

The *accelerated* Journey Towards becoming a Data-Driven Organization



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EVP @ STKI

stki.info

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STKI IT Knowledge Integrators
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The journey is now a RACE

Data is the new _____

Fill in the blank





"DATA IS THE NEW GOLD"



WHAT?

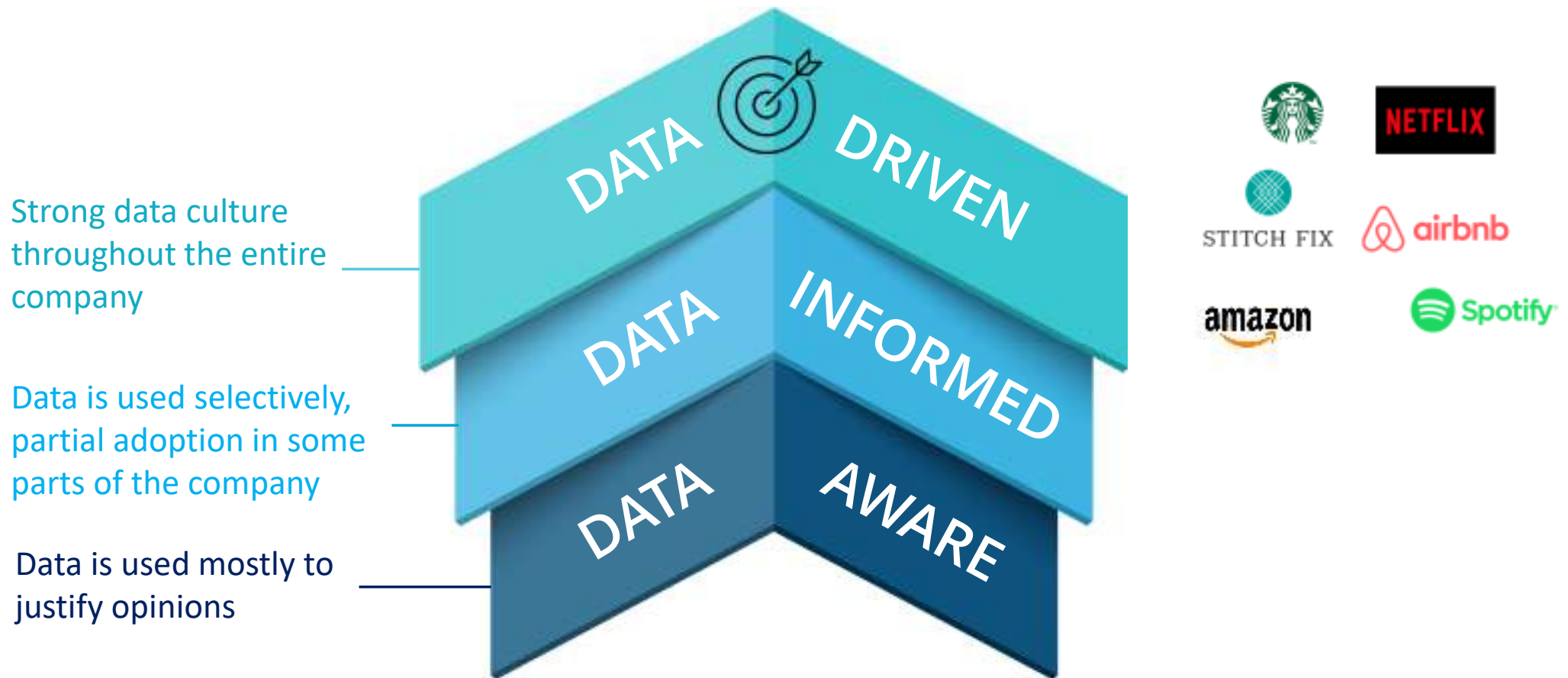


"Data Is The New Oil, Analytics Is The Refinery, and Intelligence is the Gasoline Which Drives Growth"

@Tiffani Bova

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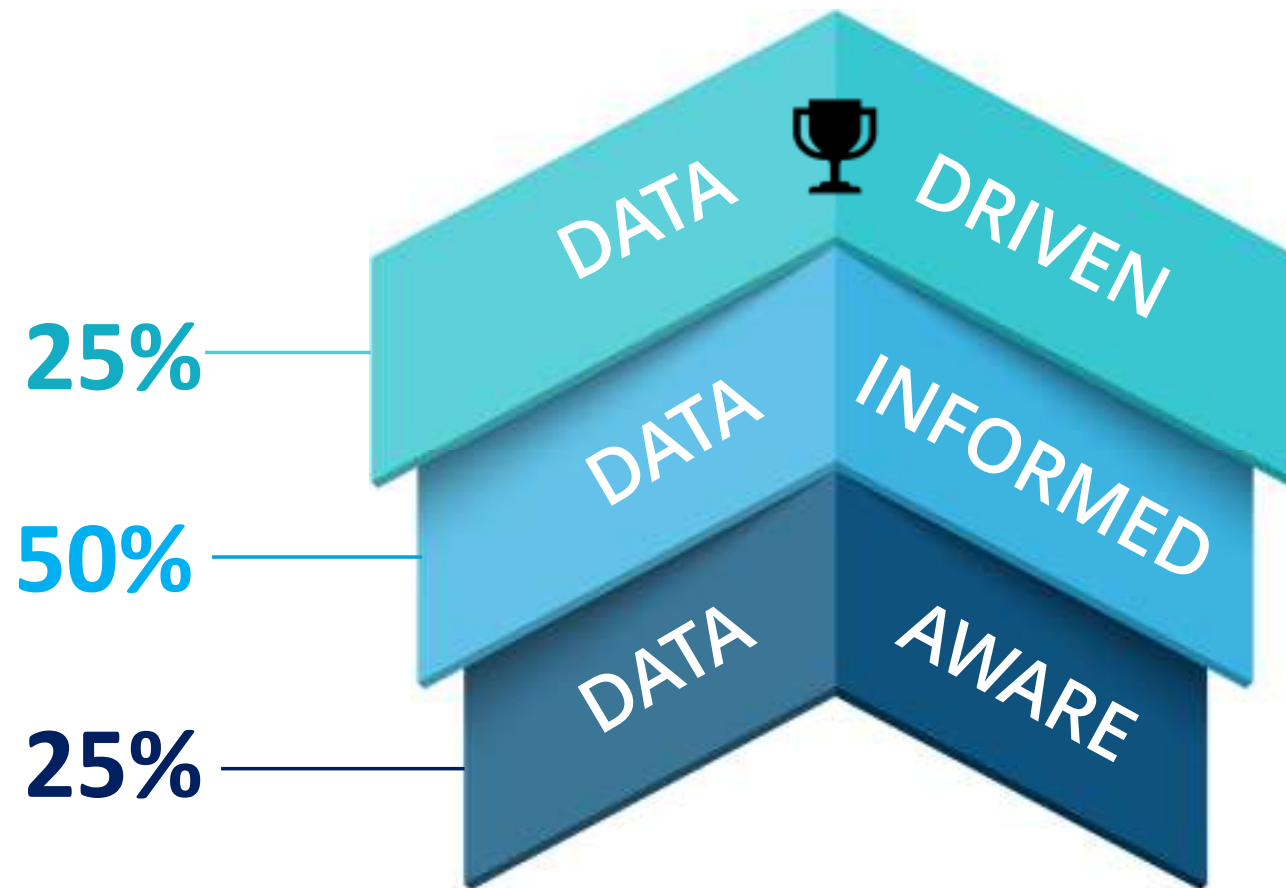
There are different “levels” of relying on data



Source: IDC

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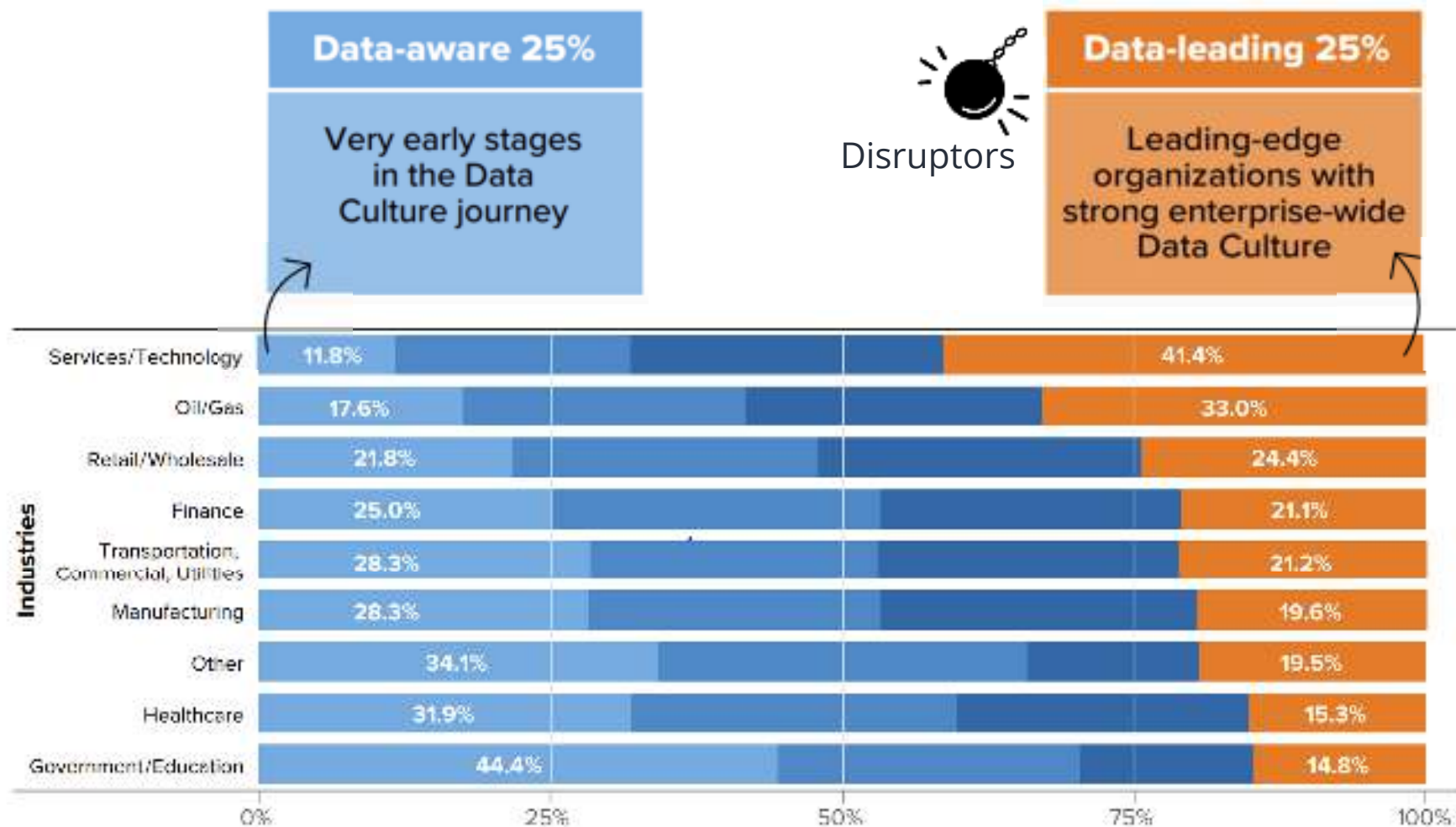
Which one are you?



Source: IDC

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Data culture maturity varies across industries



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Source: IDC

What are the characteristics of Data-Driven organizations?

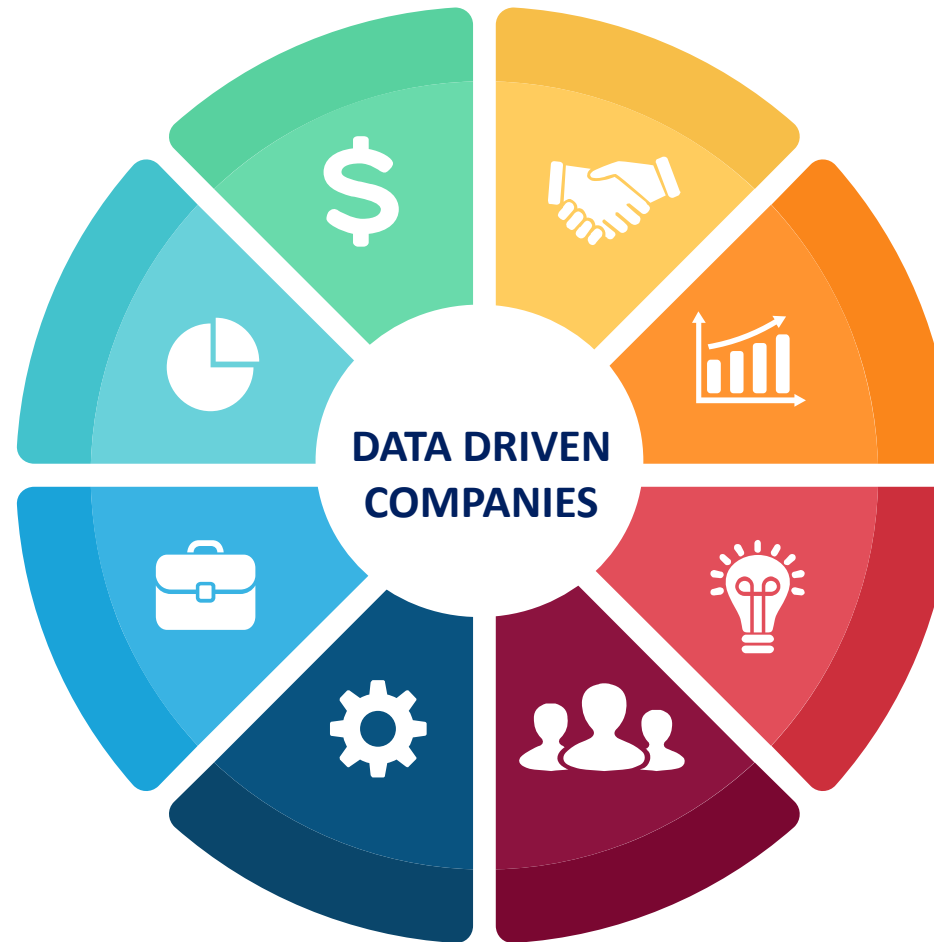


1 Data is managed and measures as an **ASSET**

2 Data is **ACCESSIBLE** and trusted

3 Data used **FREQUENTLY** in meetings

4 Data is used in **MORE THAN ONE WAY**



8 Data is **INFLUENCING** major decisions

7 Data is a **competitive differentiator**

6 **Culture** of curiosity, innovation, experimentation

5 **Data skills** prioritized when hiring new employees

And it pays off, BIG TIME

+30%

Higher annual growth
6% higher profits
4% higher productivity

+35%

Rise in new
customer acquisition



+40%

Improved time to market

+35%

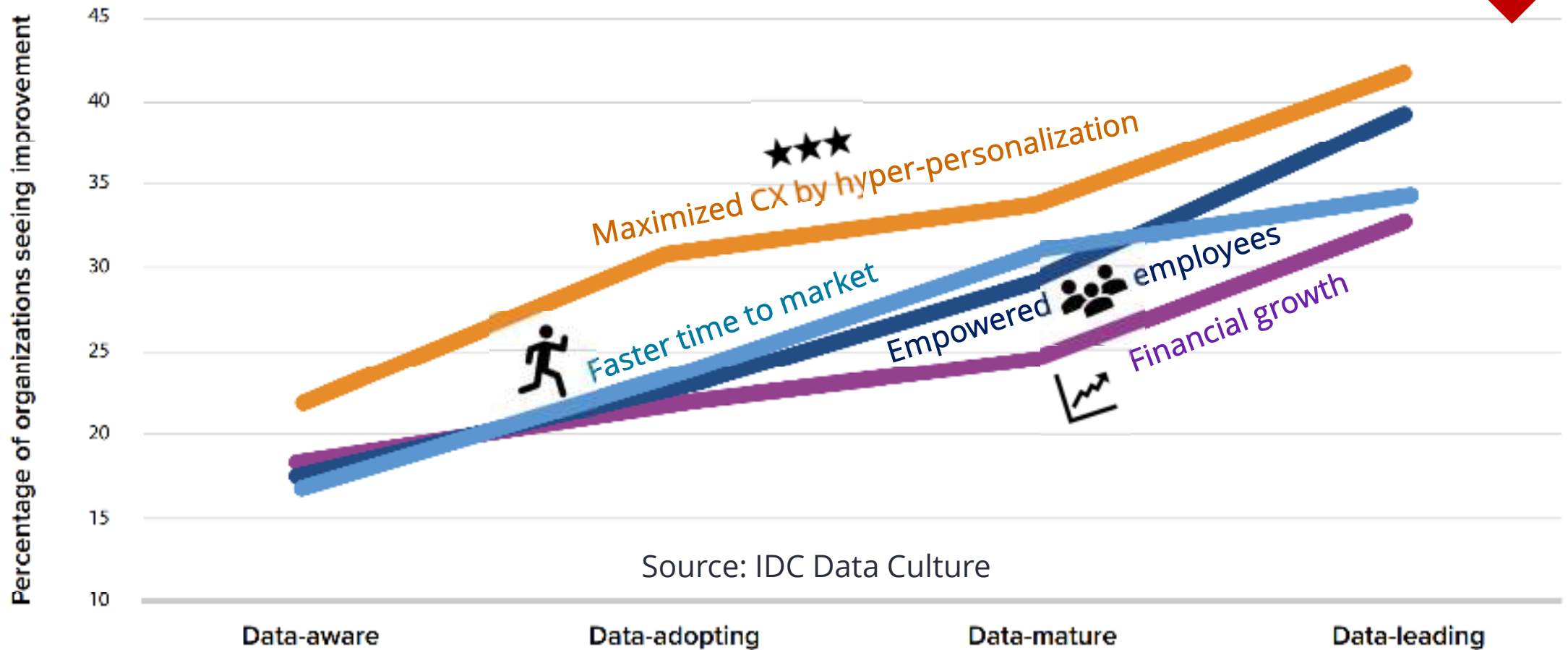
Increase in
employee retention

Source: IDC and MIT Sloan School of Management

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Data Culture Provides Rich Dividends

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■ Customer metric (satisfaction) ■ Offering metric (time to market) ■ Employee metric (productivity) ■ Financial metric (profit)



stki.info: IDC, 2021

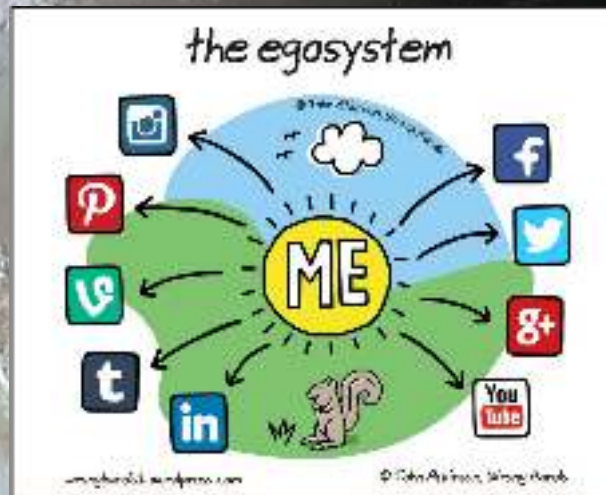
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How do data driven
companies excel at CX?

We're living in the age of Ego-Systems*

*whether we like it or not



I know I'm not the center of the universe, but you can spin around me just the same.

- Chester Bennigton, Kilara, Heavy

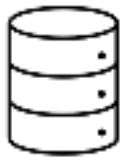
Source: Brian Solis

Data driven companies can create hyper-personalized experiences



“Magic moment” Concierge-based services
The highest level of experiences

What is needed for hyper-personalization?



Data receptors

Access to data that feeds behavioral, contextual, preferences and experience data



Insights

ML models



Fast Action

Change the product/Process FAST

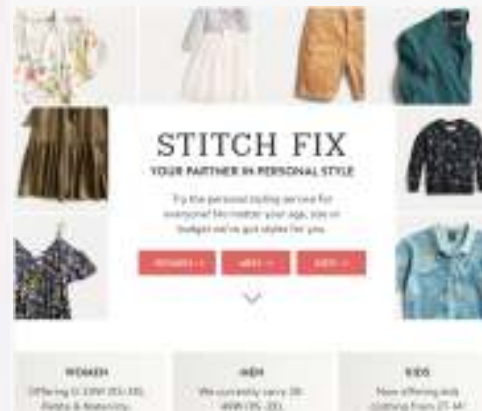


Care/Of



Lifestyles, goals,
continuous feedback

StitchFix



Preferences
returns feedback

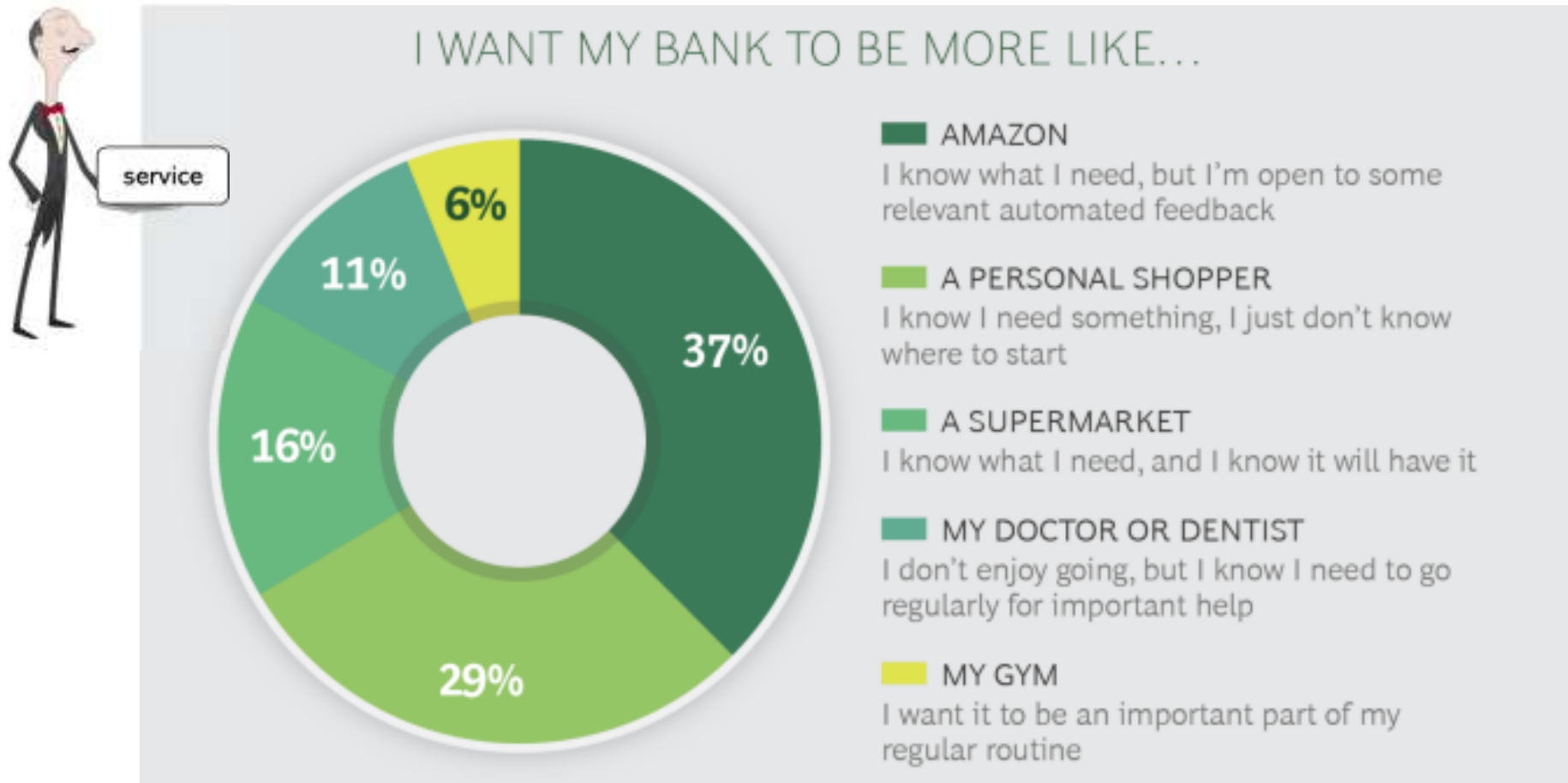
Starbucks



Wallet and Loyalty

What is hyper personalization?

Originated from marketing, hyper-personalization means creating custom experiences through the use of data, analytics, AI, and automation.



"Successful personalization could represent an increase of 10% in a bank's annual revenue"

Source: Boston Consulting Group

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"One of the Top 20 business transformations of the past decade" (HBR)

"World's best digital bank" - Euromoney

"Most Innovative Financial Institution"

"Best Bank in Asia" 2020

CW awards winner



The mission:

Hyper-personalized digital experiences enabled by data and AI

From a reactive "data service center"

To: 2 in a box: Shared KPI, ownership of the problem, formulating business problems into data problems done by analytics, measured on actual use

'Data Heroes' literacy program: 16,000 employees over 18 months

Analytics CoE: Analysts from all 18 markets

DBS believes that embedding themselves in the customer journey and embracing digital is a potent combination that will make banking increasingly simple and seamless. DBS aims to:



Increase digital acquisition of customers and grow their digital channel share.



Adopt hyper personalisation by strengthening data analysis and AI capabilities.



Grow and leverage partnerships ecosystem to provide invisible banking.



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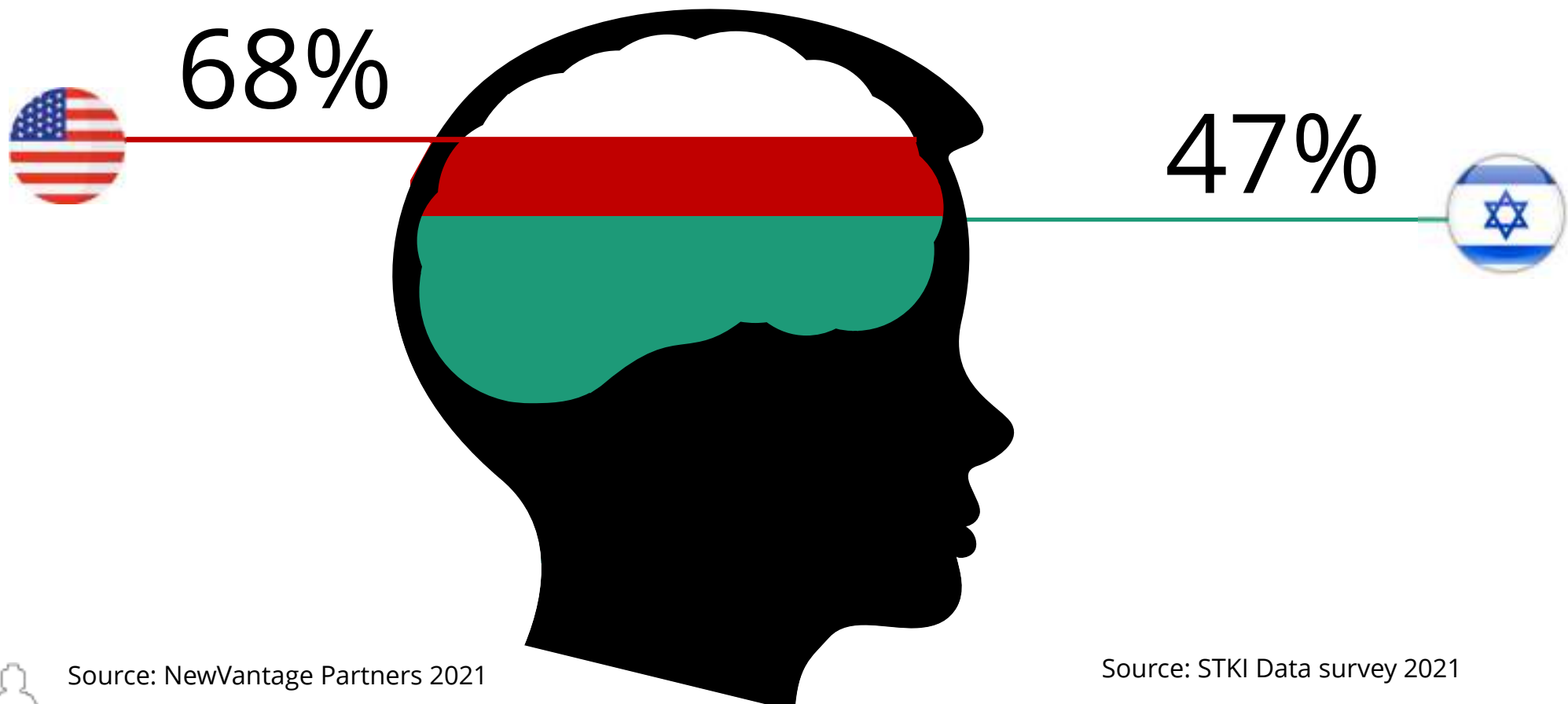
The most valuable AI use case: Hyper personalization!



	% seeing positive ROI	% seeing no or negative ROI
Customer service and experience	74%	26%
IT operations and IT infrastructure	69%	31%
Planning and decision making	66%	34%
Risk management	62%	38%
R&D and innovation	62%	38%
Supply chain, procurement	62%	38%
Connected devices and products	61%	39%
Pricing and business models	61%	39%
Data security and privacy	60%	40%
Brand management and reputation	60%	40%
Customer onboarding/admin	59%	41%
Distribution and logistics	59%	41%
Legal and compliance	58%	42%
E-commerce/customer platforms	58%	42%
Market and customer analysis	57%	43%
Marketing, promotion, channels	57%	43%
Fraud detection and mitigation	57%	43%
Finance and auditing	53%	47%
Sales and business development	51%	49%
Average positive or negative return	60%	40%



How many organizations have a CDO (Chief Data Officer)?



Source: NewVantage Partners 2021

Source: STKI Data survey 2021

CDOs focus shifting more and more to OFFENSE

	<u>2020</u>	<u>2021</u>
Offense: Revenue Generation	55%	70%
Defense: Compliance Regulations	45%	30%

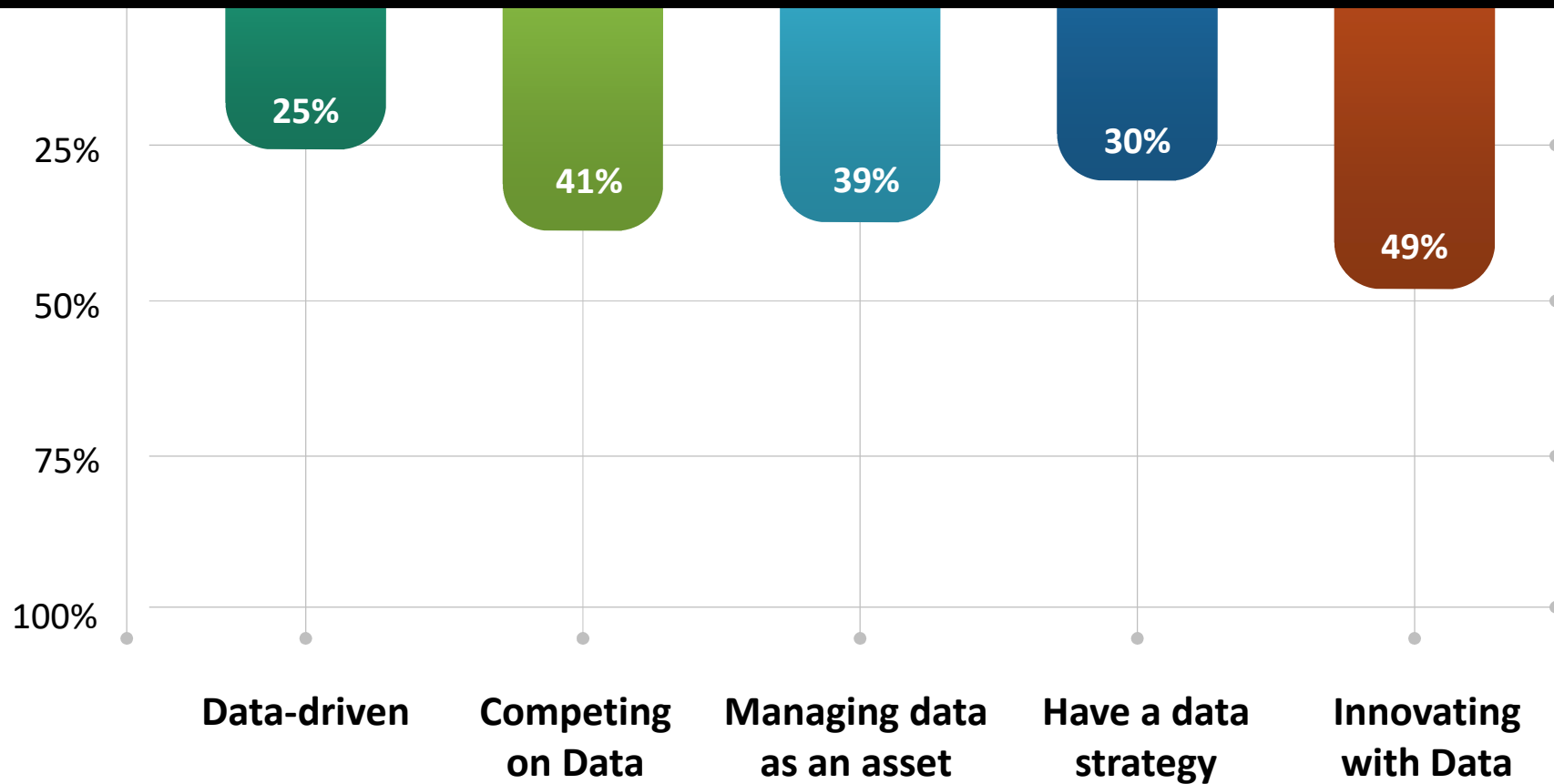


Source: NewVantage Partners

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The sad truth

Source: NewVantage Partners



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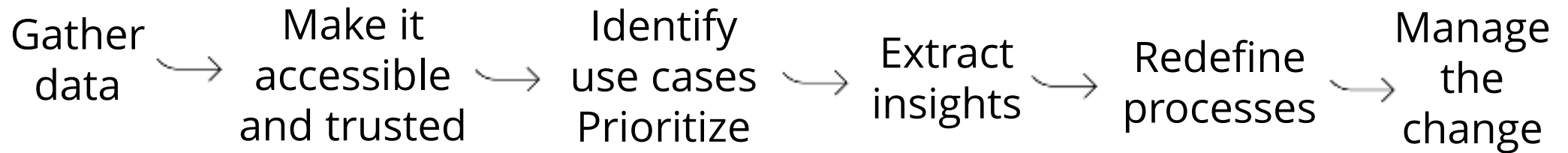
Why?

It's complicated.



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All parts of the value chain must work



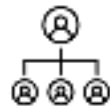
Operations

Organization

Culture

Governance

Skills



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What is your weakest link?



Is it Data Culture & Literacy?

Or is it resistance to changes in existing processes?



Analytics is disruptive

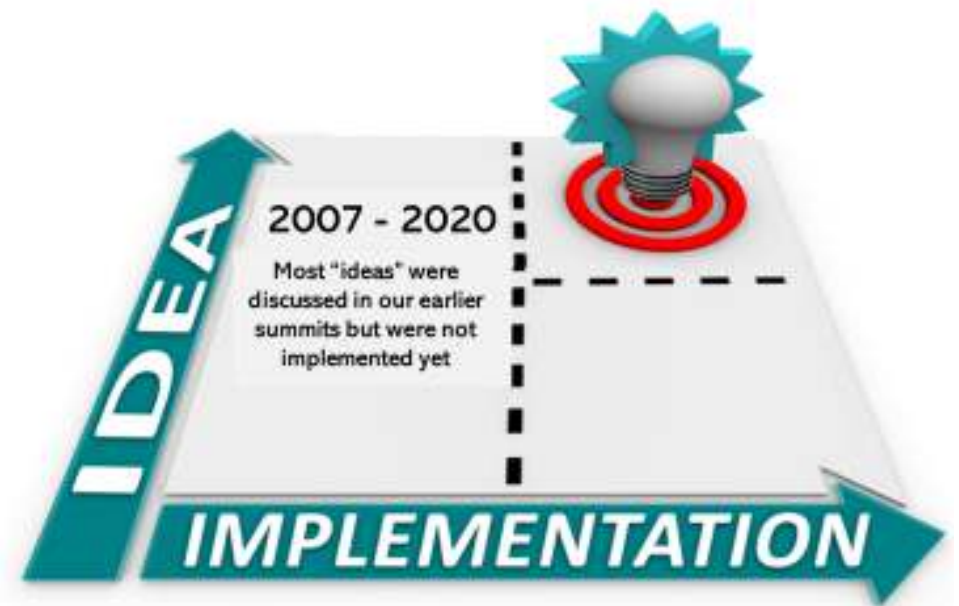
2020-2021
were about planning a
DATA STRATEGY



2022-2023 will be about **IMPLEMENTATION AND RESULTS**

What is needed to
implement the strategy?

- 1.CoE
- 2.Playbook



The CoE

Competency or capability center run by a group of multiple disciplines experts, to help a company to adopt new tech & processes faster and reach goals efficiently

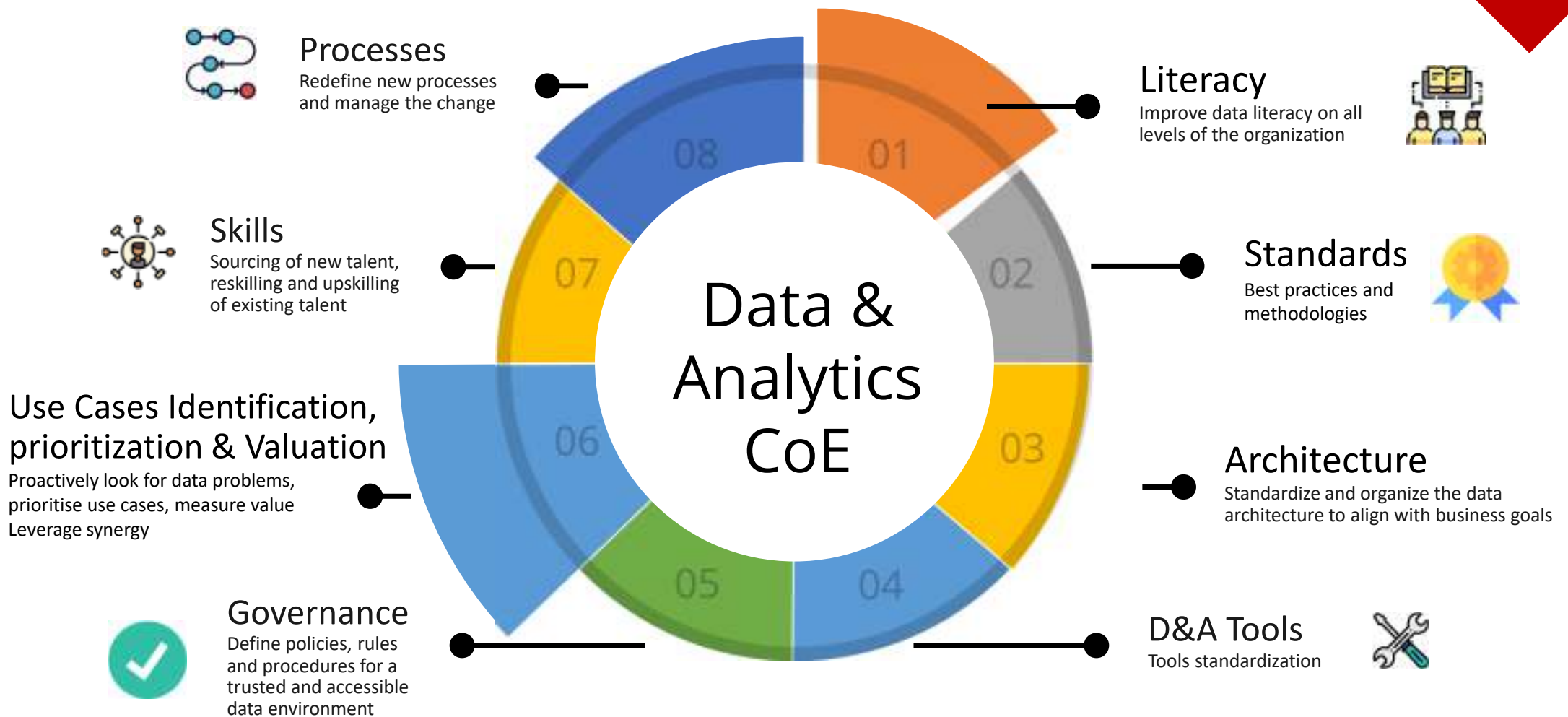


Not a physical center/ Not a business department



CoE is an **adhoc group of experts**; they work in projects but give part-time in order to establish organizational excellence:

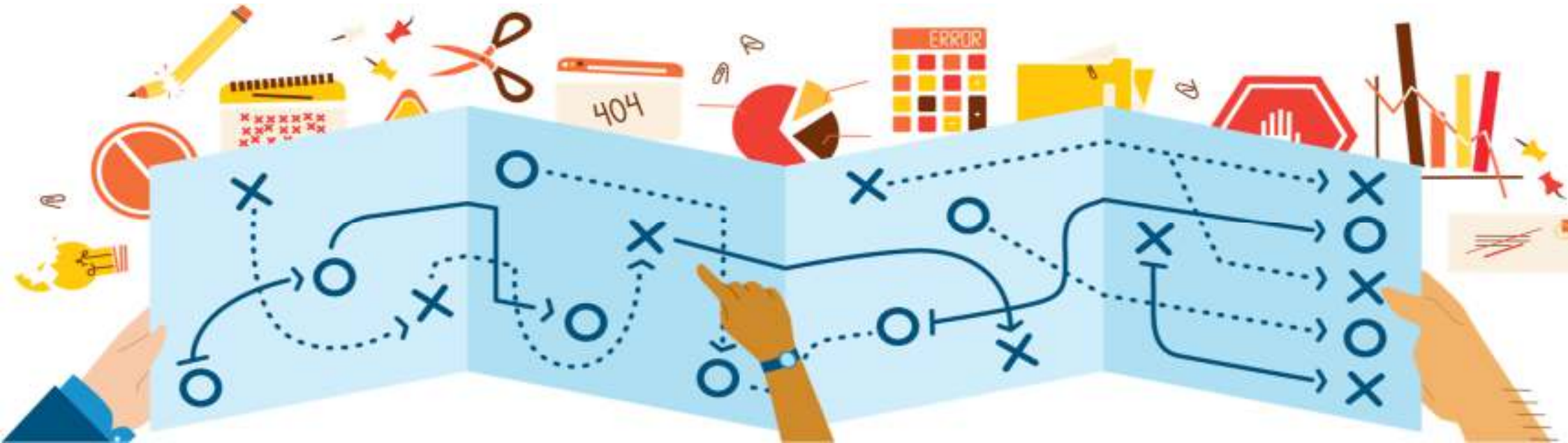
- best practices,
- leadership,
- research,
- training,
- support for a subject area.



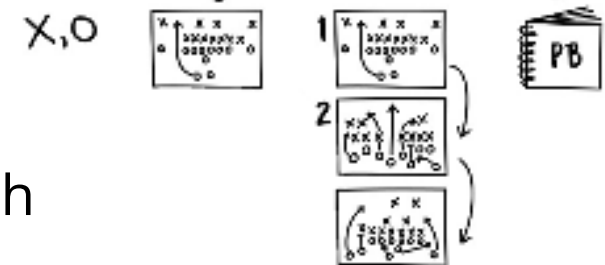
CoE is an enabler

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The Playbook



Roles + Plays + Game Plan = Playbook



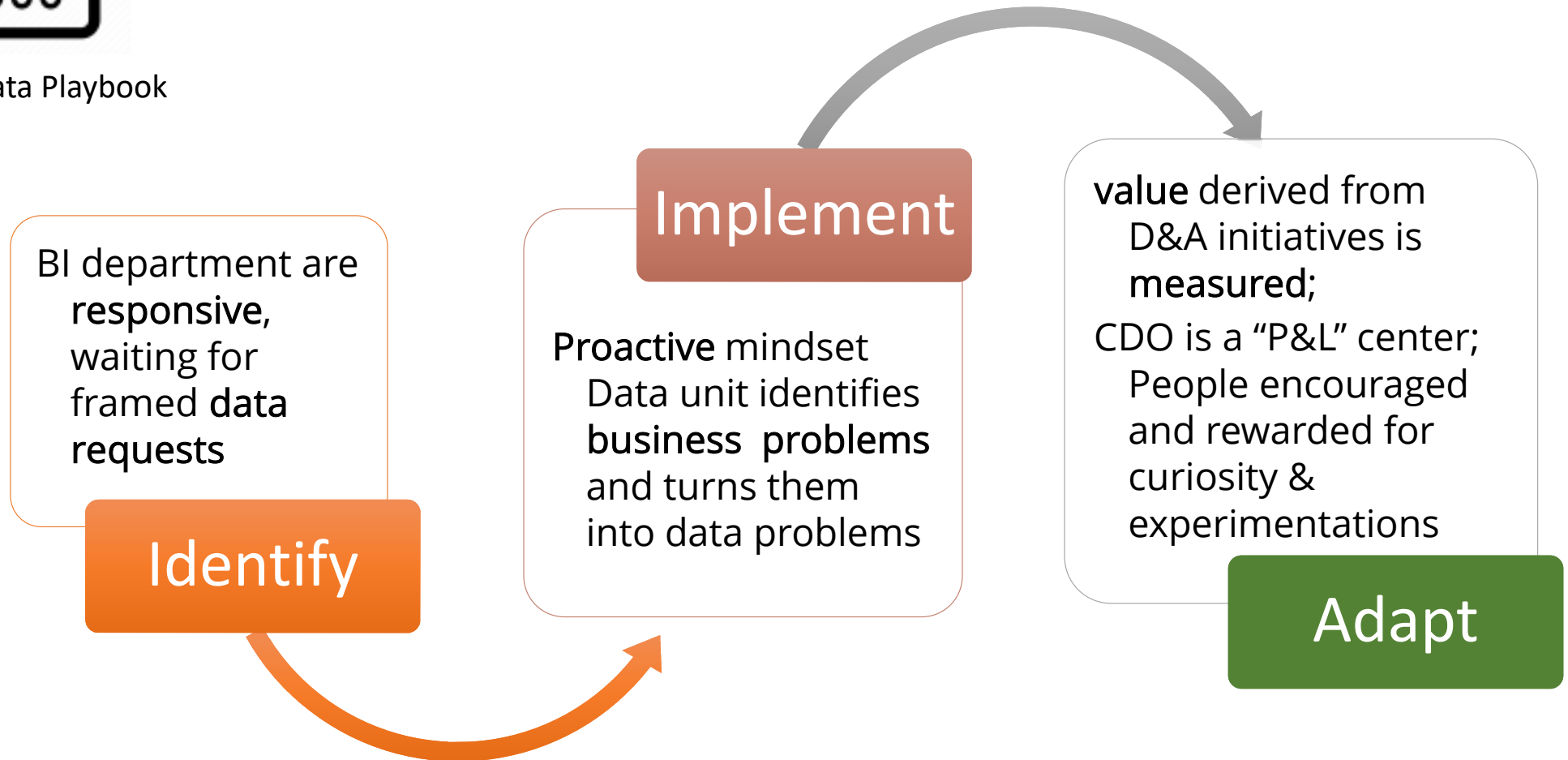
A playbook contains all the pieces and parts that make up your company's go-to approach for getting things done ("the play")



From a **reactive** to a **proactive** mindset

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The Data Playbook

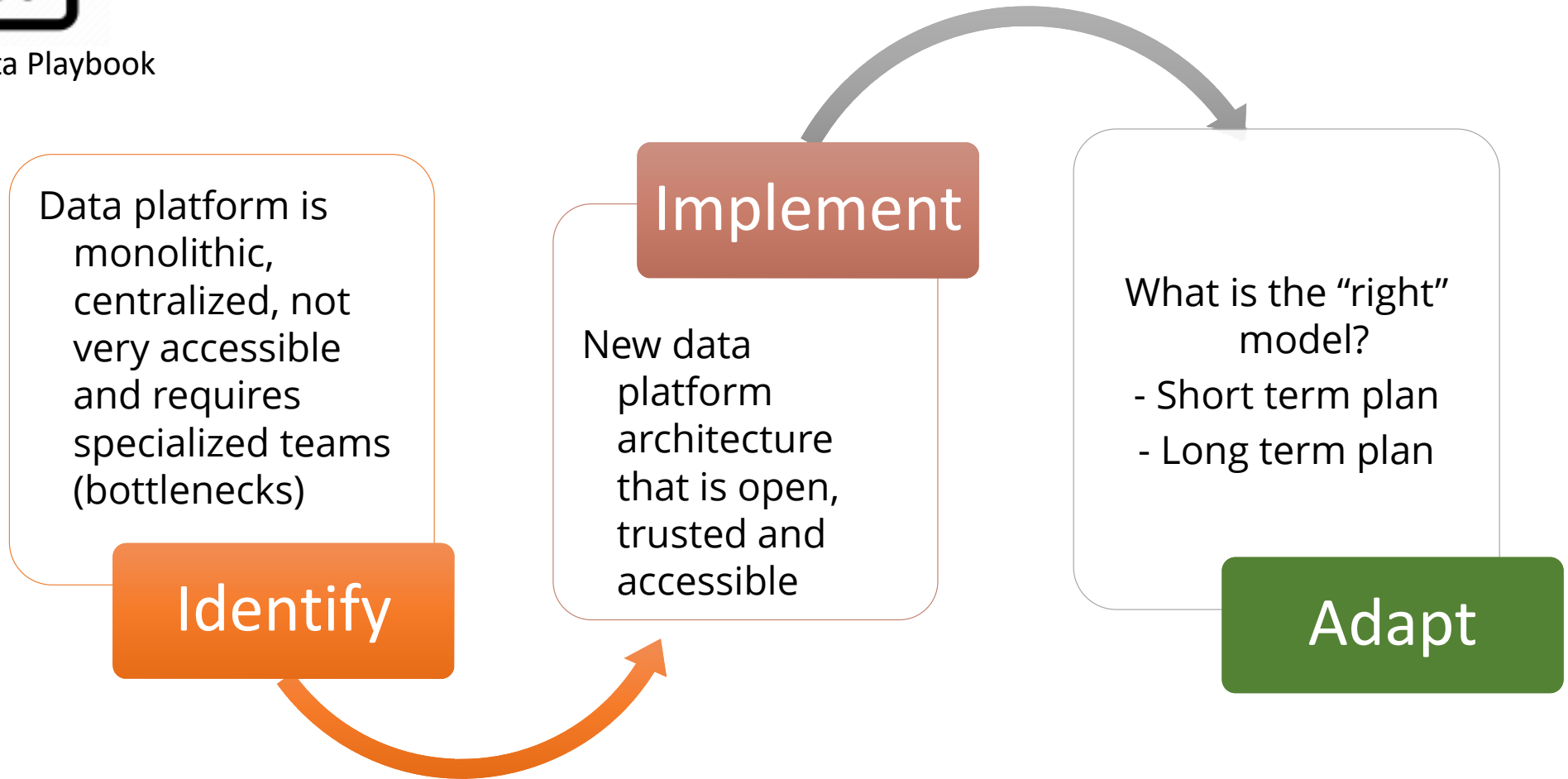




The Data Playbook

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Create an **accessible** and **trusted** data platform



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DATA FORECAST



“If you’re not in the cloud, good luck with this”
- Joe Caserta

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Source:
STKI Data survey 2021

17%

Already on the
cloud for D&A

28%

No and are not
planning to

55%

<60% in financials>

Planning to enter
public cloud for
D&A soon



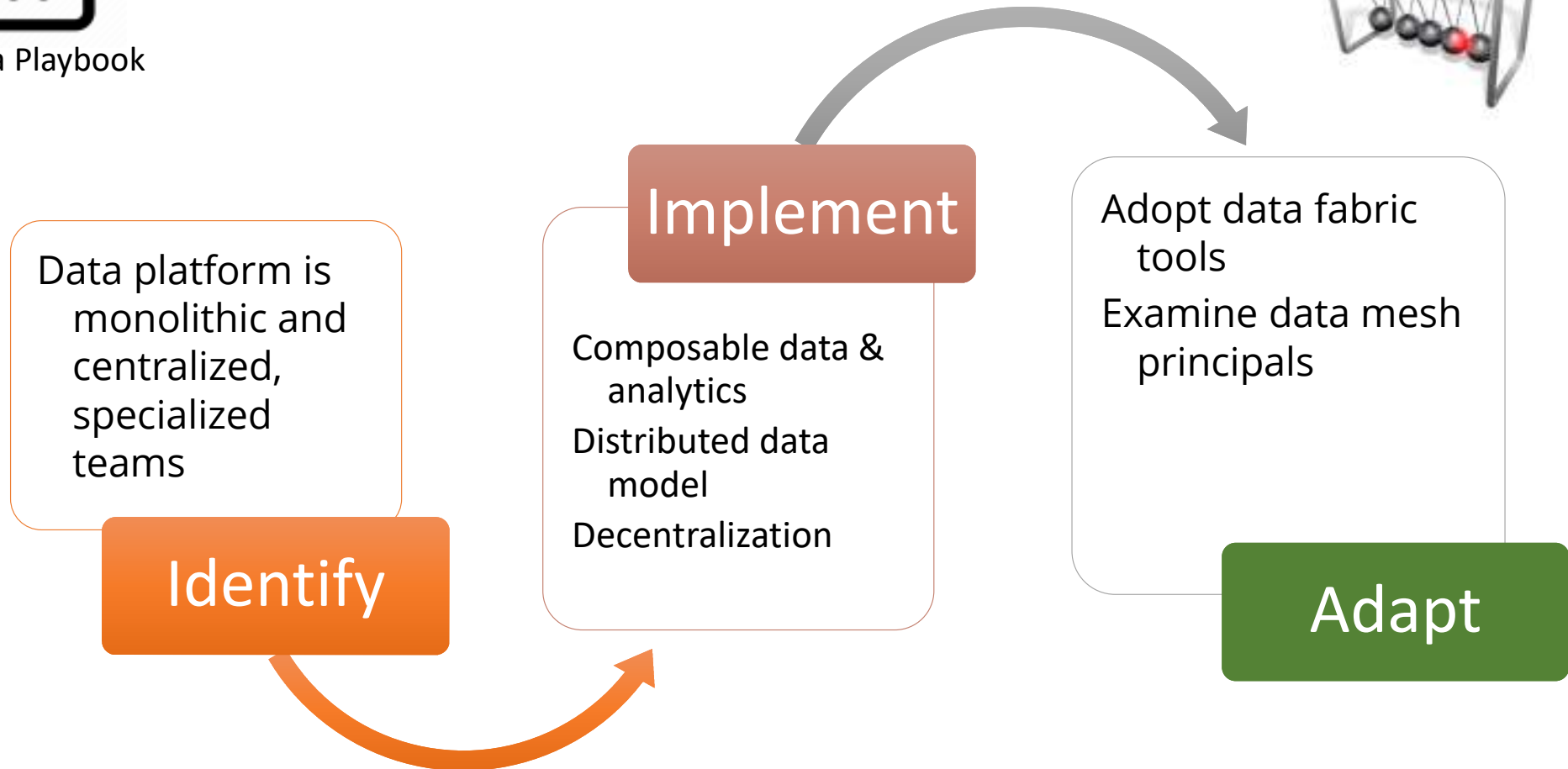
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The Data Playbook

From Monolithic to Distributed



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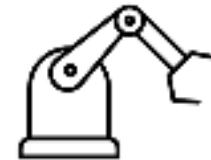
Three types of data uses:



Operational



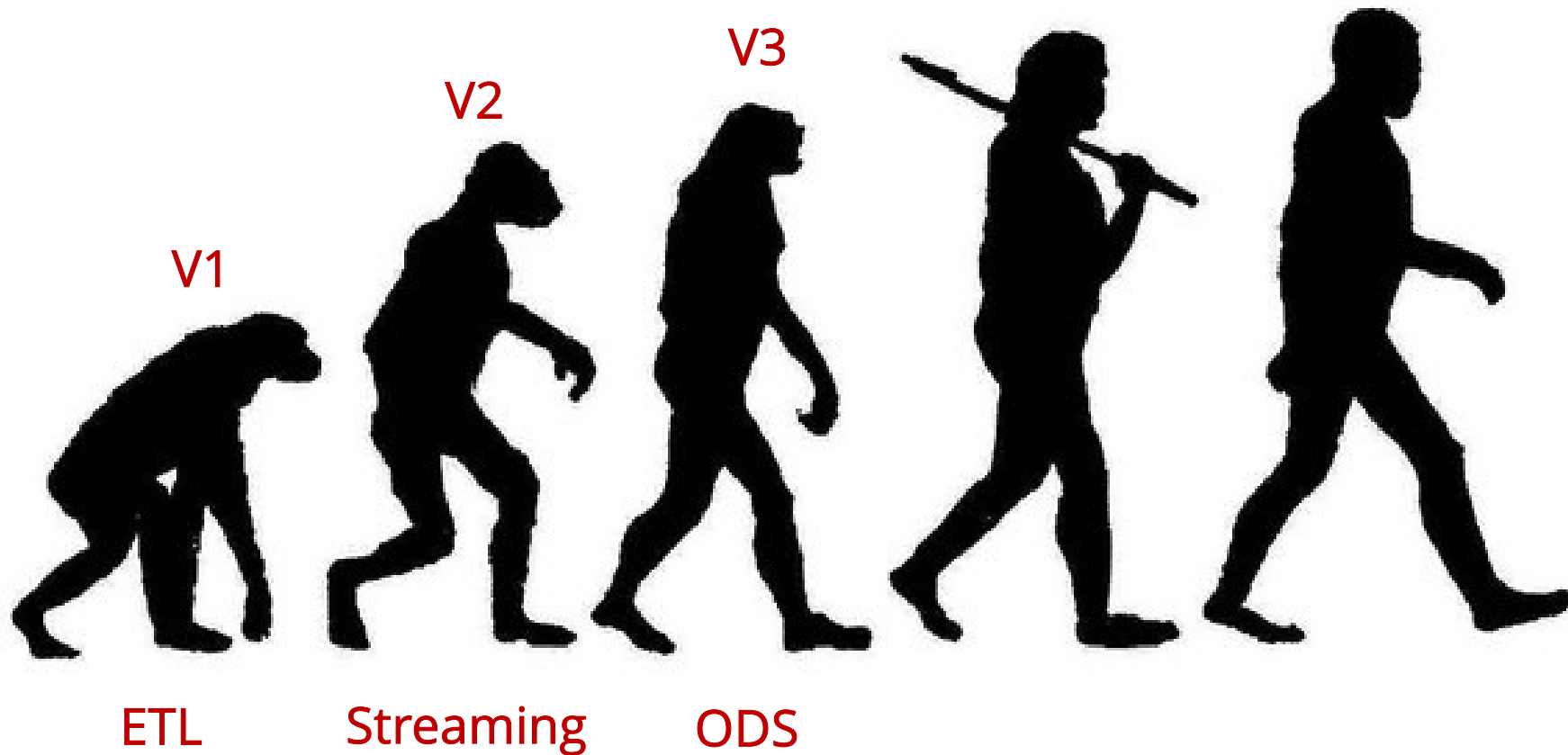
Analytical



**Analytically
Operational**



Operational Architecture





ODS – Operational Data Store

- Copy of online transactional data
- Ready for use by the application consumer



BOI Open Banking Regulation



- קידום היעד הפיקוח לפתיחת שירותי המערכת הבנקאית לתחרות והגברת הערך ללקוח.
- עידוד חדשנות במערכות הבנקאית, בדומה לעולם.
- יישום תכלית סעיף 5 בחוק להגברת התחרות ולצמצום הריכוזיות בשוק הבנקאות בישראל, התשע"ז-2017.
- גיבוש סטנדרט אחיד למידע ולפעולות במערכת הבנקאית.

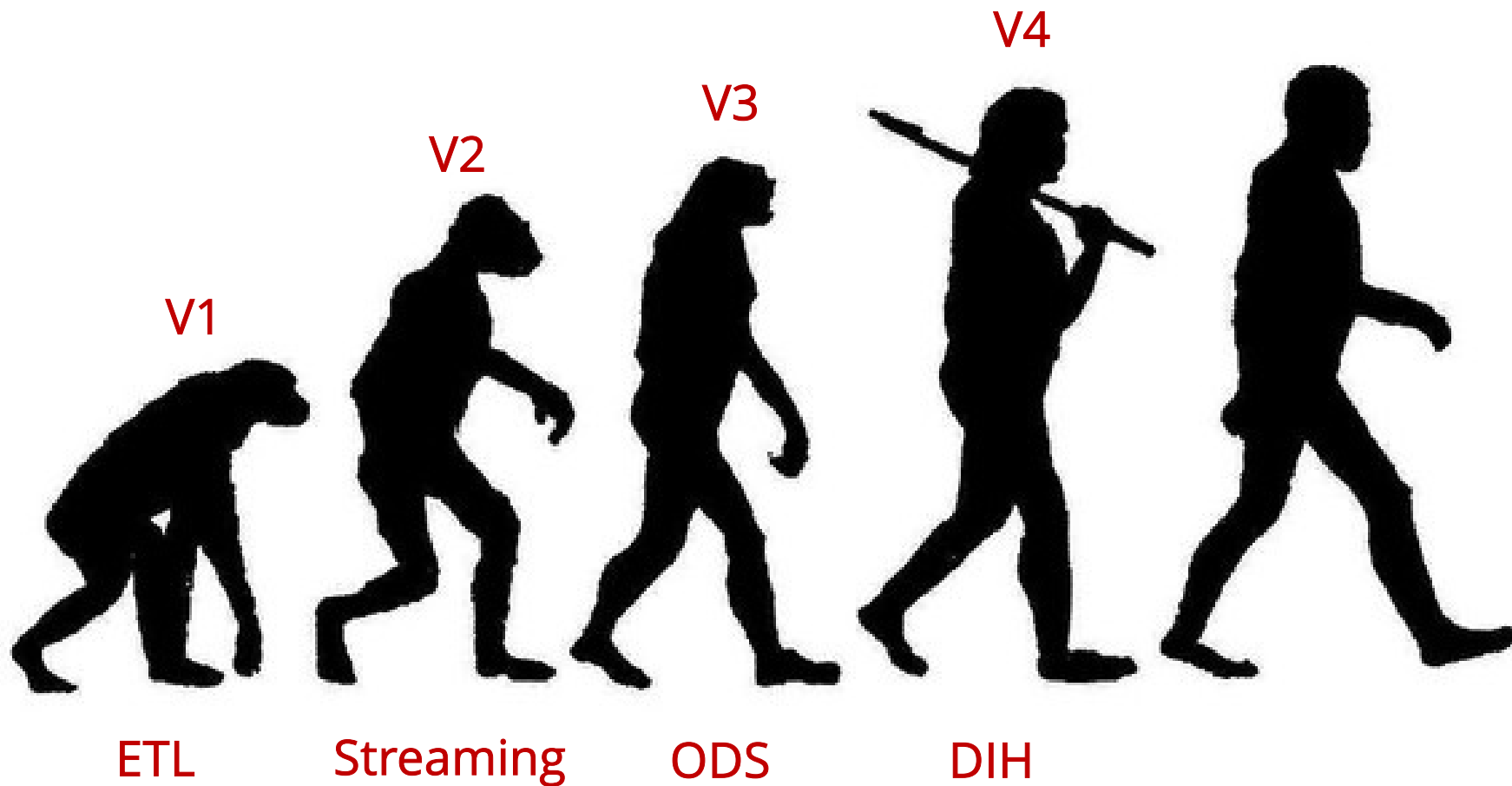


ODS – the hottest project in the market!

I'm Hot!



Operational Architecture





DIH – Data Integration Hub

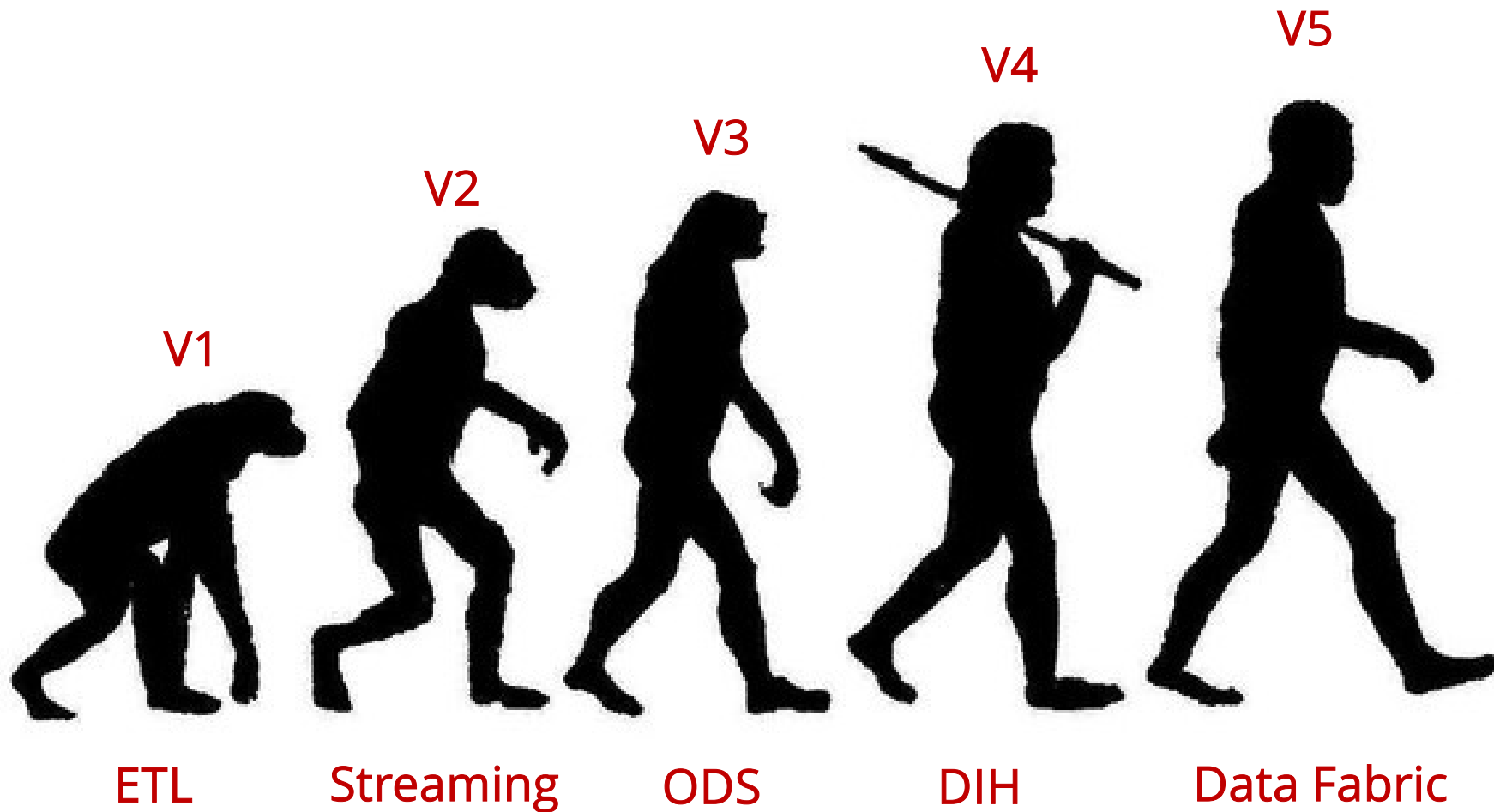
Same as ODS but:

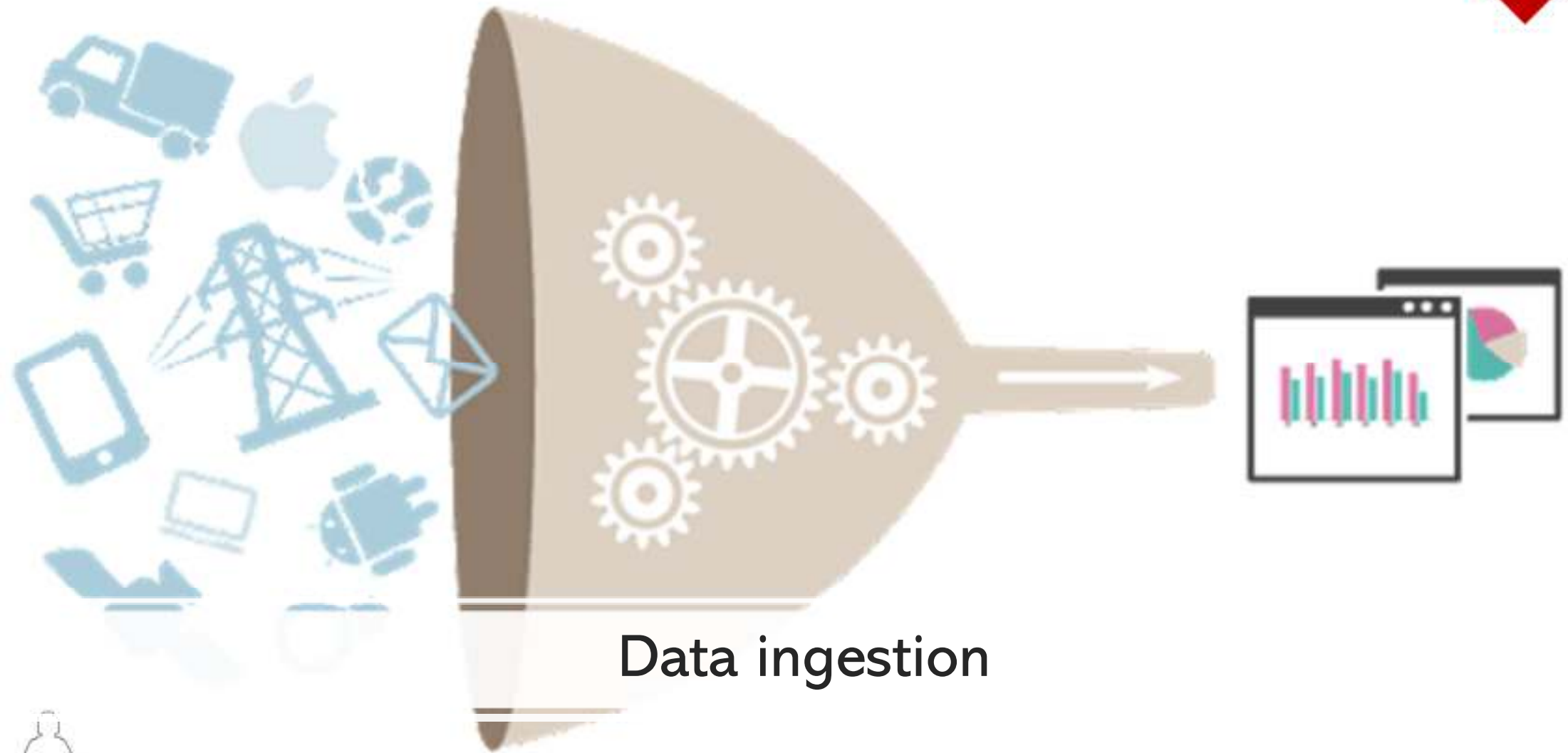
- Data is stored in Data Grid \ HPDS – High Performance Data Store and not DBMS
- Data is stored in the original format
- Schema on read
- Data is consumed via API request and not via DBMS\ODBC link
- Enables write

NEW



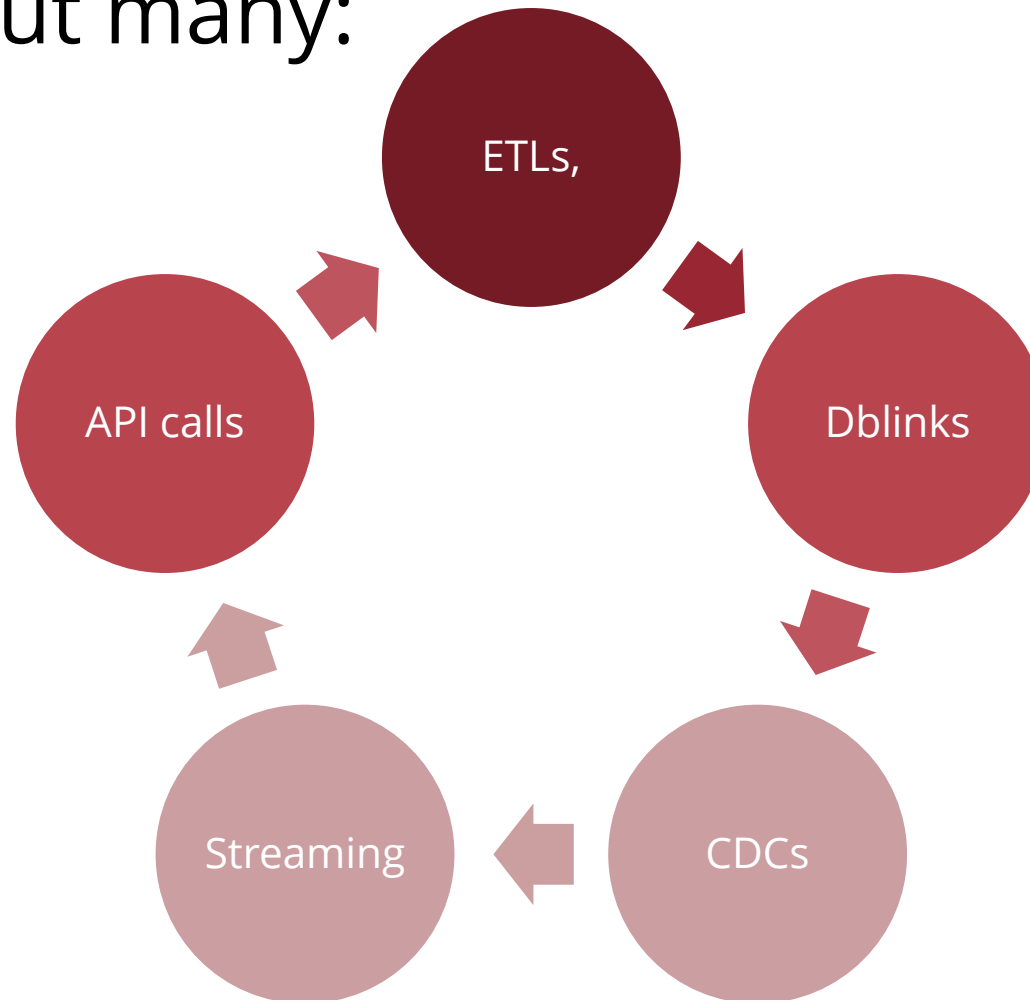
Operational Architecture





Data ingestion

Not one but many:



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For each
data move:

Metadata

Quality
(+enrichment)

Scheme

Security

Governance

Data Catalog

Workload
management

Management
console

Data Lineage

Self Service \
Pipelines

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Data Fabric

What if we could see\control everything from one place?

- All data sources, injection instances
- Set/monitor security, QA\enrichment, governance, migrations (of tools) in all data environments?


I Have A Dream

Martin Luther King, Jr.

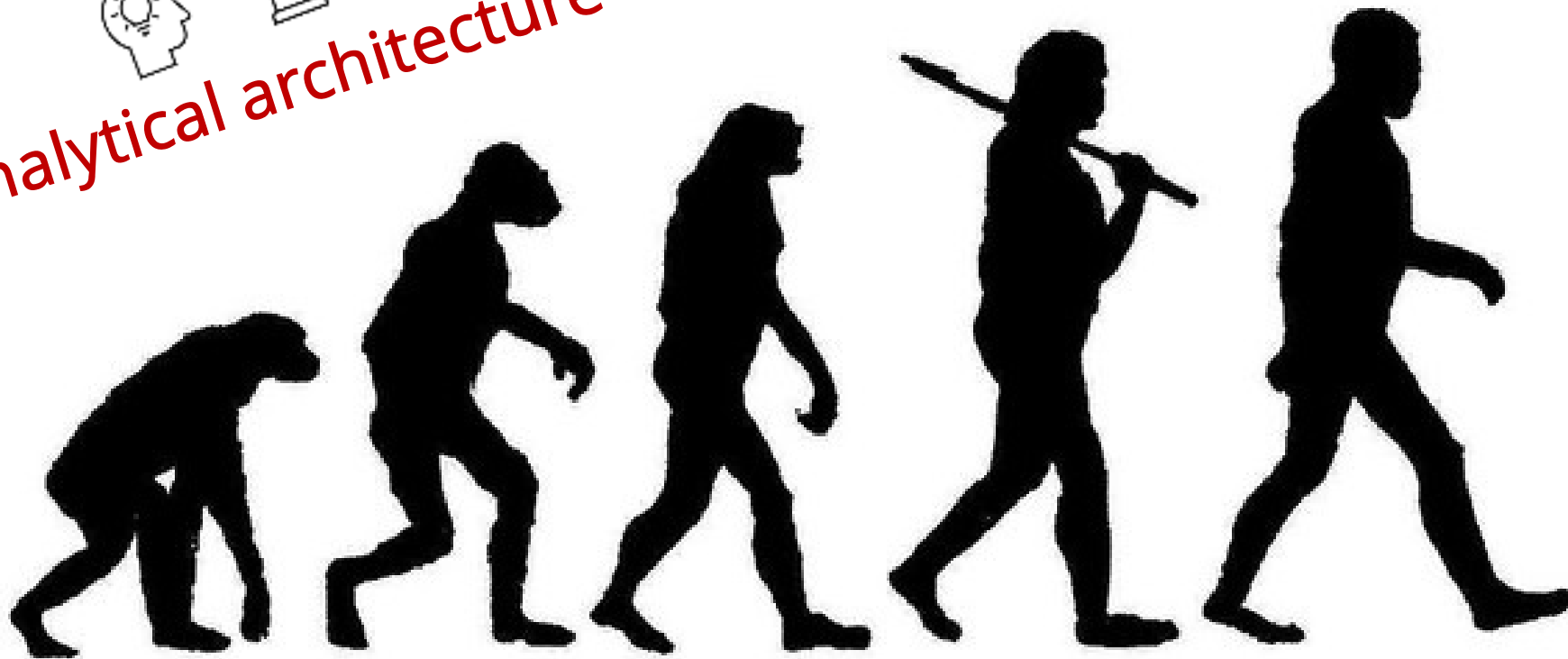


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Analytical architecture



V1: DW

Single version
of the truth

V2: Data Lake

Pockets of R&D
analytics, Data
Eng. bottleneck

V3: Multi Model

Cloud and
Lakehouse
Real time streaming
DE still bottleneck

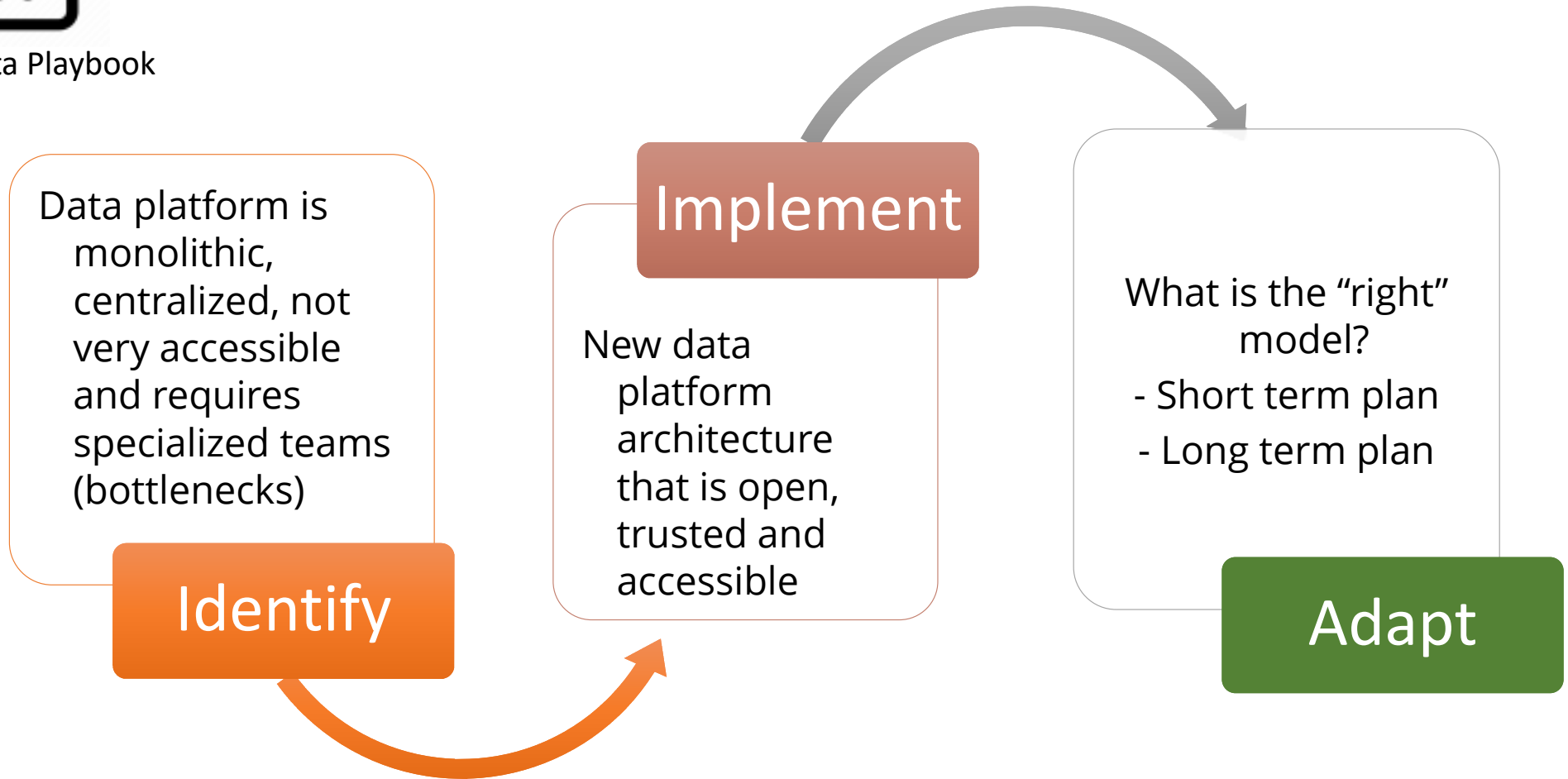
What's the next data architecture?



The Data Playbook

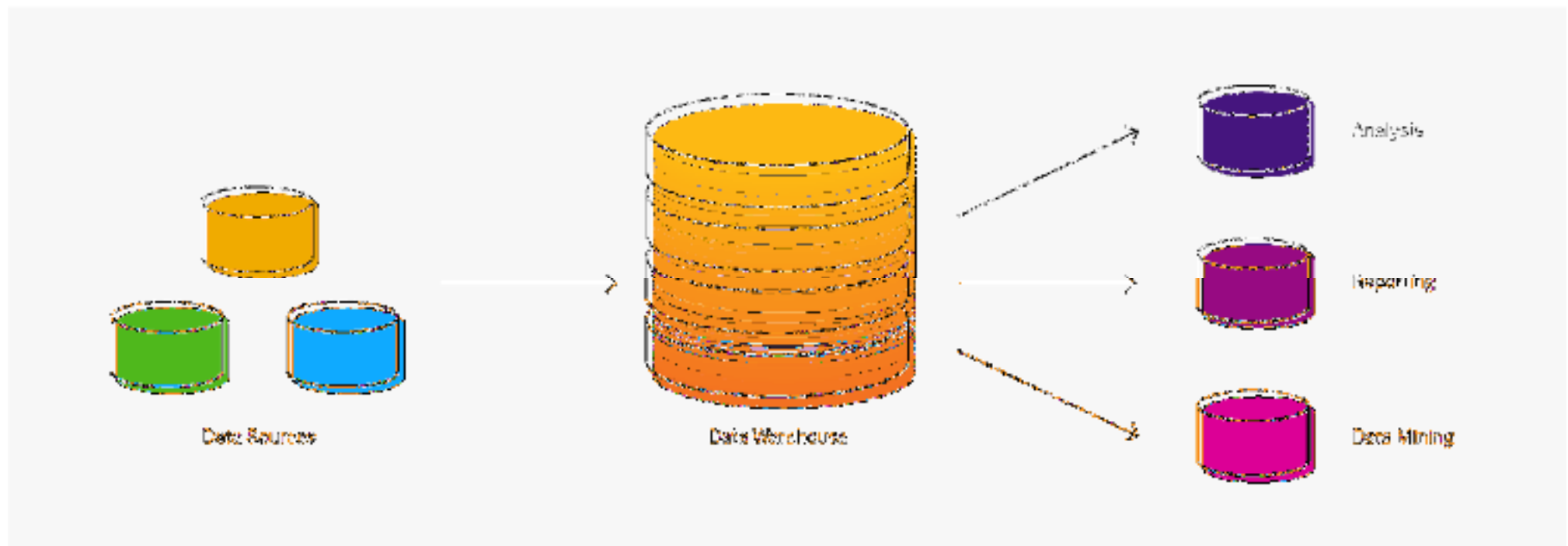
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Create an **accessible** and **trusted** data platform

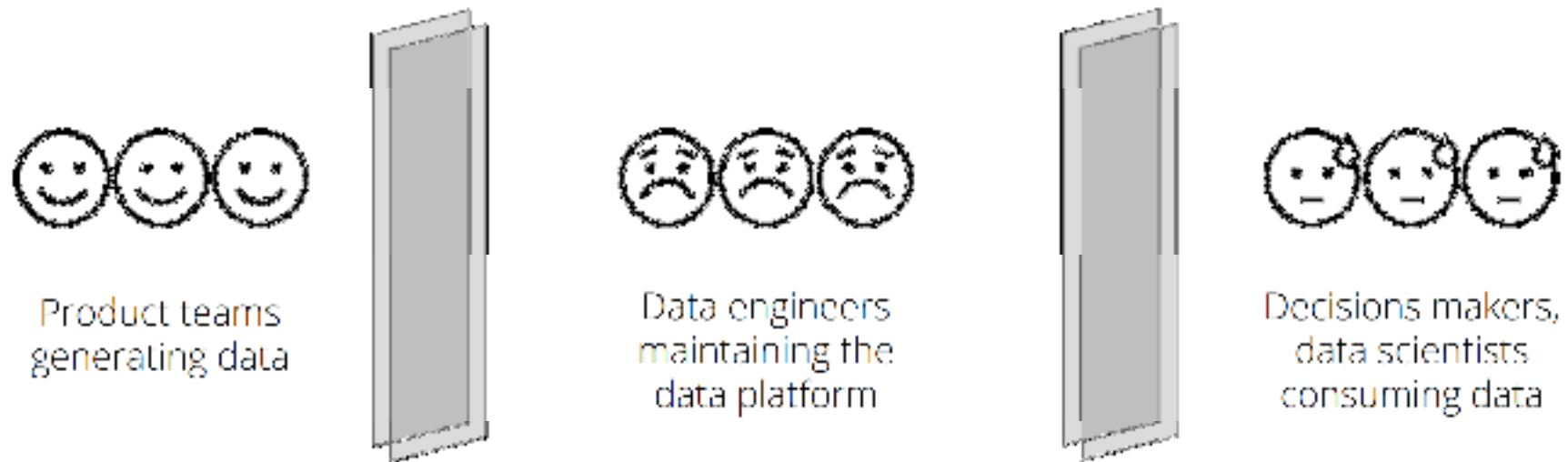


Current situation

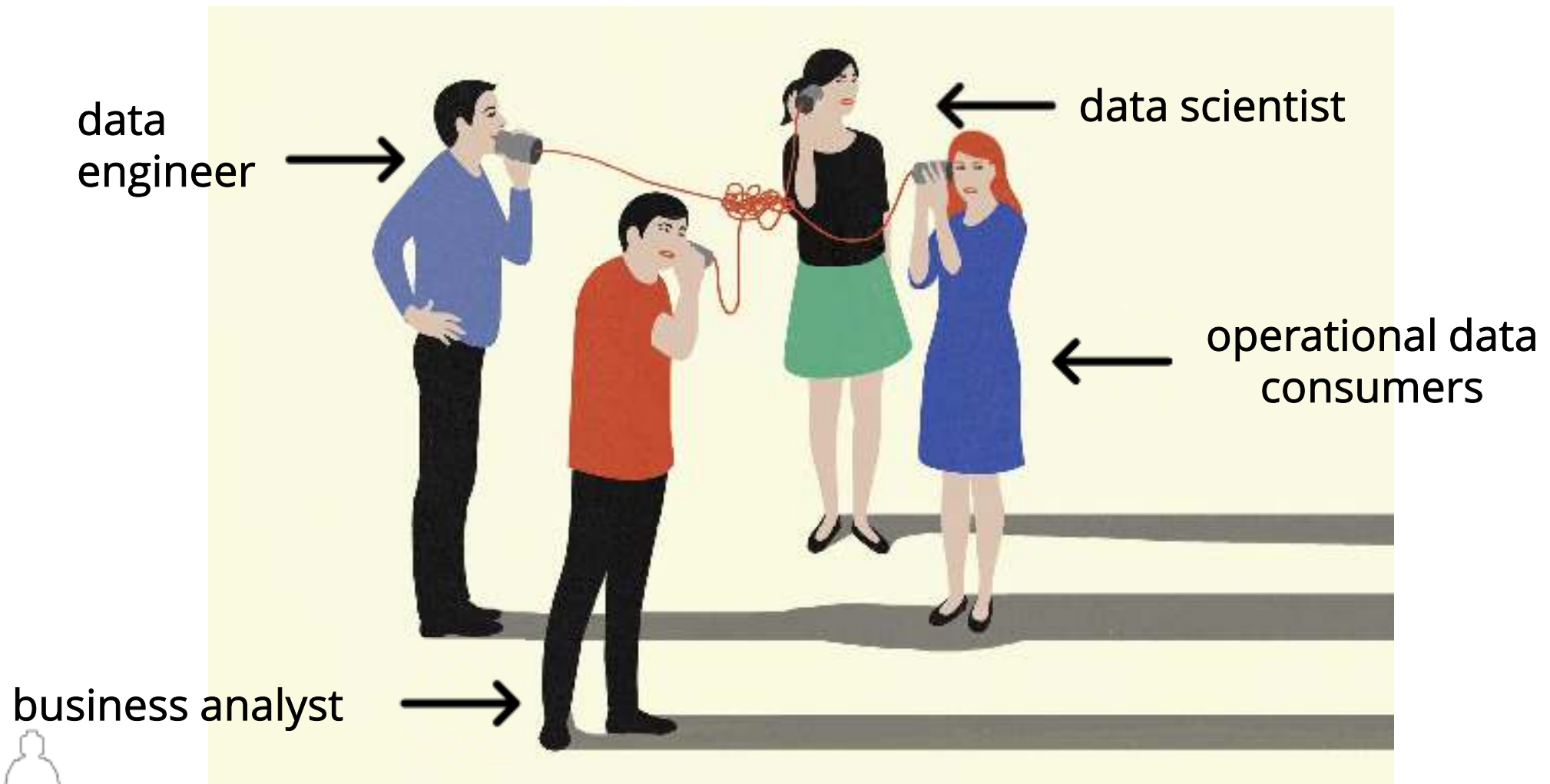
The traditional “data” architecture (warehouse, lake, cloud) is centralized (=monolithic)



Problems with traditional data architecture:



This created a disconnect



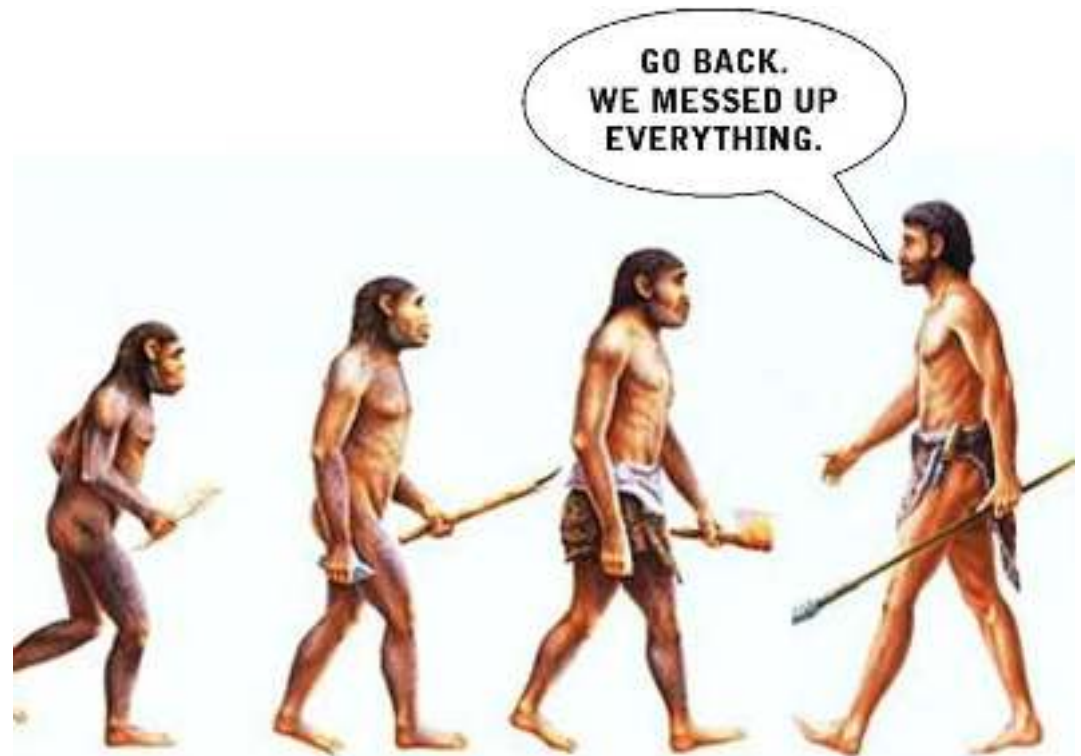
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And then, one day, software people looked at data people
And said "Hey, you're doing this all wrong!"



Zhamak Dehghani
DIRECTOR OF EMERGING TECHNOLOGIES
THOUGHTWORKS



Data Mesh: A Paradigm Shift

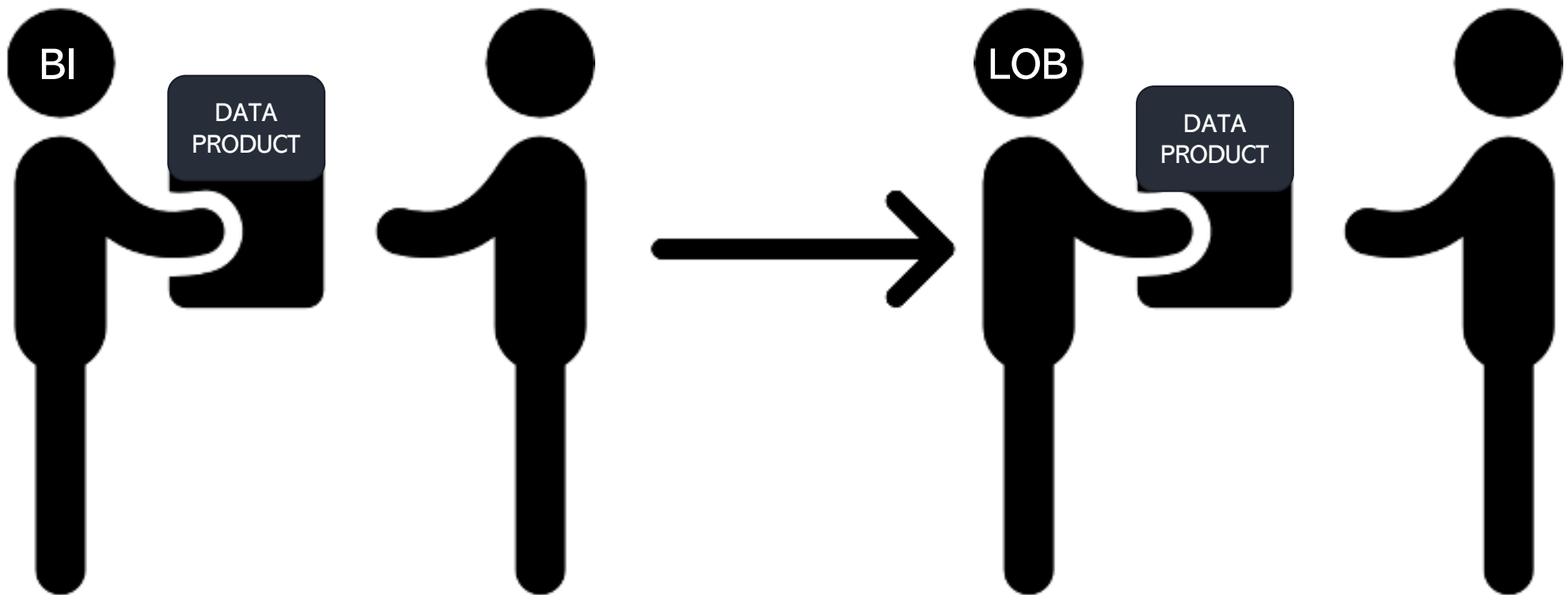


Data Mesh Principles

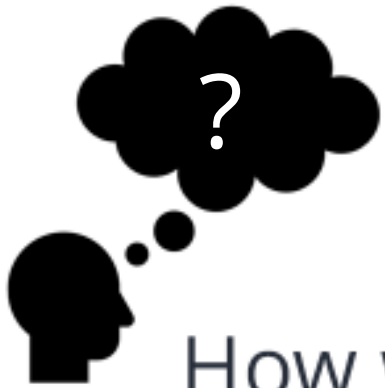


1. **Domain-oriented decentralized data ownership and architecture.** Driven by microservices, it provides more flexibility, is easier to scale, easier to work on in parallel and allows for the reuse of functionality
2. **Data as a product** where data products comprised of clean, fresh, analytics-ready data – are delivered to any consumer, anytime, anywhere, based on permissions & roles
3. **Self-serve data infrastructure as a platform** that enables the businesses use to run, maintain and monitor their services
4. **Federated computational governance** that set rules and regulations to govern the data mesh operation

DATA MESH MOST DISRUPTIVE PARADIGM SHIFT:
Business departments should be able to access and control
their own data and analytics



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Data Mesh open questions:

How will this “federated governance” model work?

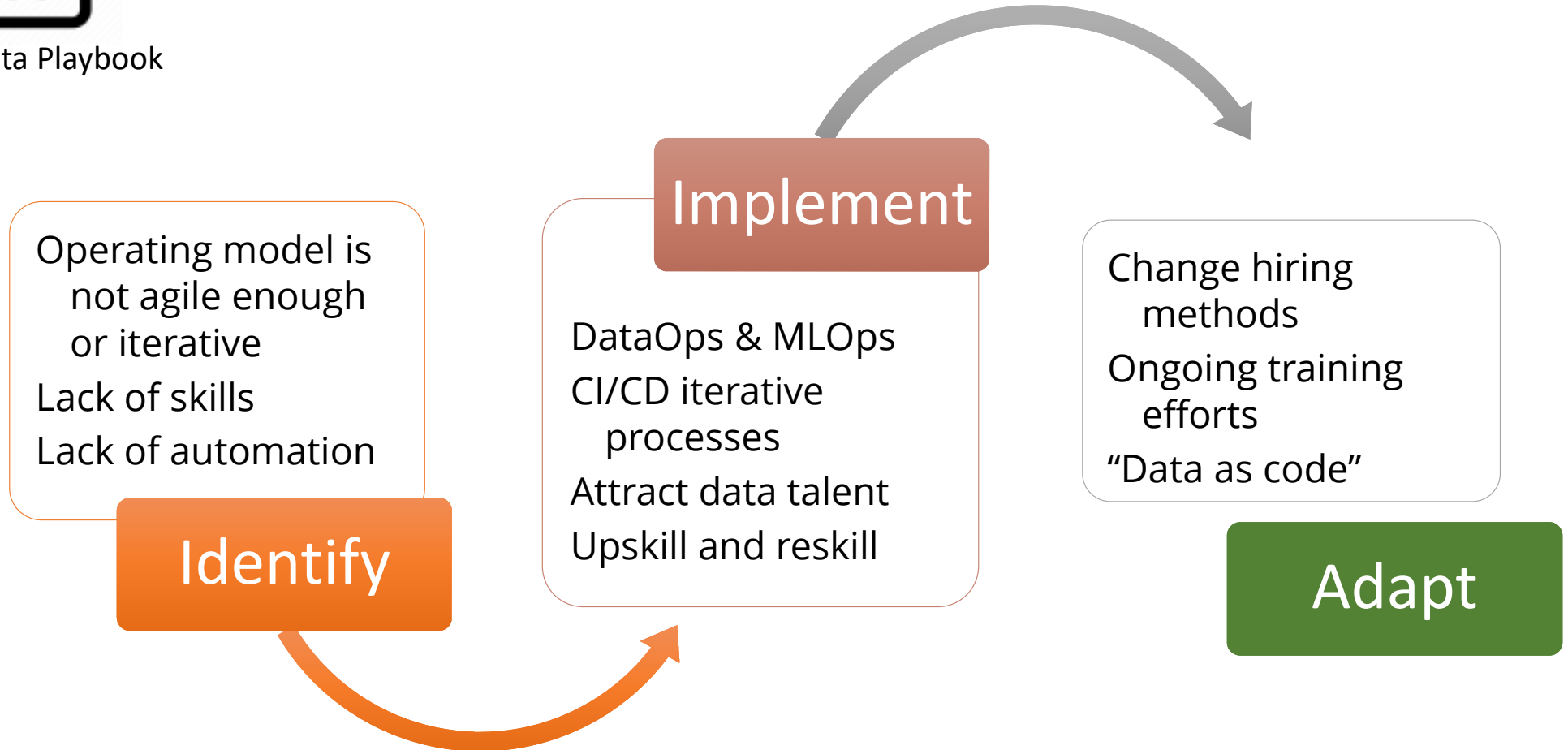
What will happen to the “single version of the truth”?

Will CDOs embrace this change or resist it?



The Data Playbook

Change the Operating model

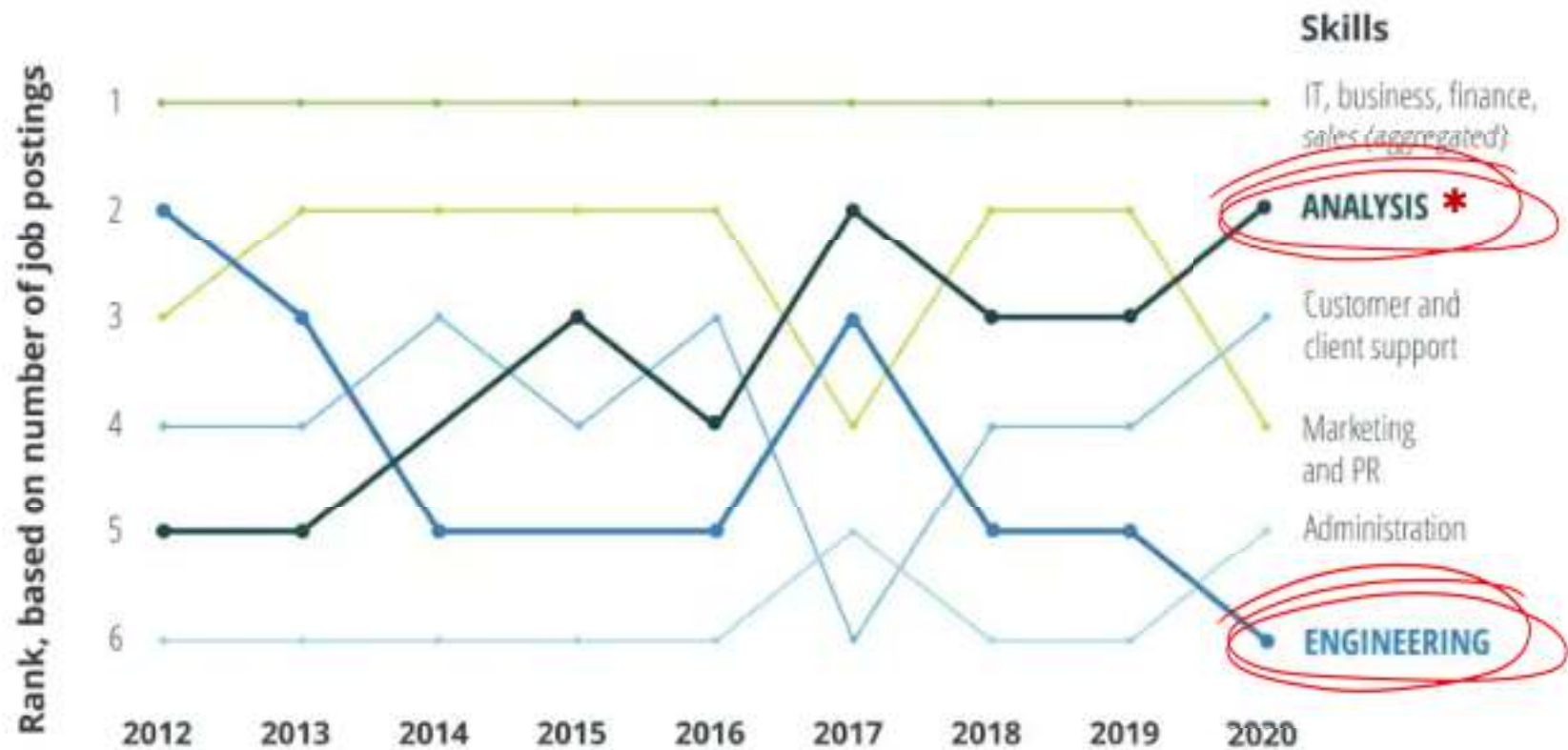


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The data talent war



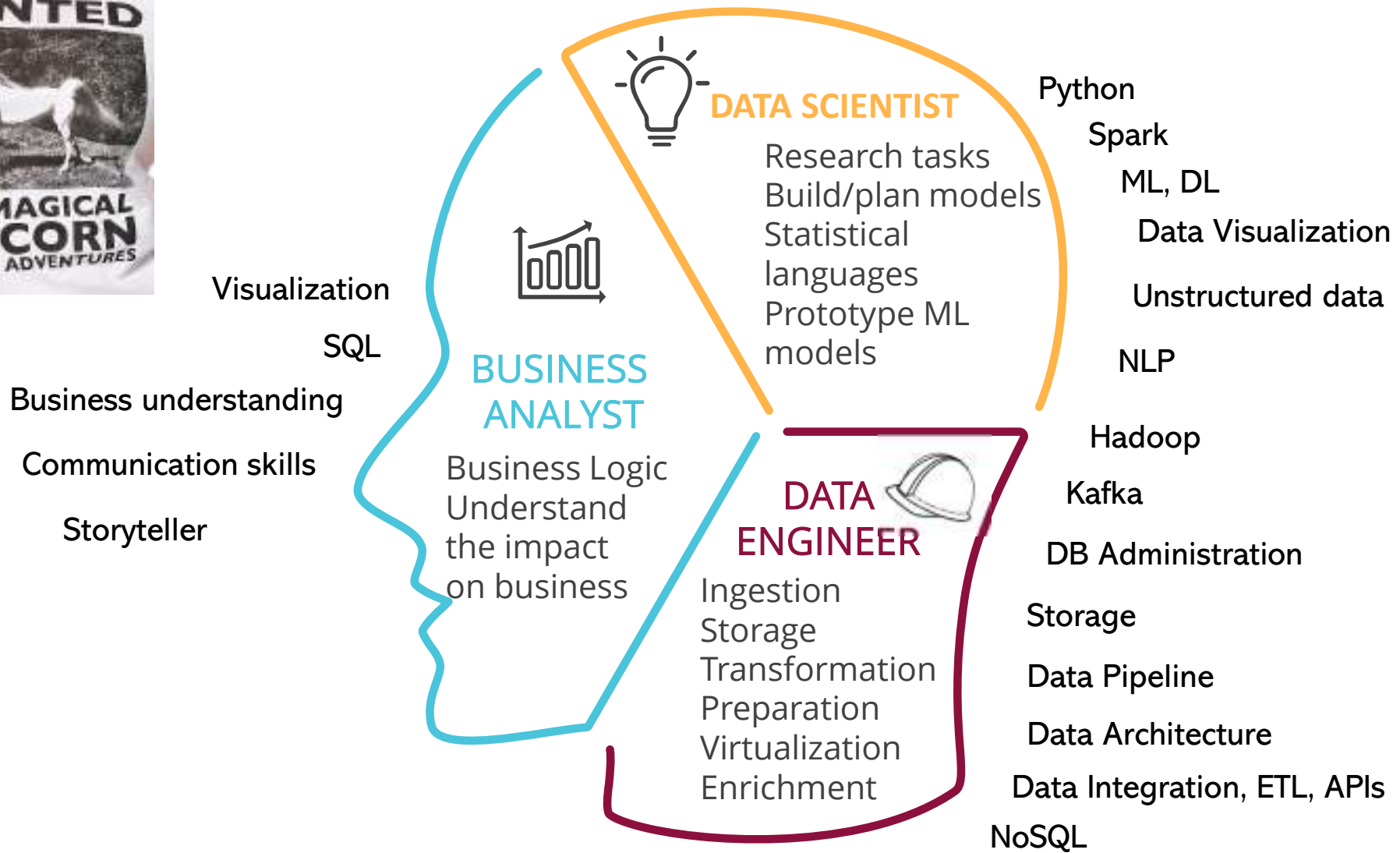
Analysis skills now needed even more than Engineers!



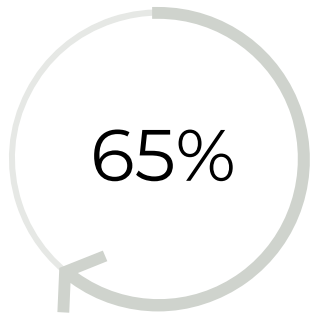
Source: Deloitte

* ML, Data science, data engineering, visualization

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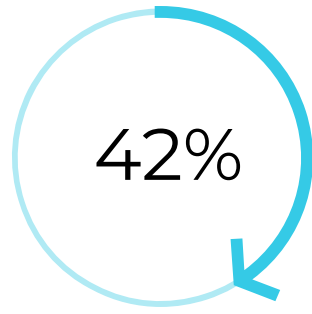


Employees' expectations have shifted

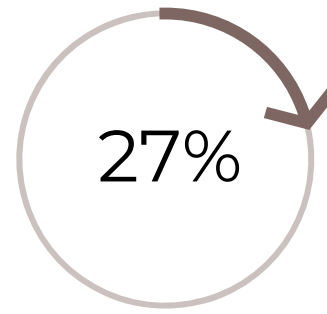


want to become full-time remote employee post-pandemic

*30% already approved



will look for other jobs if their current company stops remote work



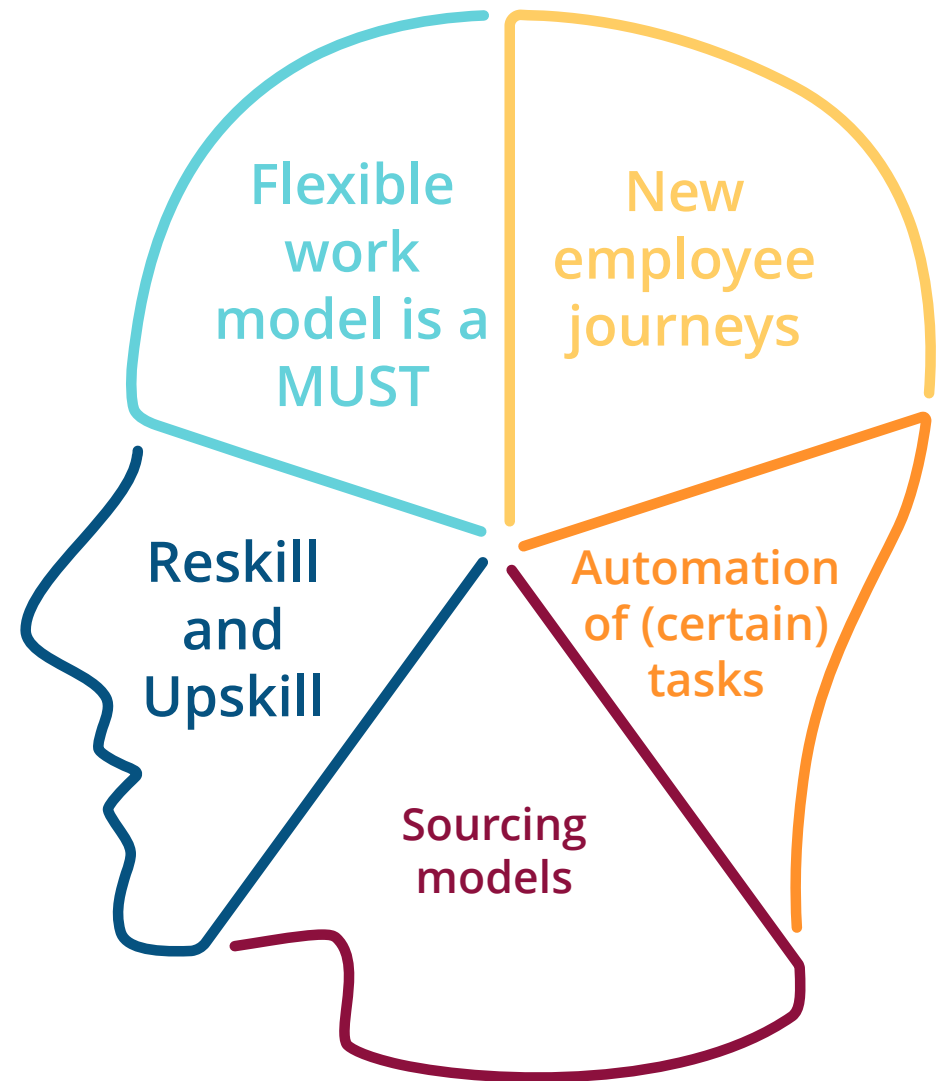
willing to take a 10%-20% pay cut to have the benefit of working from home



Source: Flexjobs

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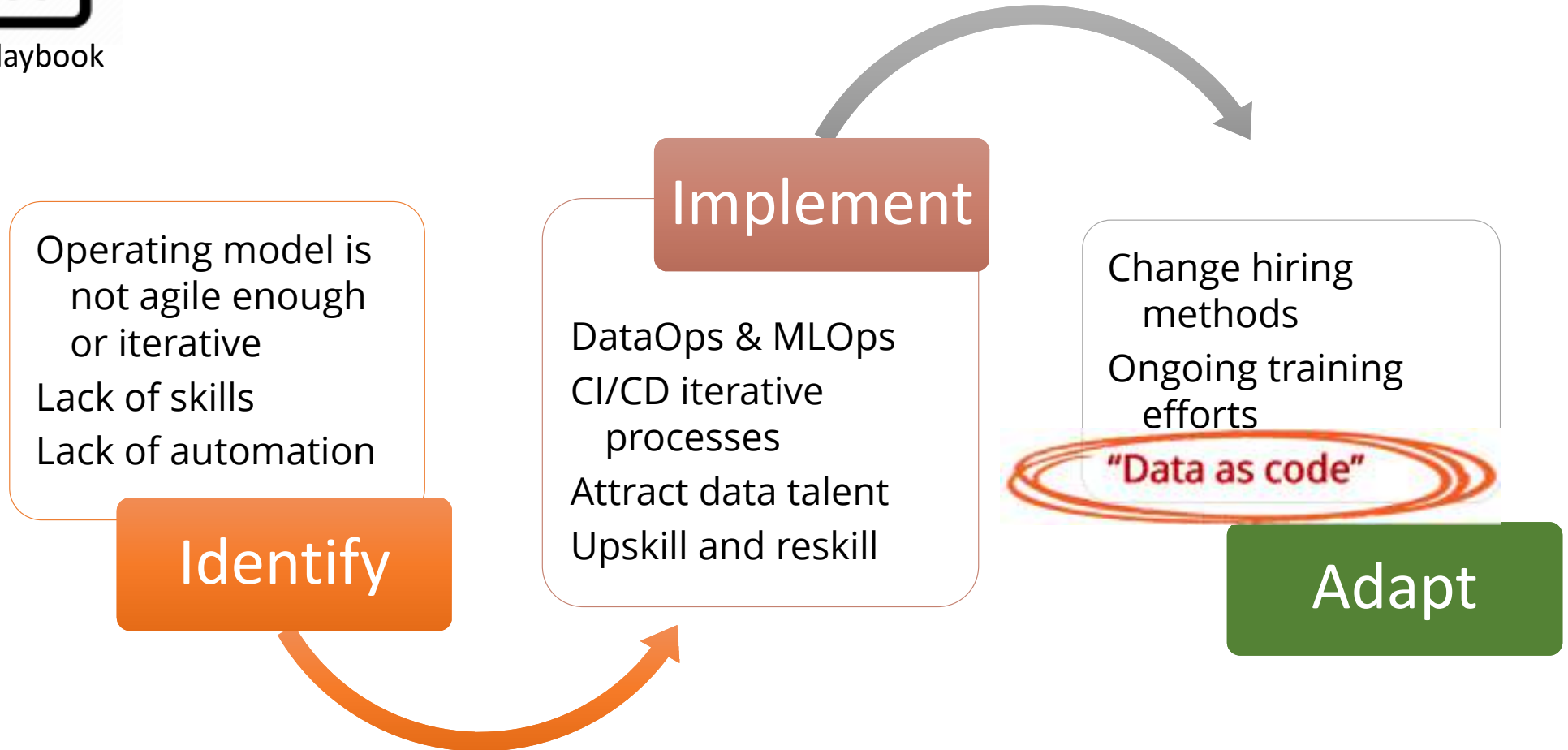
What can you do?





The Playbook

Change the Operating model



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The problem: We keep on working in old ways, in this new world. Whereas we should apply the golden standard of manufacturing techniques we already learned to apply to software to data so well.

Three types of data uses:



Operational



Analytical



**Analytically
Operational**



**Data as code
starting point**

Source: Towards Data Science

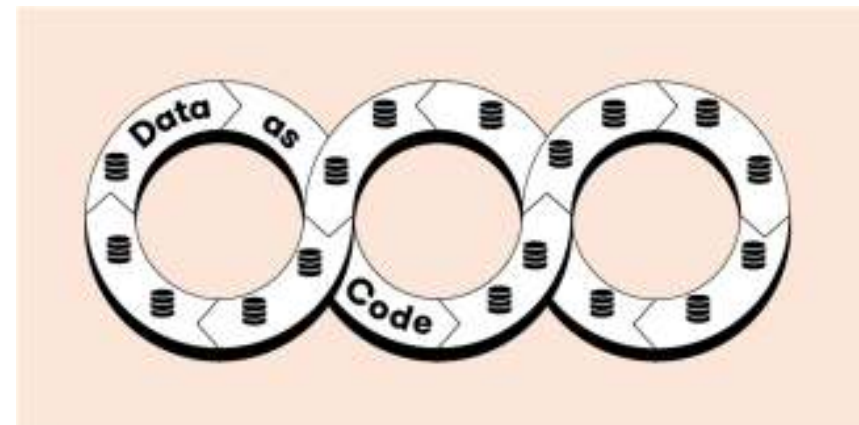
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Data as Code

An approach that gives data teams the ability to process, manage, consume, and share data in the same way we do for code during agile software development.

Data as Code enables iterations and increases collaboration.

- Continuous integration
- Continuous deployment
- Version control
- Packaging
- Traceability and lineage
- End-user managed
- Distributed collaboration



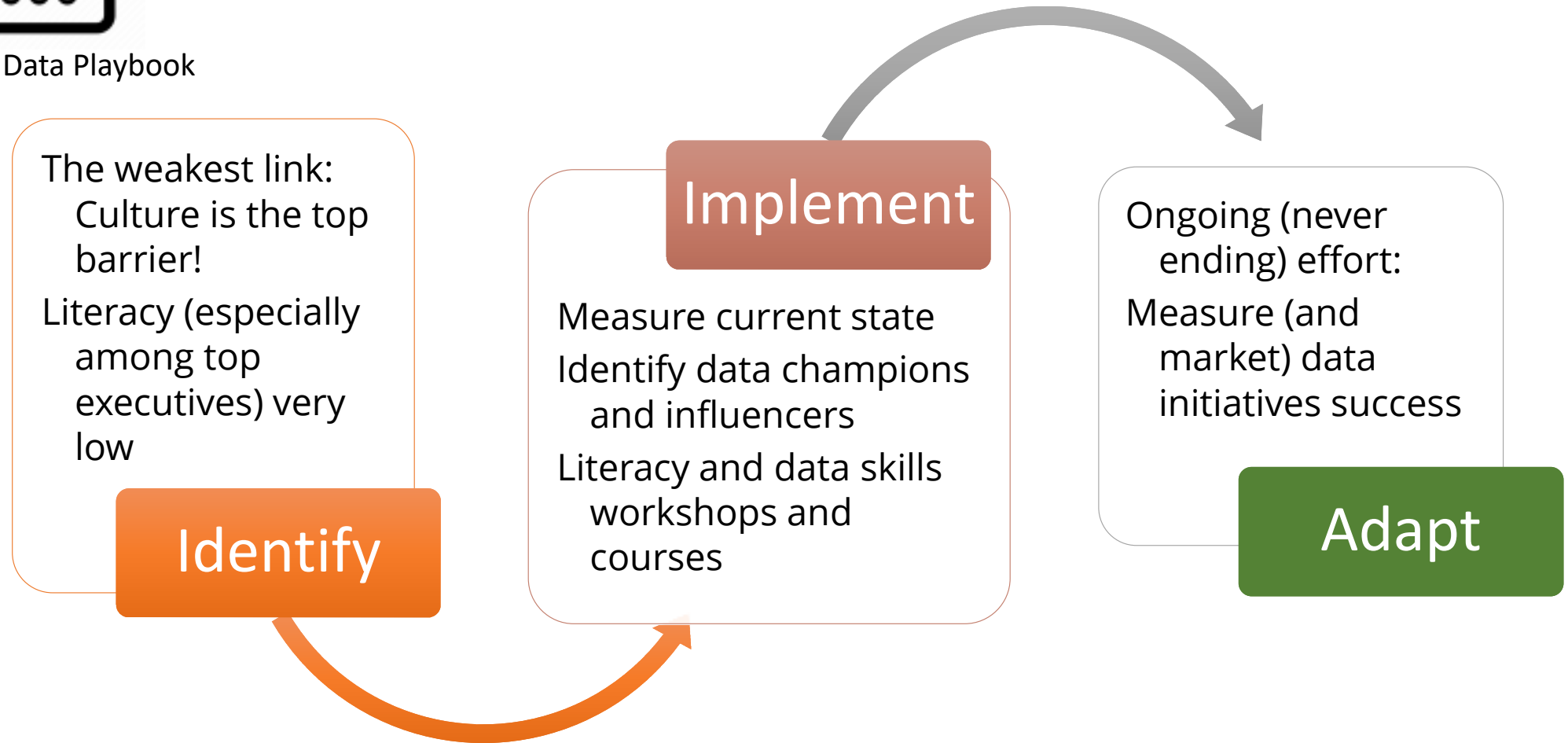
Source: Arrikto

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The Data Playbook

Improve literacy and culture



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An overhead photograph of four business professionals (three women and one man) seated around a light-colored wooden conference table. They are engaged in a collaborative meeting. On the table are various items: a laptop, a tablet, a smartphone, a pen, and two cups of coffee. One woman is writing in a notebook, another is looking at a tablet, and the man is pointing at a document with charts. The background shows a modern office environment with a patterned rug.

Data Culture encompasses the values, behaviors, and attitudes of executives and employees around data used in decision making

COVID-19 DATA LITERACY IS FOR EVERYONE



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How can you influence data culture?

Identify influencers
assign data champions

Market the results

Be Patient!



Measure value
Of D&A initiatives

Up/reskill
Prioritize
data skills in
new hires

The sexiest job of the 21st century?

What is a data translator?

Data translators bridge the communication divide that often develops within an organisation between data scientists and executive decision-makers. They are able to communicate with language that a decision-maker understands.

Source: Bernard Marr



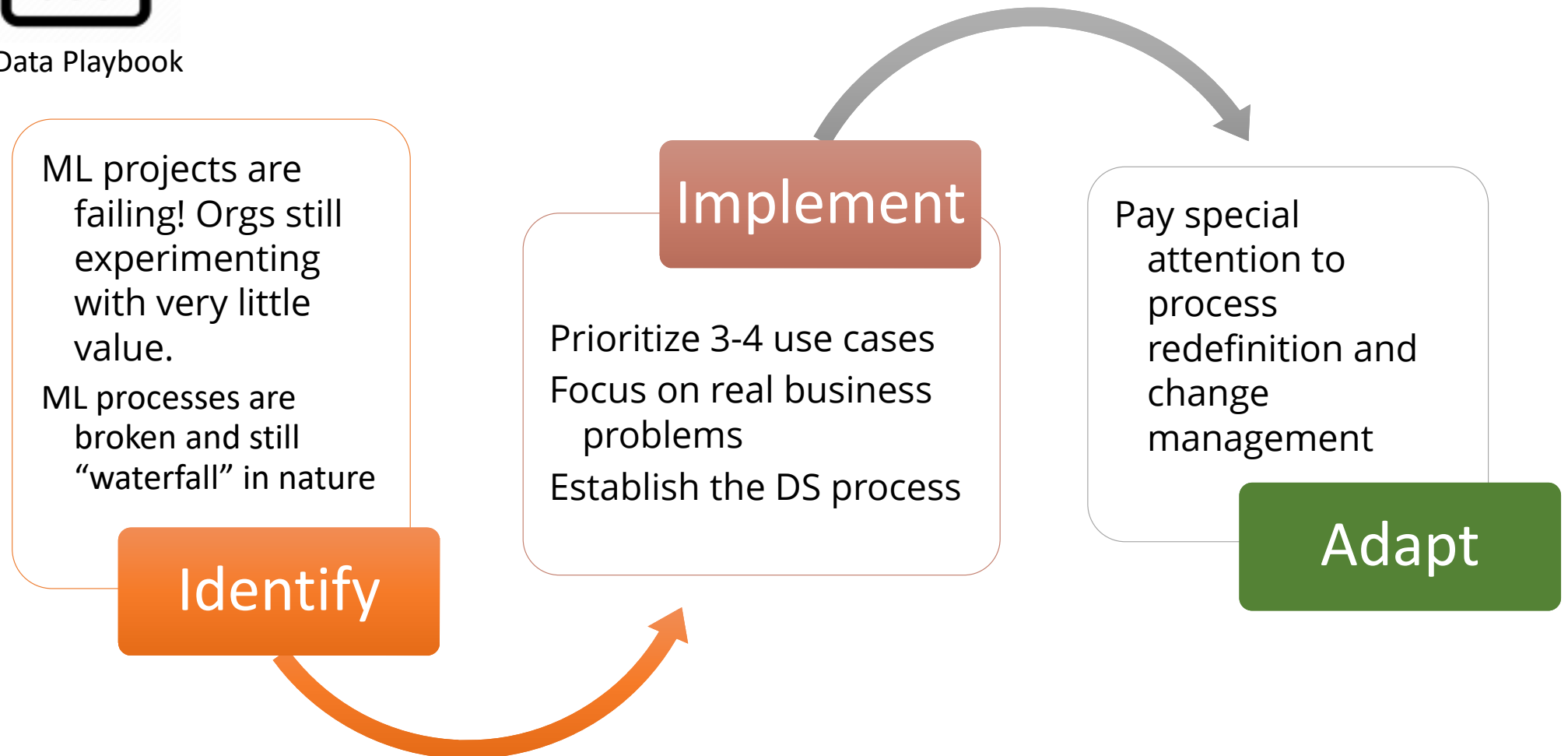
1. Identifying and prioritizing business use cases
2. Helps in collecting business data
3. Ensures the solution solves the business problem in the most efficient form for business users
4. Validating and deriving business implications — synthesizes complex analytics-derived insights into easy-to-understand, actionable recommendations that business users can easily execute on
5. Implementing the solution and executing on insights — drives adoption among business users

Source: McKinsey

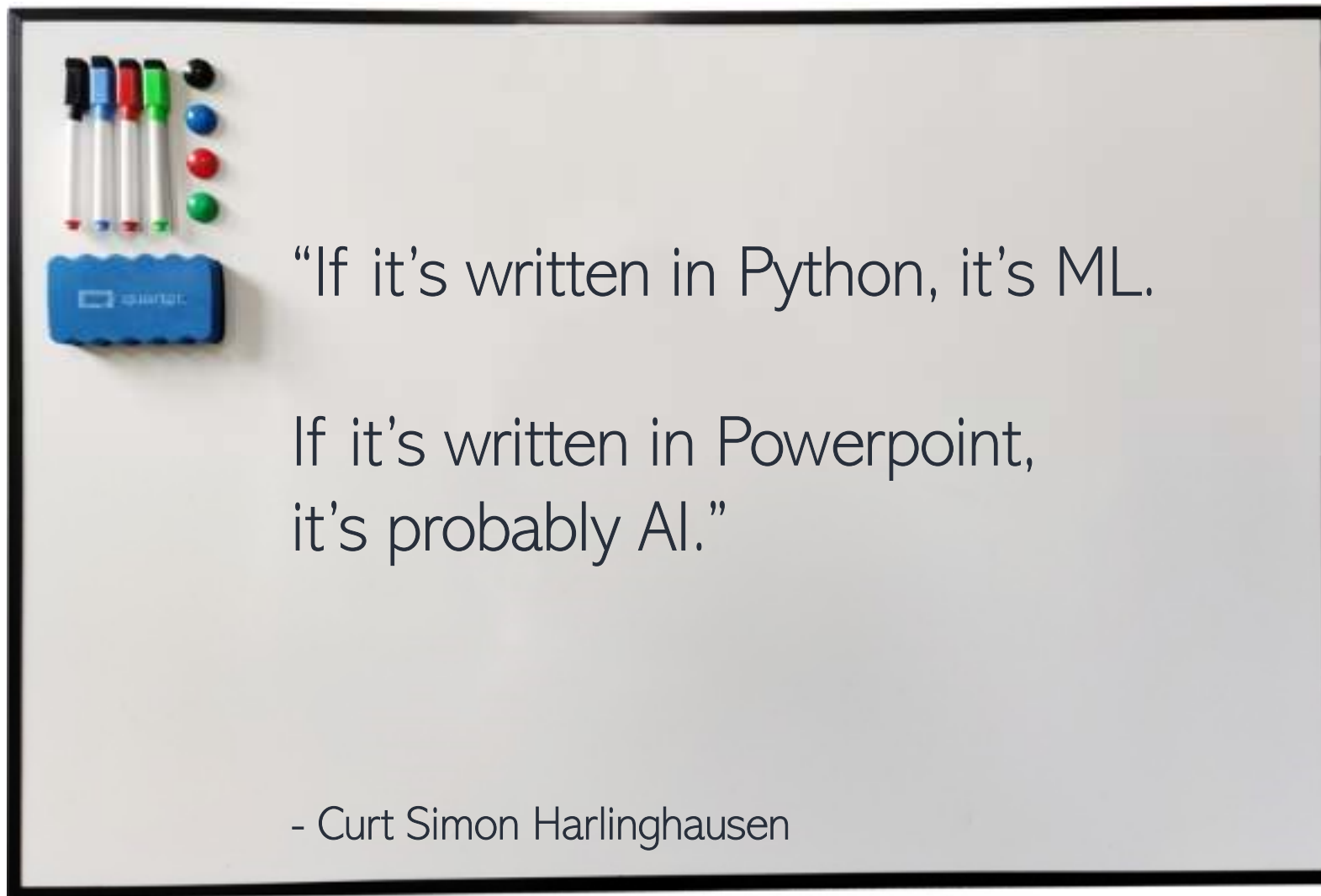


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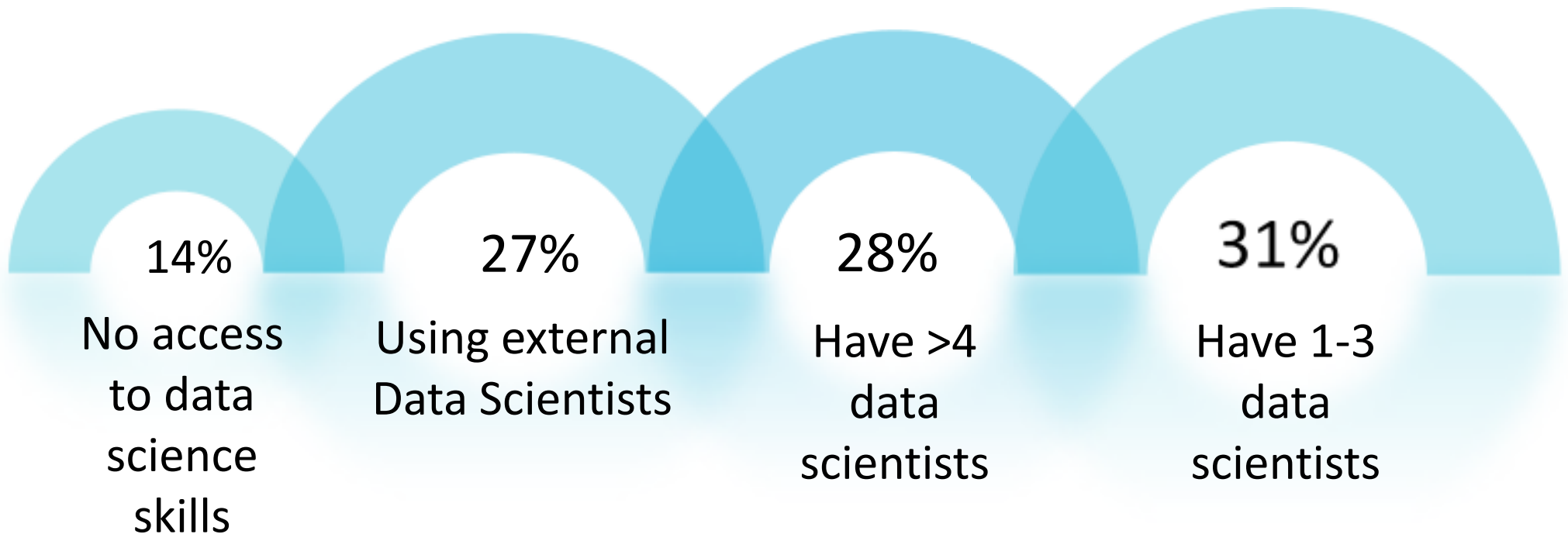
From POCs to significant value



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86% of organizations have access to data science skills



STKI Data survey 2021

But...

- 85% of ML projects fail
- Average ROI on AI 1.3%
- Average time to value: 17 months!

ESI Thoughtlab and Gartner

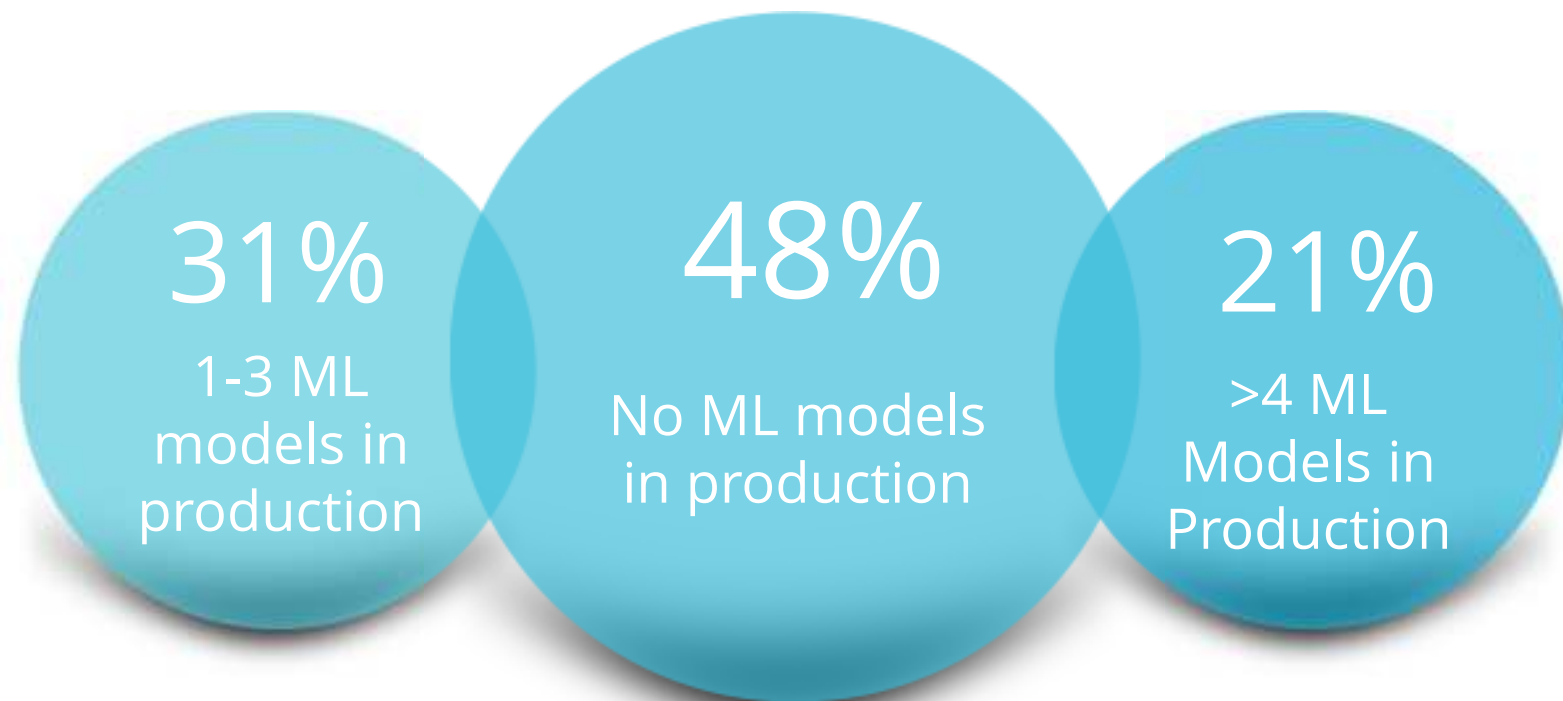
PARENT: IF ALL YOUR FRIENDS JUMPED OFF
A BRIDGE, WOULD YOU FOLLOW THEM?
MACHINE LEARNING ALGORITHM: YES.

Average payback period in years for AI projects



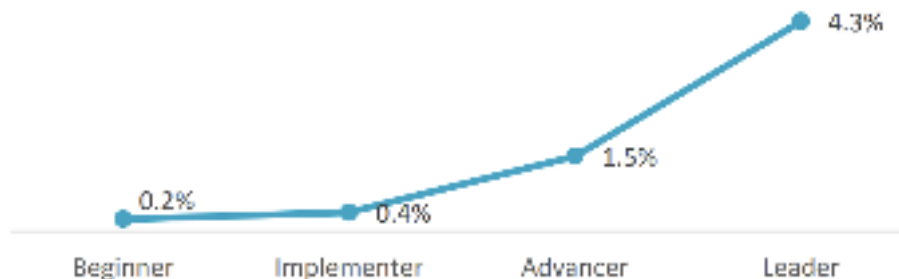


Not many models make it to production

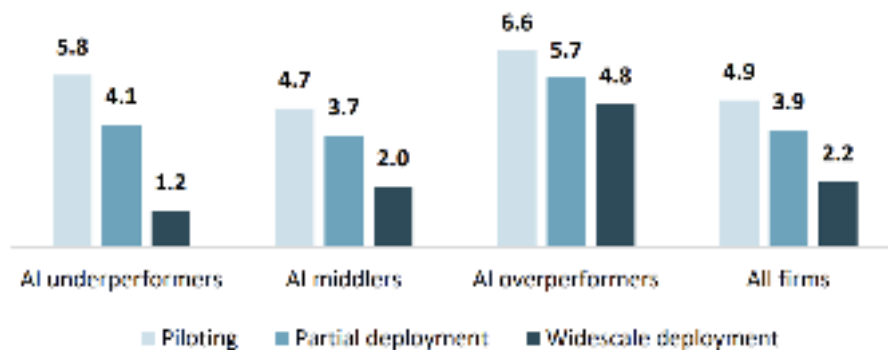


It pays off to get a head start

Average ROI by maturity level



Average number of AI projects by stage



The leader-follower divide

5x

The amount of ROI generated by AI leaders vs. followers, i.e. firms that are further behind in AI.

3x

The increase in revenue that AI leaders recognize compared with AI followers.

3x

The likelihood that AI leaders will gain efficiencies and lower costs vs. AI followers.

4x

The size of investment made by AI leaders vs. how much AI followers spend.

Good luck on your journey Towards becoming

a Data-Driven *adaptive* ✓ Organization



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Don't forget
to enjoy the ride





Thank you!

