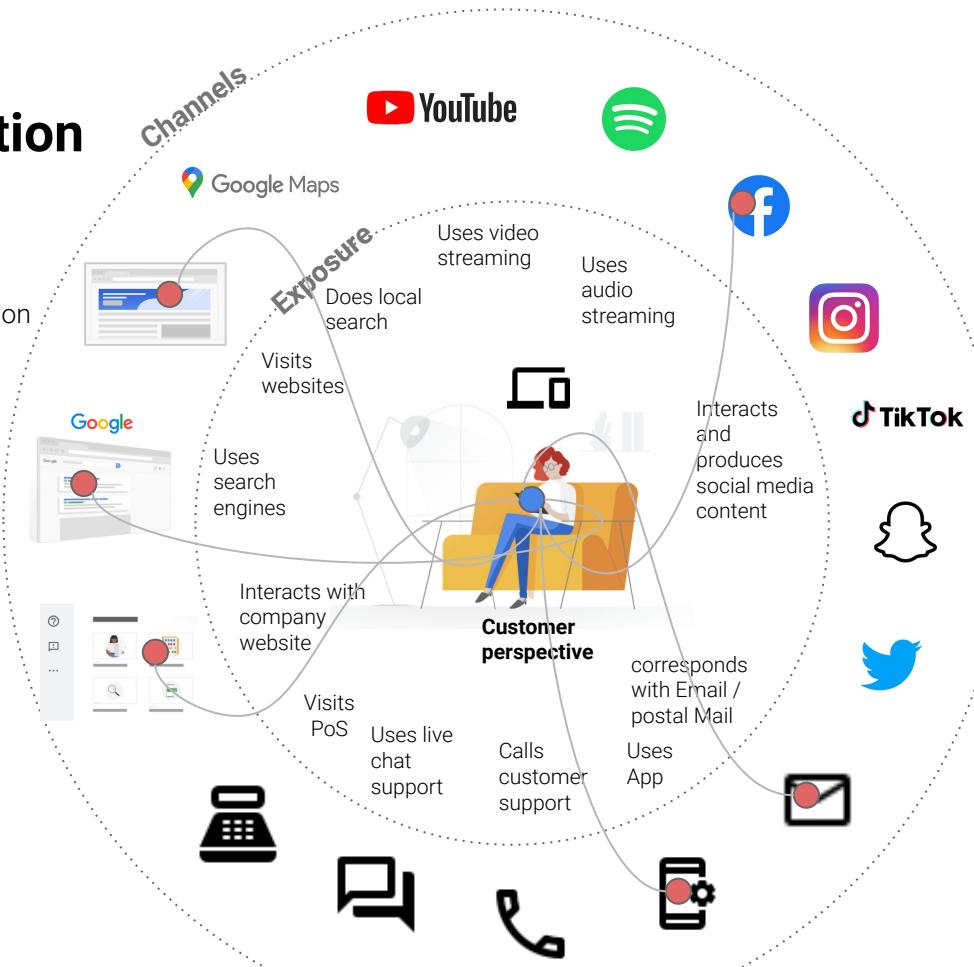
Up-to date customer profile data



Customer identity resolution

Up-to date customer profile data

- Personalization
- Recommendation
- Next best action/conversation
- Ad targeting
- Ad attribution



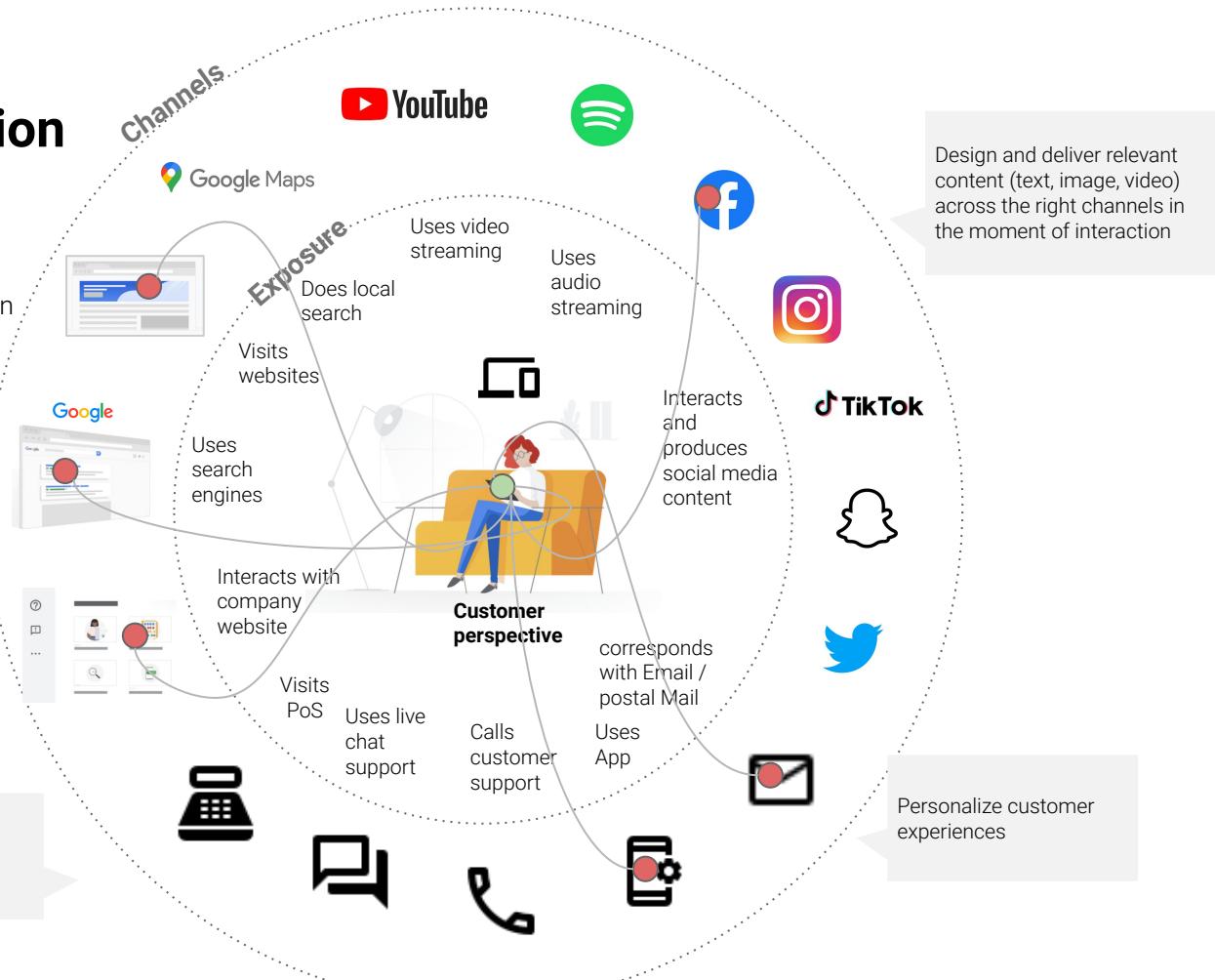
Customer identity resolution

Up-to date customer profile data

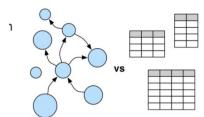
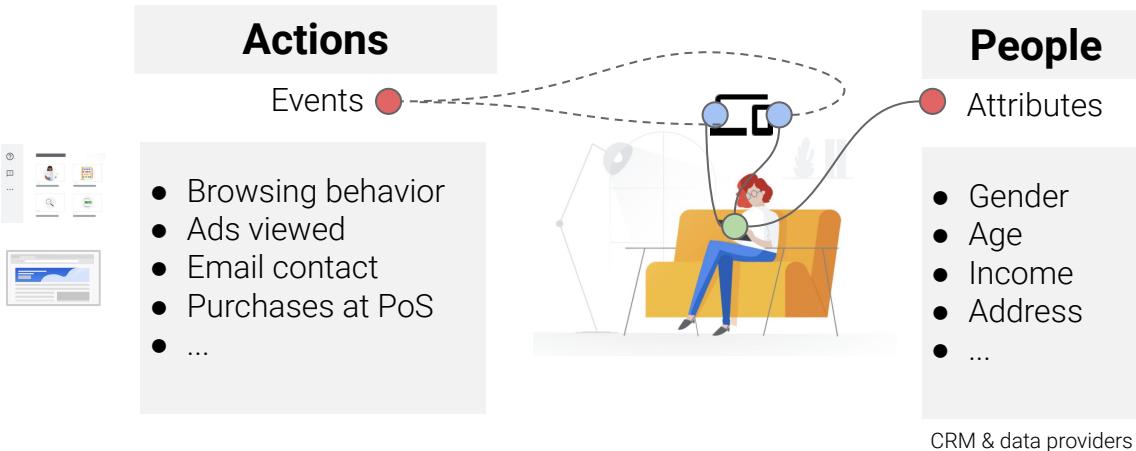
- Personalization
- Recommendation
- Next best action/conversation
- Ad targeting
- Ad attribution

Show relevant product recommendations

Assist staff with next best conversation



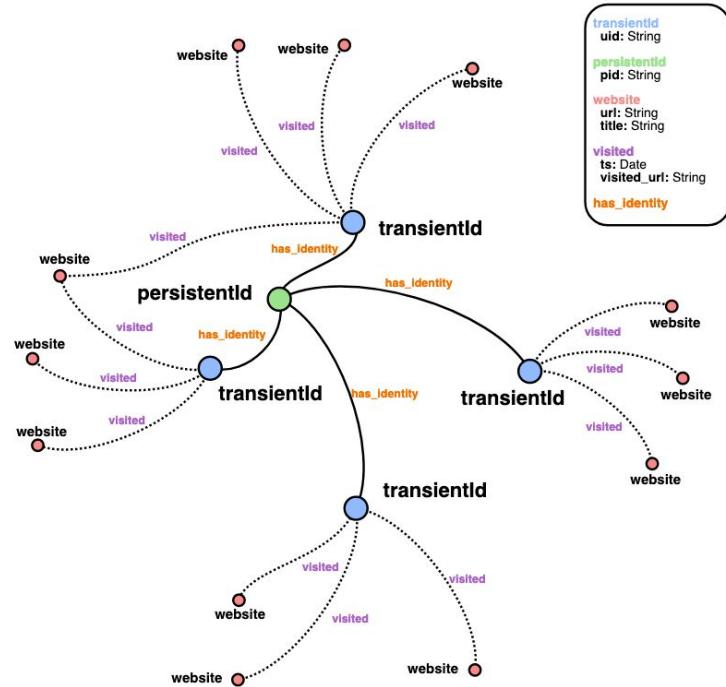
Basic customer journey data types



"What happened?"
"When did it happen?"
"Who did it (device ID, cookie, IP address)?"

Customer centric database

- Provides a 360° view of customers to understand the customer journey in chronological order.
- Provides a single unified view of customers and prospects based on their interactions with a product or website across a set of devices and identifiers.



How to identify customers?

Identifier

Some options



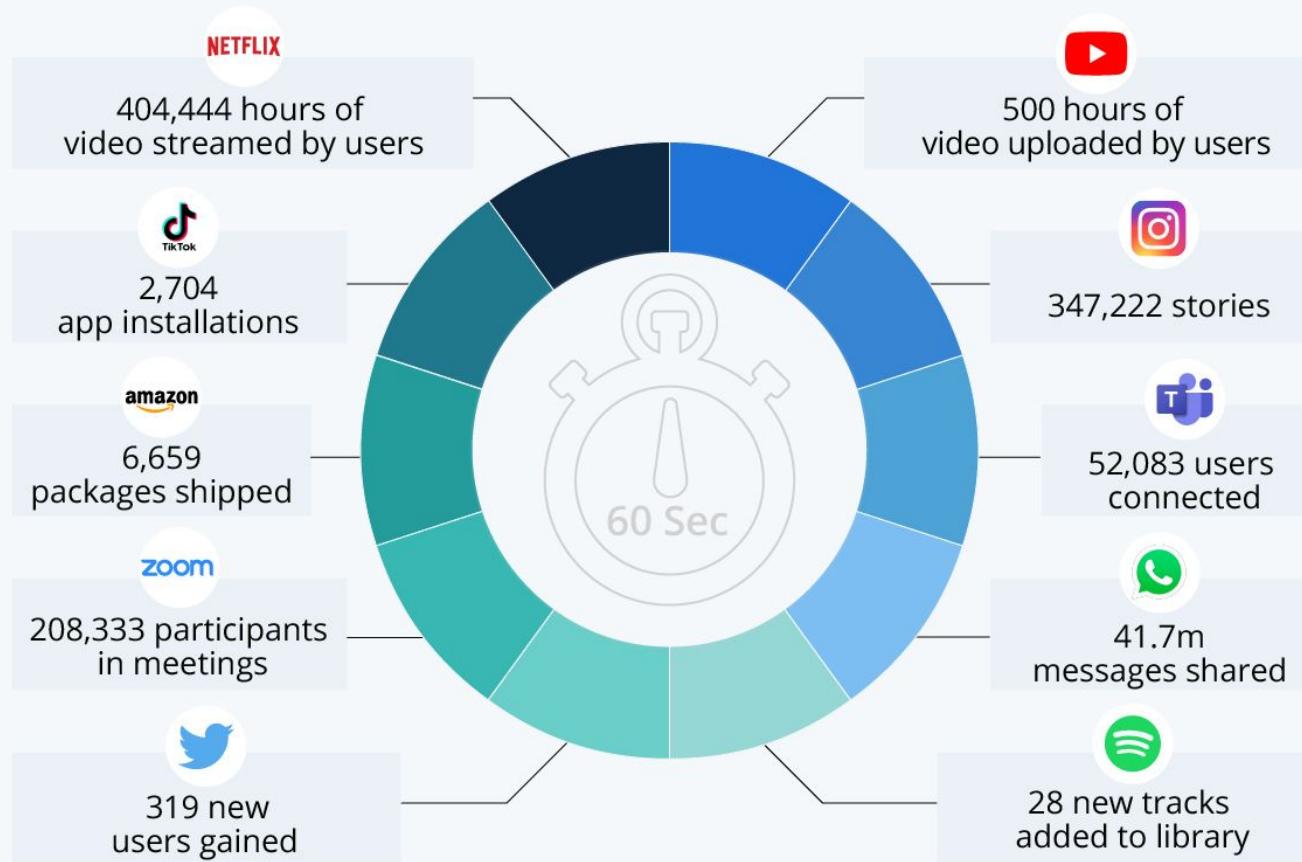
- Weblogs: cookies, IP address, ...
- Email: address
- CRM: unique key



Challenges

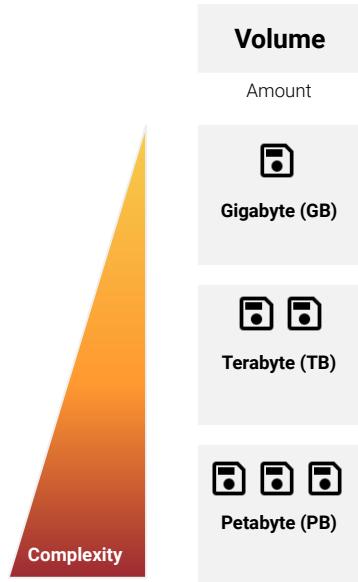
- Ban of third-party cookies
- Usage of multiple devices
- Multiple Email addresses
- Data privacy

Data Management

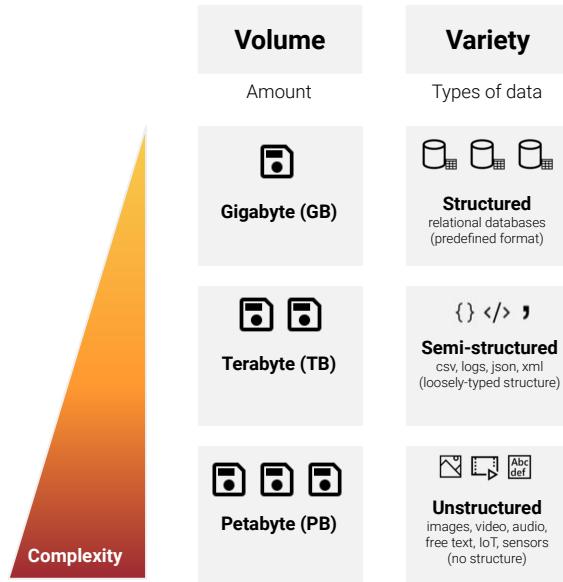


Amount of data created in one minute

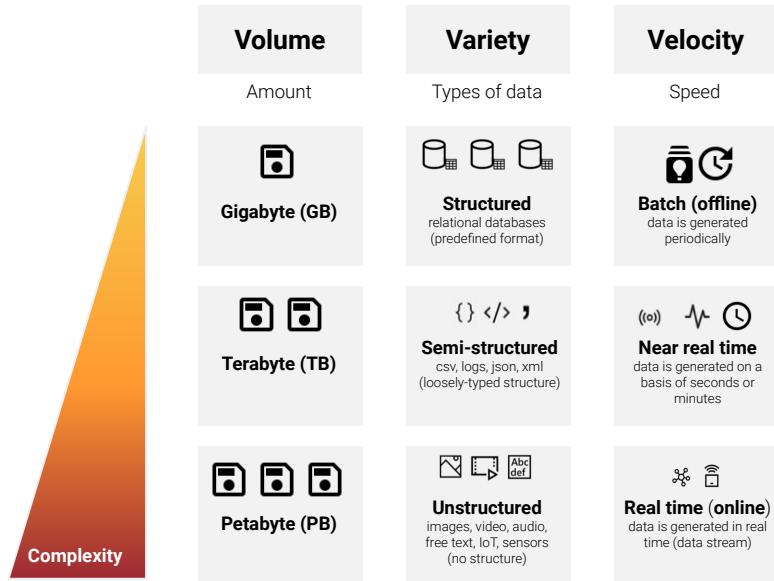
(Big) data characteristics



(Big) data characteristics



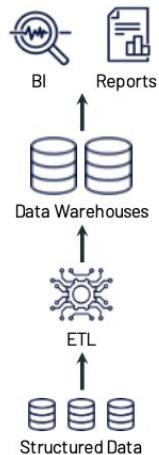
(Big) data characteristics



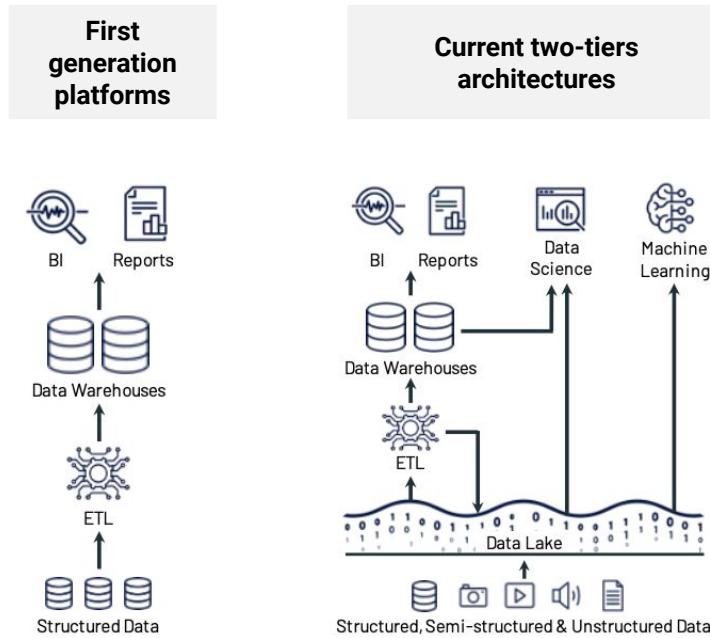
Data platform architectures

Evolution of data platform architectures

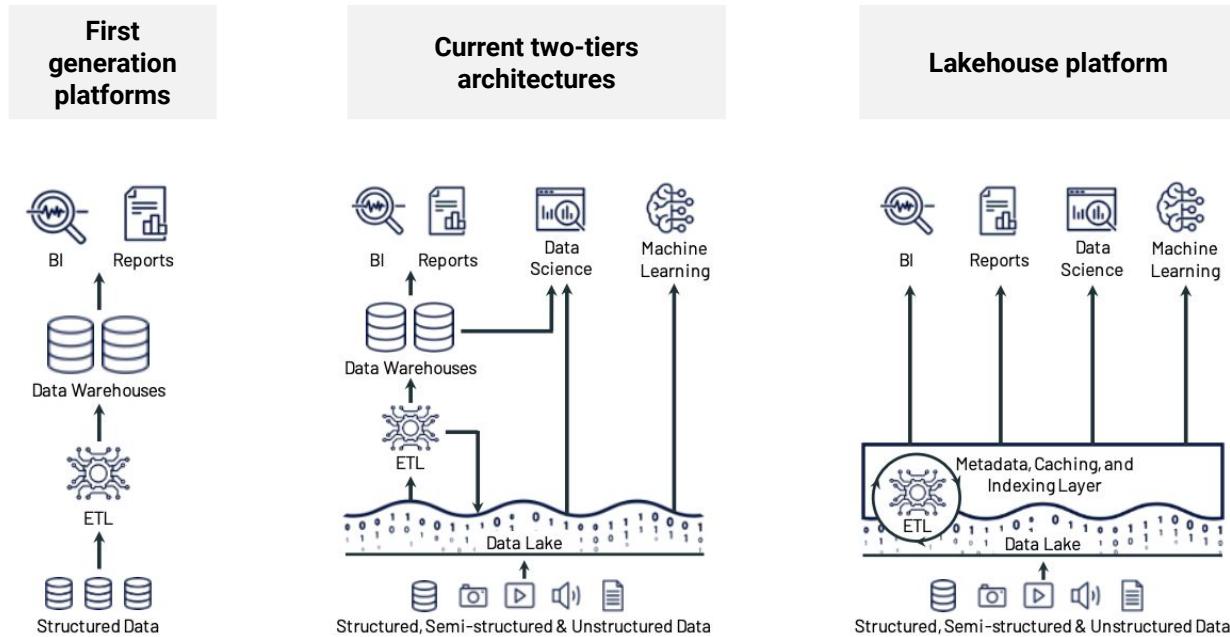
First generation platforms



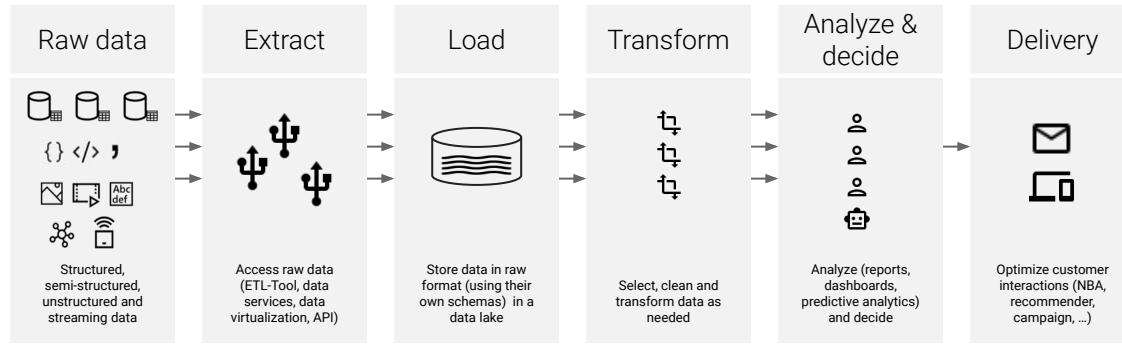
Evolution of data platform architectures



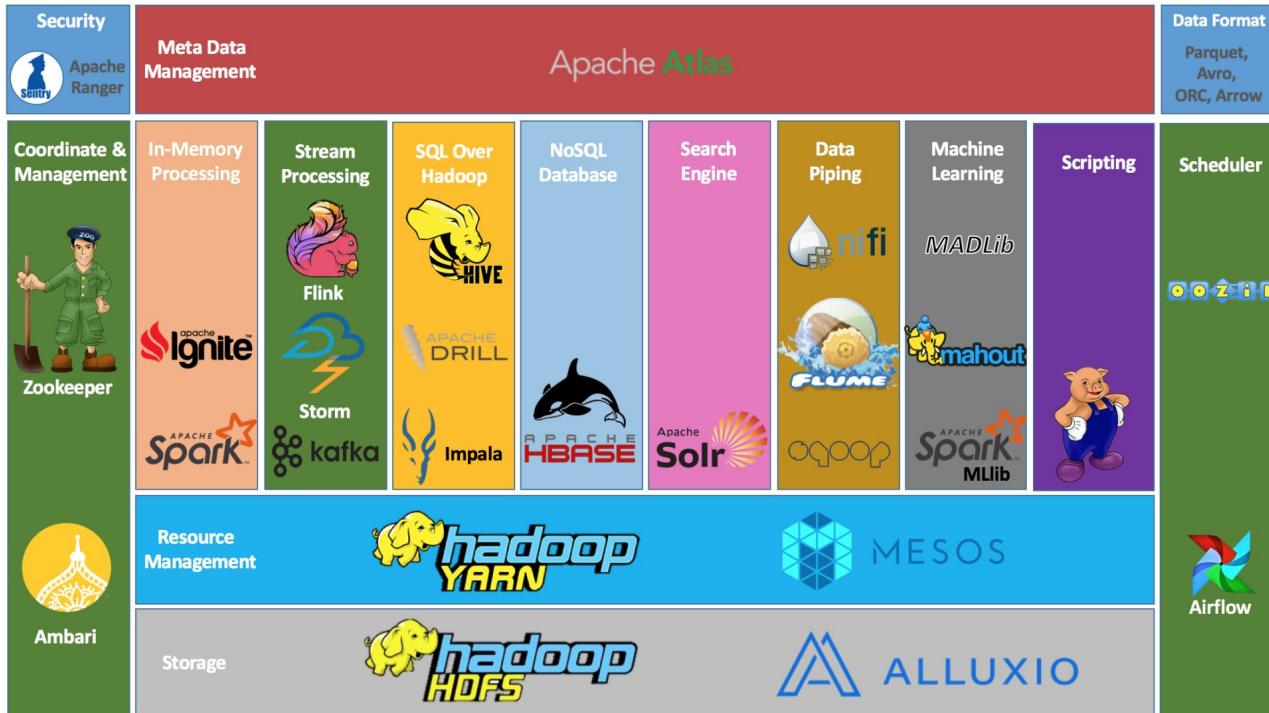
Evolution of data platform architectures



Building a data platform



How to build
your solution?



Overview of the Apache big data ecosystem (open source software)

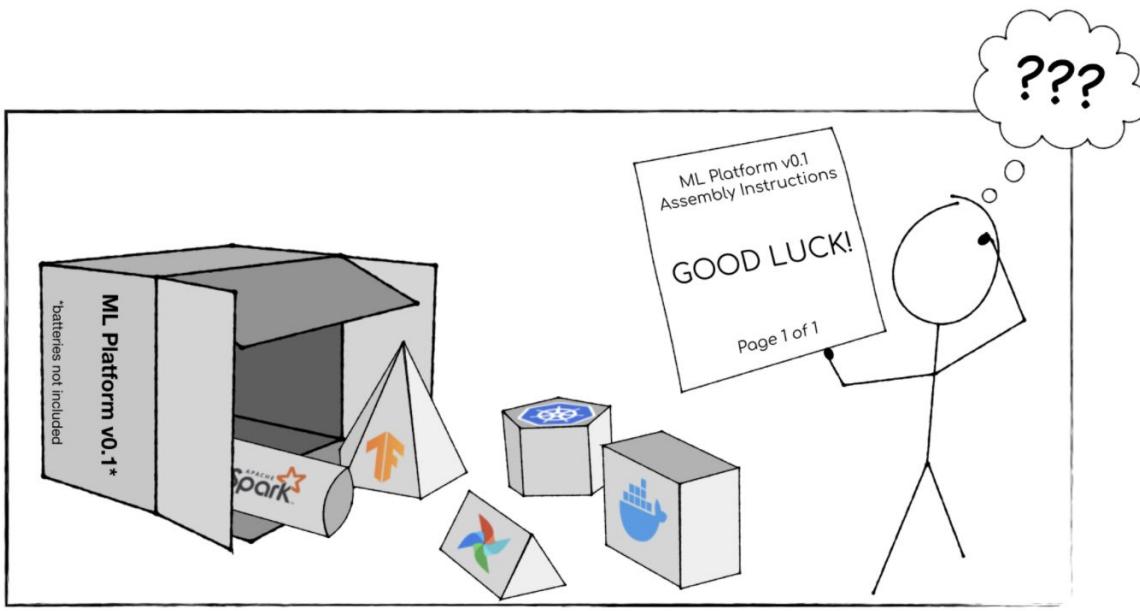


Figure 1: ML Platforms usually come with lots of pieces missing and little to no assembly instructions (Image by author, logos from open source projects [Spark](#), [TensorFlow](#), [Airflow](#), [Kubernetes](#), and [Docker](#))

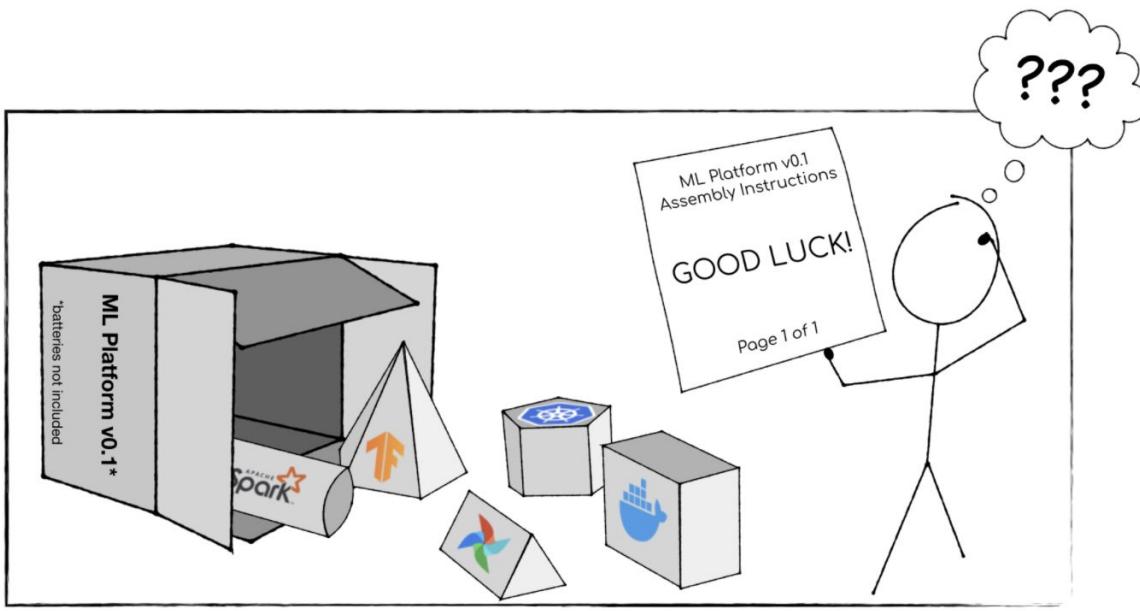
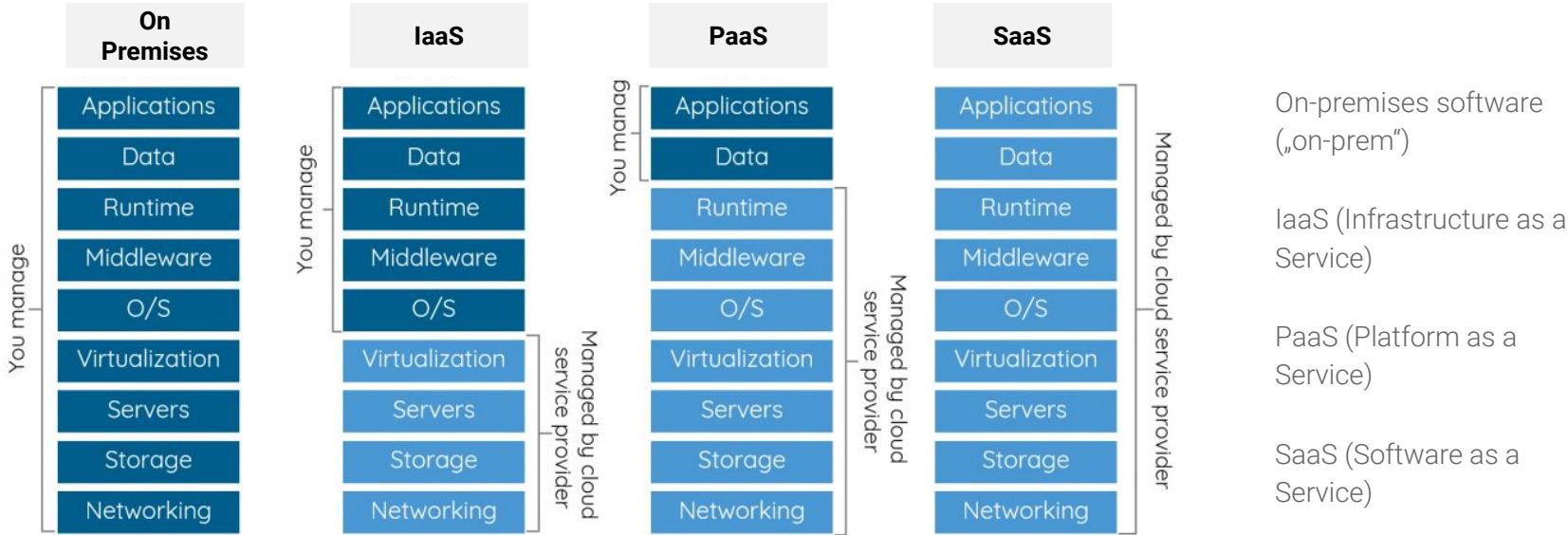


Figure 1: ML Platforms usually come with lots of pieces missing and little to no assembly instructions (Image by author, logos from open source projects [Spark](#), [TensorFlow](#), [Airflow](#), [Kubernetes](#), and [Docker](#))

“AI developer stacks today are like DIY craft kits, with the instructions and 70% of the parts missing.”

On premises, IaaS, PaaS or SaaS

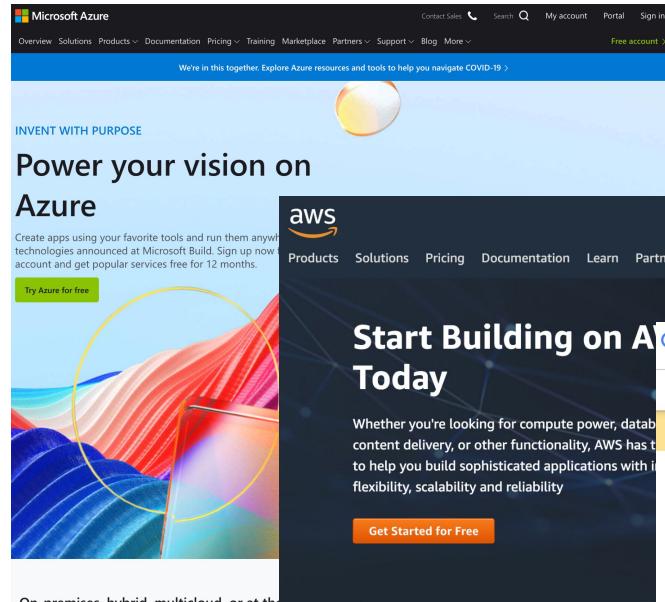




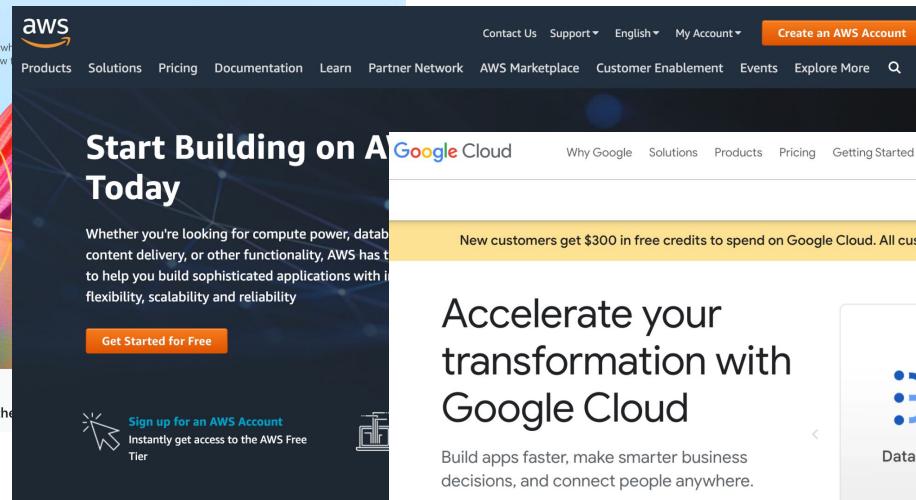
Magic Quadrant for Cloud Infrastructure and Platform Services (2020)

Link: <https://www.gartner.com/doc/reprints?id=1-1ZDZDMTF&ct=200703&st=sb>

Prof. Dr. Jan Kirenz

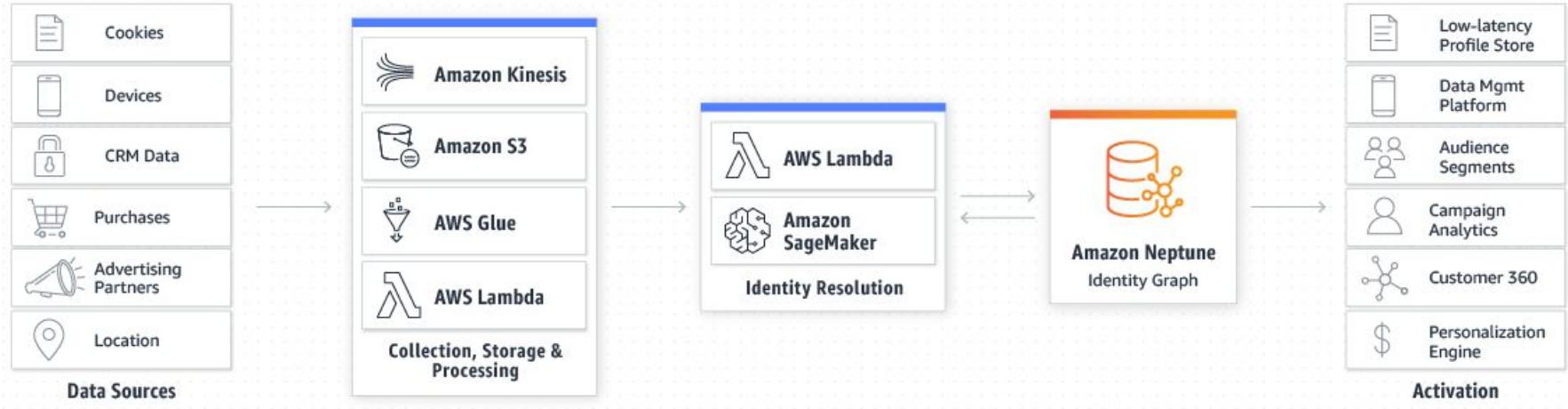


The Microsoft Azure homepage features a top navigation bar with links for Contact Sales, Search, My account, Portal, and Sign in. Below this is a secondary navigation bar with links for Overview, Solutions, Products, Documentation, Pricing, Training, Marketplace, Partners, Support, Blog, and More. A banner at the top states "We're in this together. Explore Azure resources and tools to help you navigate COVID-19 >". The main headline reads "INVENT WITH PURPOSE" followed by "Power your vision on Azure". A callout box on the left says "Create apps using your favorite tools and run them anywhere with technologies announced at Microsoft Build. Sign up now for a free account and get popular services free for 12 months." It includes a "Try Azure for free" button and a circular graphic showing a colorful abstract landscape.

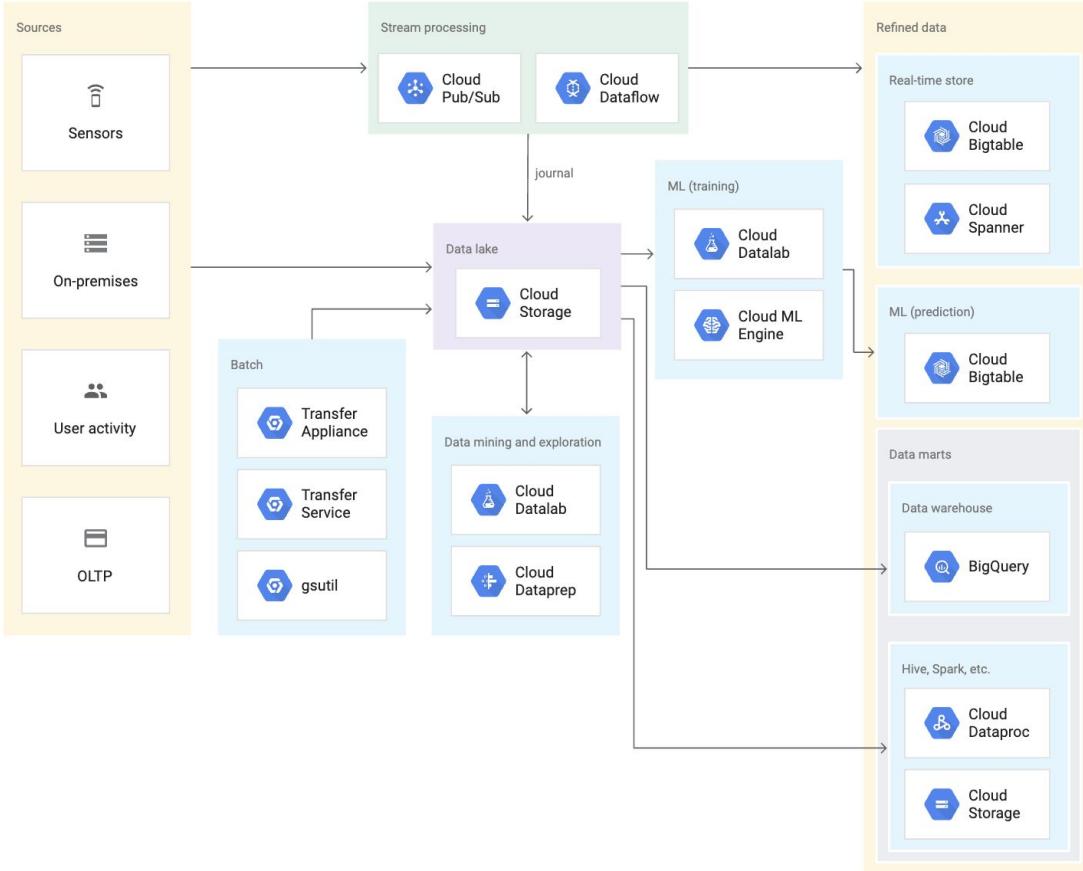


The AWS homepage features a top navigation bar with links for Contact Us, Support, English, My Account, and a prominent "Create an AWS Account" button. Below this is a secondary navigation bar with links for Products, Solutions, Pricing, Documentation, Learn, Partner Network, AWS Marketplace, Customer Enablement, Events, Explore More, and a search bar. The main headline reads "Start Building on AWS Today". A sub-headline explains that AWS has everything needed to help build sophisticated applications with flexibility, scalability, and reliability. It includes a "Get Started for Free" button and a "Sign up for an AWS Account" button. A yellow banner at the bottom states "New customers get \$300 in free credits to spend on Google Cloud. All customers get free usage of 20+ products. See offer details." To the right, there's a section titled "Accelerate your transformation with Google Cloud" featuring icons for Datastream, Dataplex, and Analytics Hub, along with a note about new services for a unified data cloud strategy.

Cloud Infrastructure and Platform Services



Implementation example for Amazon AWS



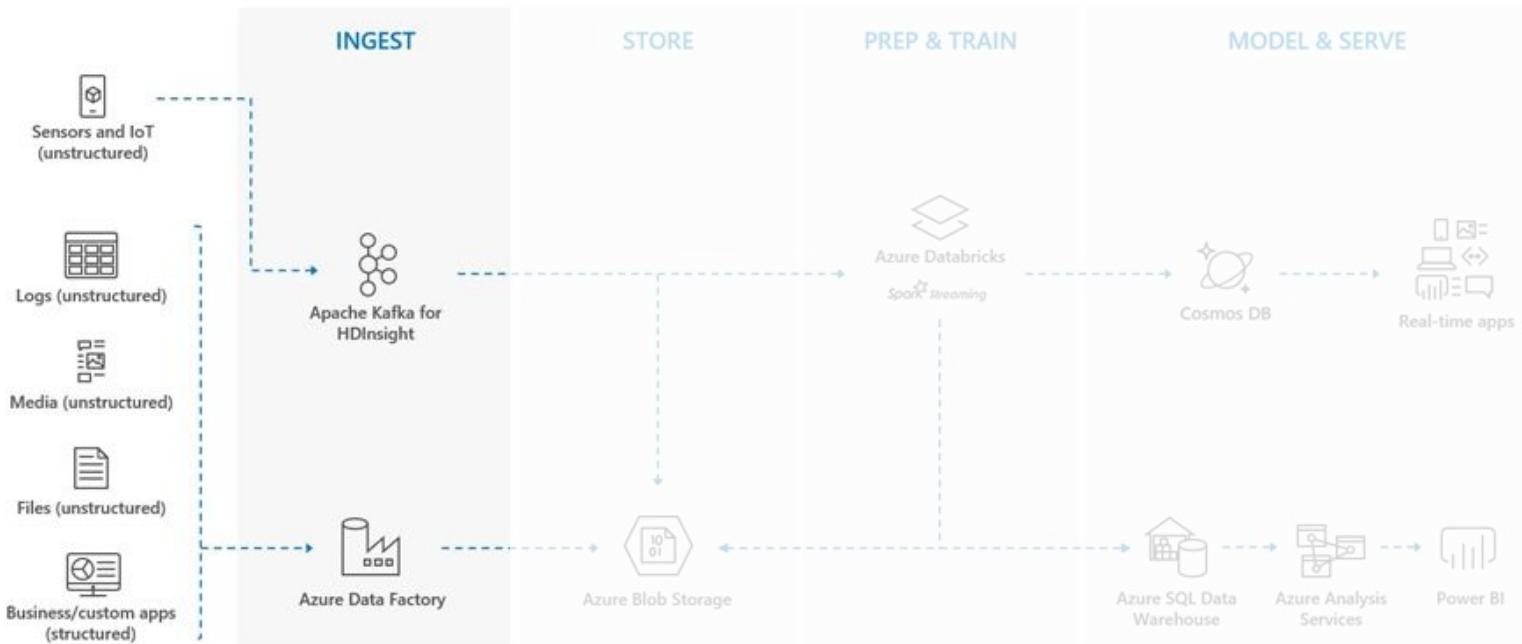
Architecture example for Google Cloud

Modern data warehouse



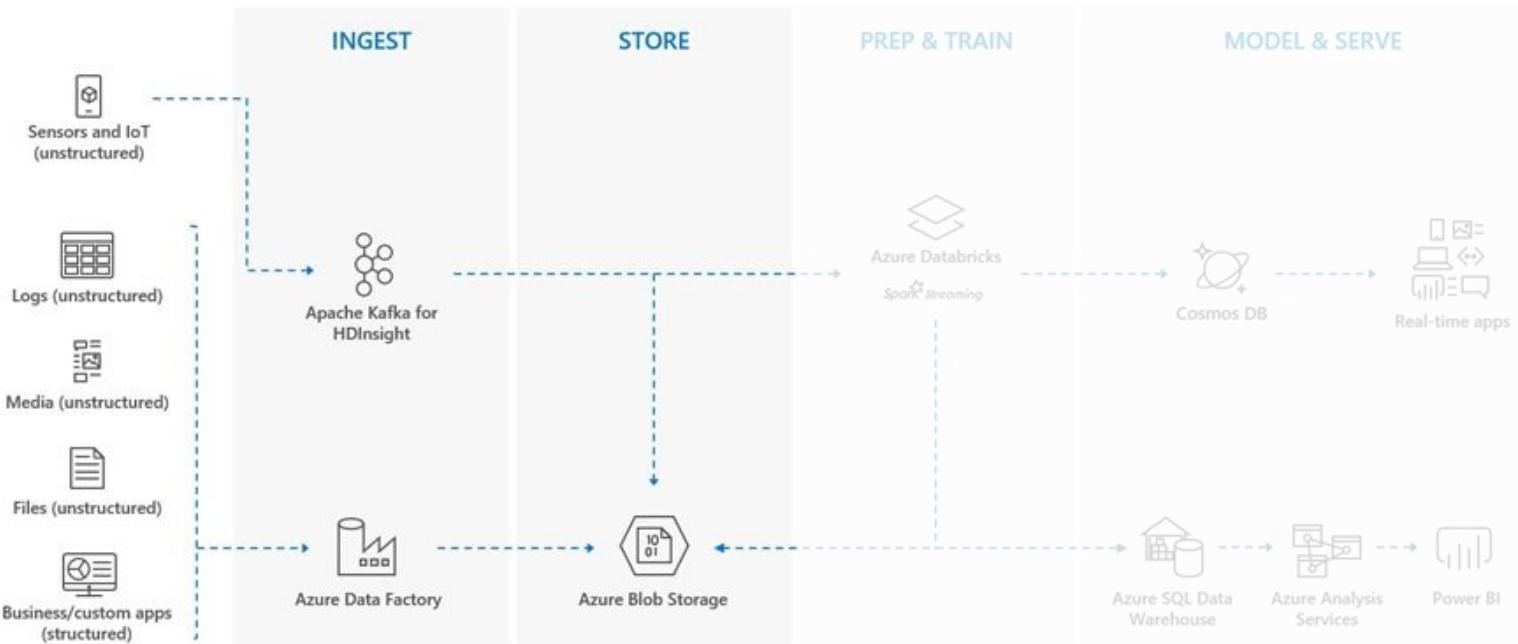
Source: Microsoft (2018)

Modern data warehouse



Source: Microsoft (2018)

Modern data warehouse



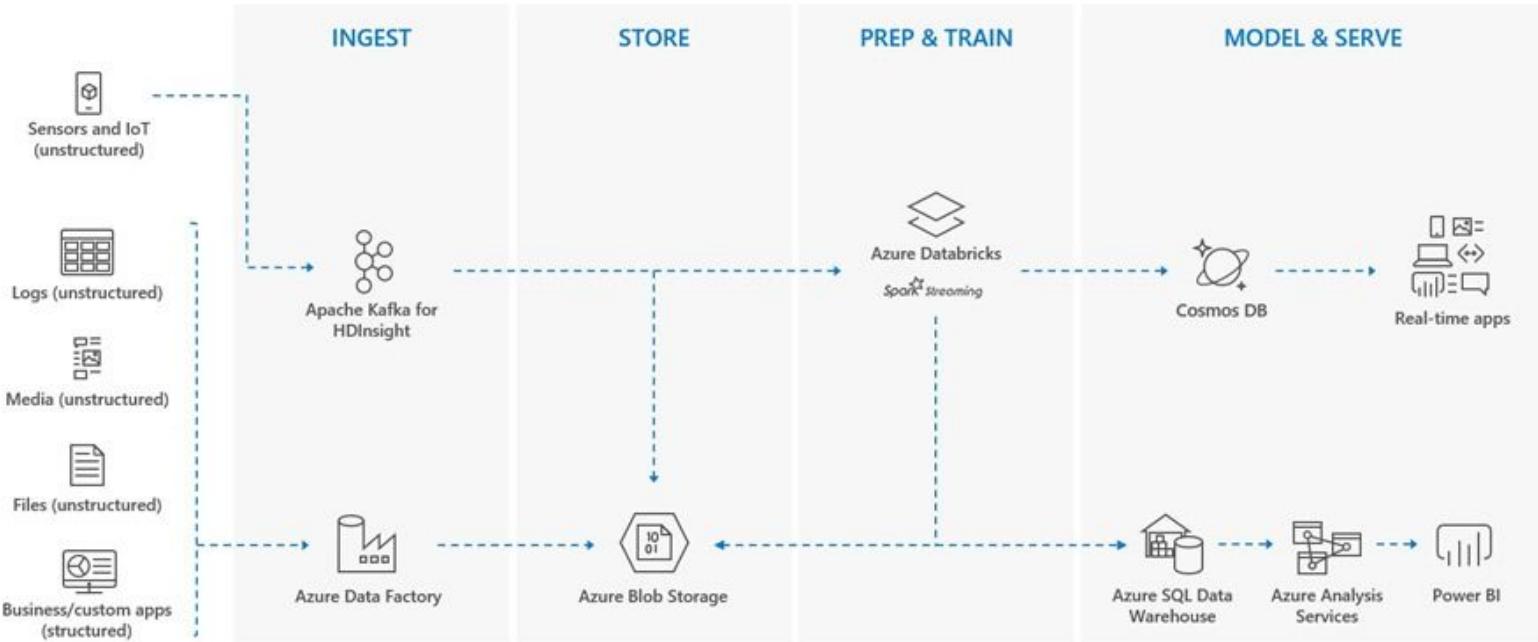
Source: Microsoft (2018)

Modern data warehouse



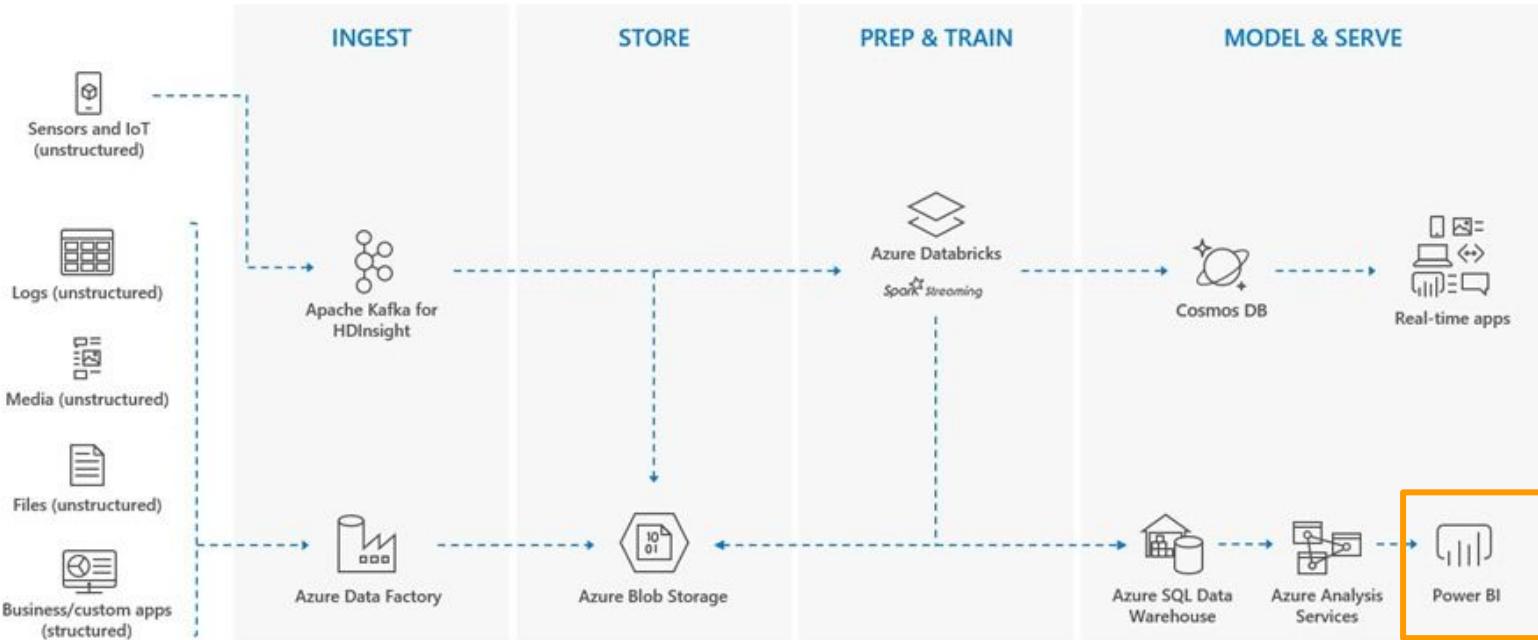
Source: Microsoft (2018)

Modern data warehouse



Source: Microsoft (2018)

Modern data warehouse



Source: Microsoft (2018)

Power BI Desktop



Power BI service



Power BI Mobile





Standarddaten
Zum Auswählen Ihrer Daten klicken

11.03.2019 - 07.04.2019

Overview

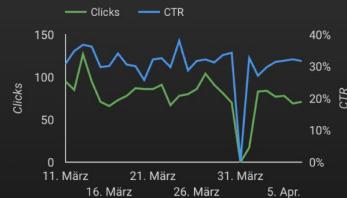
Click Through Rate & Impressions

by Clicks, CTR, and Impressions

Clicks
2.176,0
-3.7%

CTR
31,7 %
+ 0.1%

Impressions
6.860,0
-3.8%



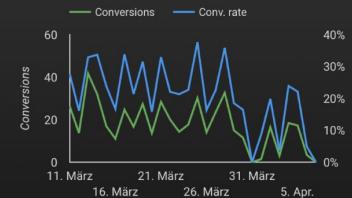
Conversion Rate & Cost

by Conversions Rate and Cost / Conv.

Conversions
491,1
+ 2.2%

Conv. rate
22,6 %
+ 6.1%

Cost / conv.
\$1,53
- 7.2%



Cost Per Click

by Cost, CPC, and CPM

Cost
\$753,60
- 9.6%

Avg. CPC
\$0,35
+ 13.8%

Avg. CPM
\$109,85
+ 13.9%



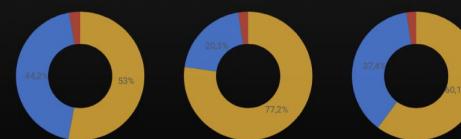
Top Campaigns

by CTR, Avg. CPC, and Cost / Conv.

Campaign	CTR	Avg. CPC	Cost / conv.
1. 1000549 Google Analytics Demo DR Jo...	36,57 %	\$0,43	\$1,6
2. 1000549 Google Analytics Demo DR jon...	35,07 %	\$0,3	\$1,31
3. 1000549 Google Analytics Demo DR Jo...	33,33 %	\$0,57	\$0
4. 1000549 Google Analytics Demo DR Jo...	28,13 %	\$0,48	\$1,96
5. 1000549 Google Analytics Demo DR Jo...	27,05 %	\$0,31	\$1,37

Device Breakdown

by Clicks, Cost, and Conversions





Challenges

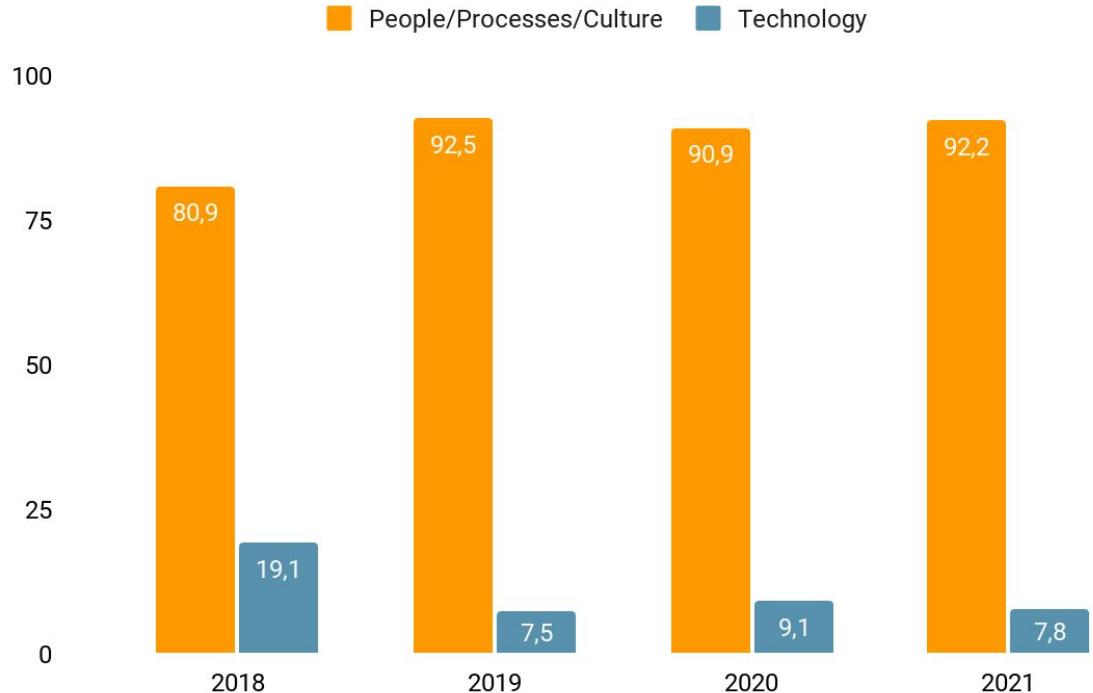
Only 39.3% are managing data as a business asset

Only 30.0% have a well-articulated data strategy for their company

Only 24.4% have forged a data culture

Only 24.0% have created a data-driven organization.

The Journey to Becoming Data-Driven: A Progress Report on the State of Corporate Data Initiatives (2021)



Principle challenge to becoming data-driven

Source: NewVantage Partners (2021), n = 85, Fortune 1000 companies, 76.0% of respondents held the role of Chief Data Officer or Chief Analytics Officer

Prof. Dr. Jan Kirenz

“Organizations which design systems [...] are constrained to produce designs which are copies of the communication structures of these organizations”

Melvin E. Conway

The next best
product

Marketing Technology Landscape

The Martech 5000

Total Solutions 8,000

Advertising & Promotion 922

Content & Experience 1936

Social & Relationships 1969

Commerce & Sales 1,314

Data 1,258

Management 601

 Access all the data of this landscape & more at martech5000.com

 2019
7,040 solutions

 2018
6,829 solutions

 2017
5,351 solutions

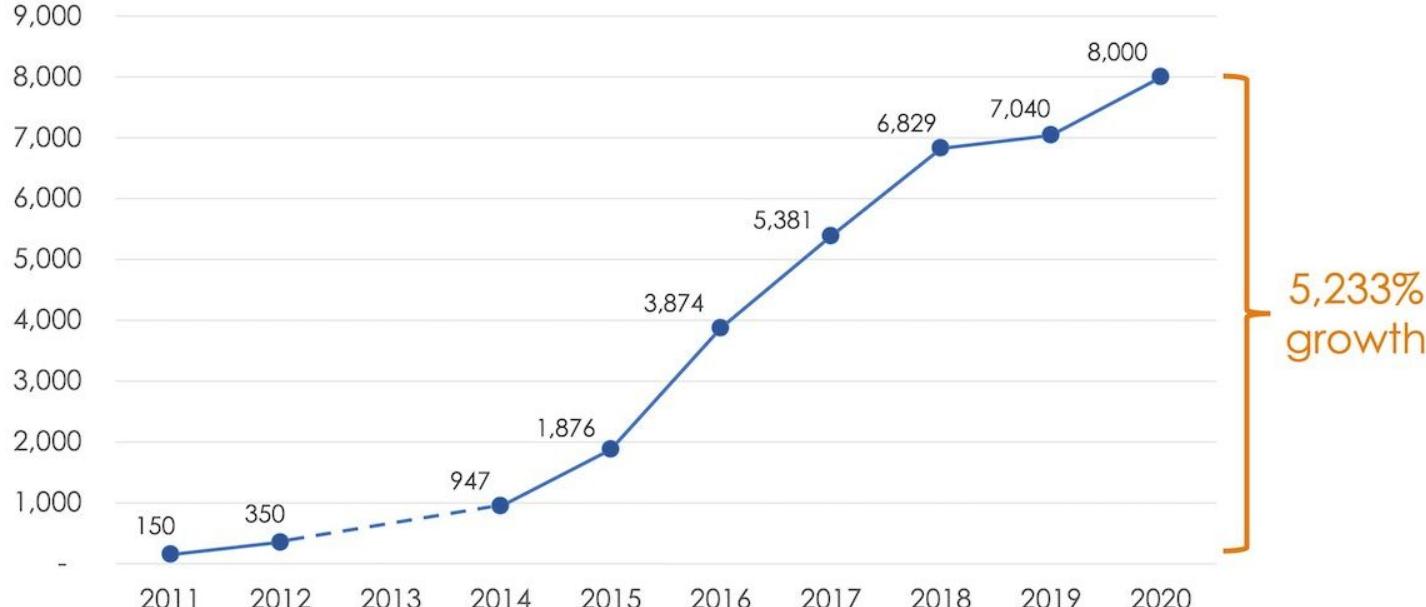
 2016
3,874 solutions

 2015
1,876 solutions

 2014
947 solutions

 Copyright © 2020 Marketing Technology Media, LLC. See <https://chiefmartec.com/2020/04/marketing-technology-landscape-2020-martech-5000/> for details and sources.

Produced by Scott Brinker (@chiefmartec) and Blue Green Brands (@bluegreenbrands).

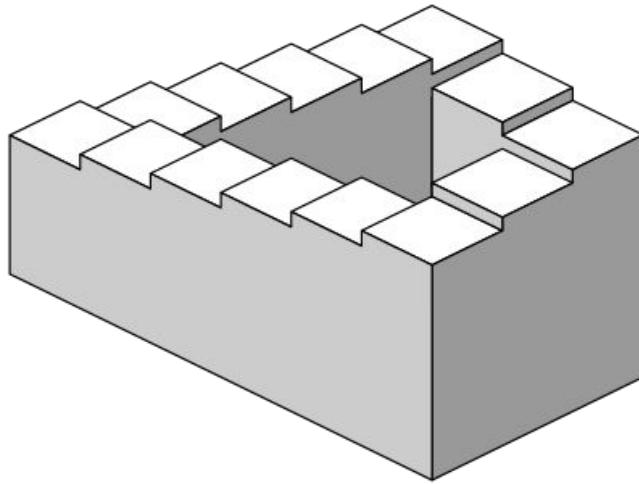


Growth of Martech Landscape 2011-2020

Total Solutions	8,000	Growth Since 2019	Biggest Subcategory Growth (Percentage) Since 2019	
Advertising & Promotion	922	4.1% ↑	Print	35% ↑
Content & Experience	1,936	5.6% ↑	Video Marketing	26% ↑
Social & Relationships	1,969	13.7% ↑	Conversational Marketing & Chat	70% ↑
Commerce & Sales	1,314	9.0% ↑	Retail Proximity & IOT	15% ↑
Data	1,258	25.5% ↑	Governance, Compliance & Privacy	68% ↑
Management	601	15.2% ↑	Projects & Workflow	41% ↑

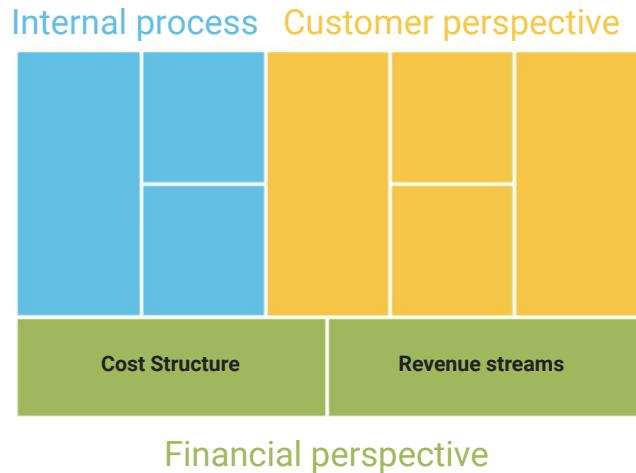
The never ending trap

1. Evaluate and select “best” product
2. Implement solution without an information architecture
3. Project is late and costs more than planned
4. Solution fails to meet expectations and active adoption
5. Blame current products used
6. Evaluate and select a new “best” product
7. Go back to step 2

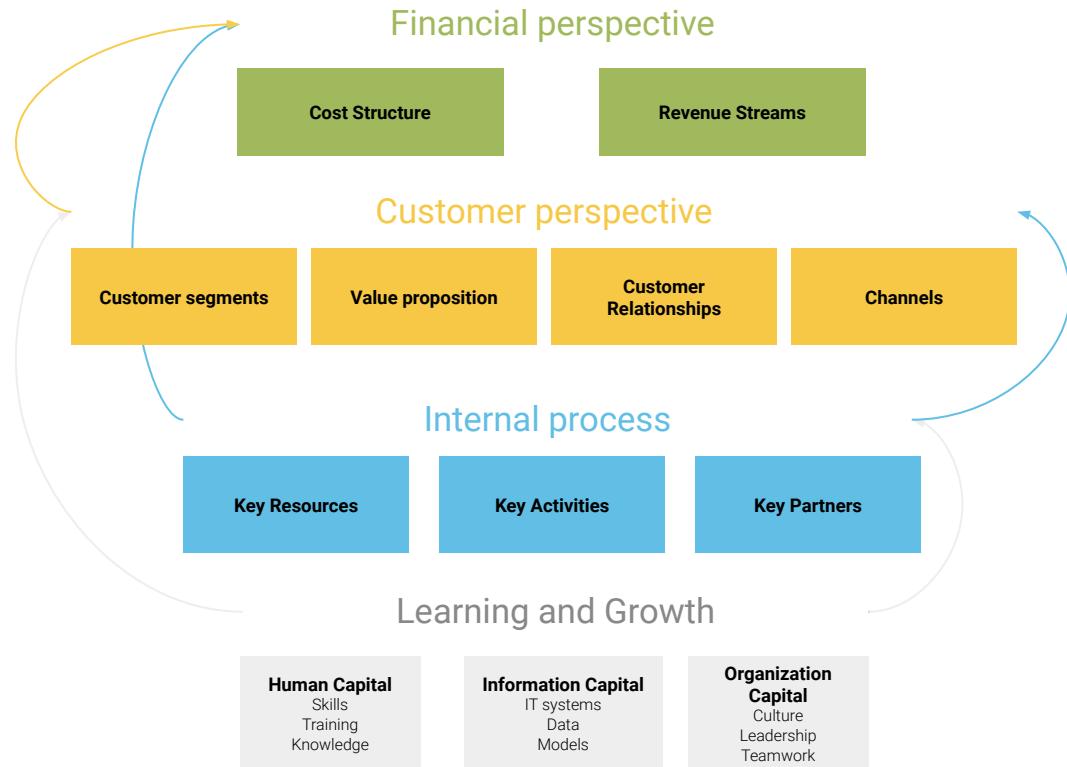
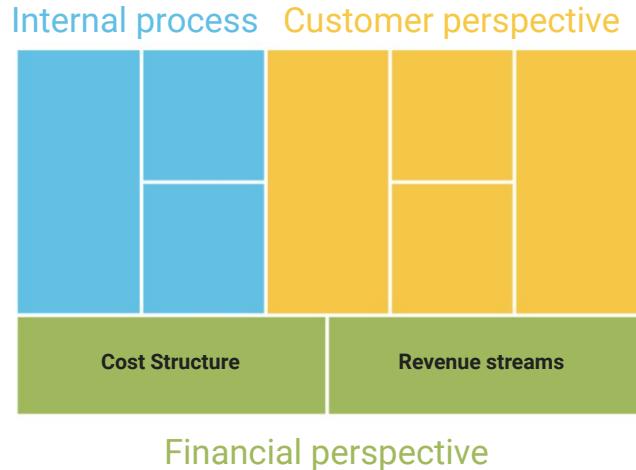


A different
approach

From BMC to information architecture



From BMC to information architecture



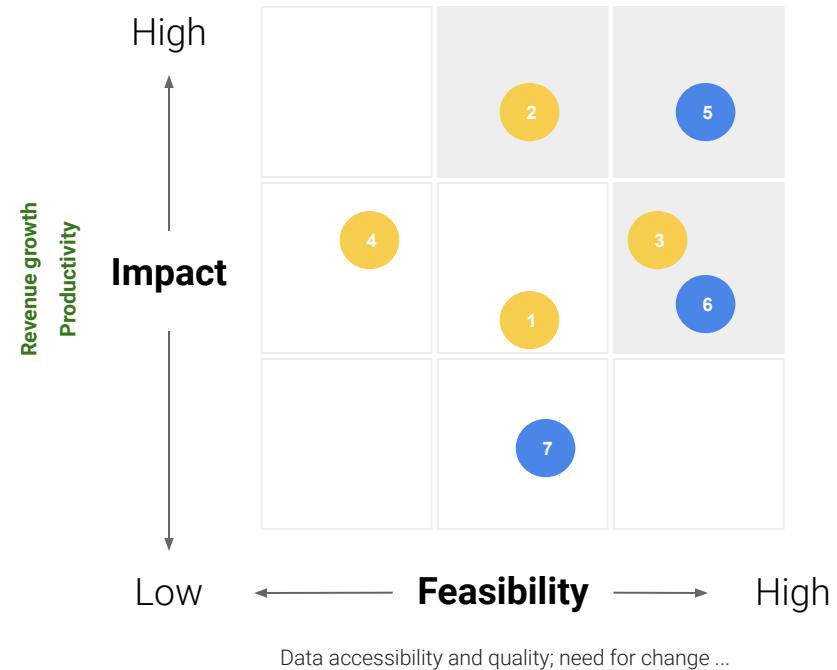
Use case prioritization and (data) ownership

Customer perspective

1. Customer segments initiative
2. Value proposition initiative
3. Channels initiative
4. Customer relationship initiative

Internal process

5. Key activities initiative
6. Key resources initiative
7. Key partners initiative



2021

From customer experience (CX) to business of experience (BX)

