AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

ENT304

Data-driven enterprise: Going from vision to value

Ishit Vachhrajani
Enterprise Strategist
Amazon Web Services

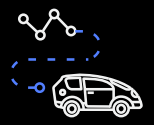
Tom Godden
Enterprise Strategist
Amazon Web Services

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Why does it matter?

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Why does it matter?



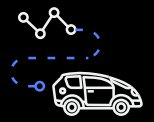
Make better decisions, faster

predicts production issues months in advance

turns insights into competitive advantage on the racetrack

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Why does it matter?



Make better decisions, faster



Respond better to the unexpected

vyaire MEDICAL

scales ventilator production by 20x while improving first pass yield 3x

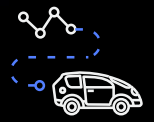
moderna

accelerates vaccine development and scales manufacturing

aws

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Why does it matter?



Make better decisions, faster



Respond better to the unexpected



Create better customer experience

brings fans closer to the action using data and ML

deepens customer engagement with personalized customer service

aws

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Why does it matter?



Make better decisions, faster



Respond better to the unexpected



Create better customer experience



Uncover new opportunities

Disney+ expands to 59+ countries since launch

NFL creates digital athlete to improve player safety

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Why does it matter?



Make better decisions, faster



Respond better to the unexpected



Create better customer experience



Uncover new opportunities



Improve efficiency

aws

amazon.com eliminates 915K tons of packaging

Expedia reduces manual touch rate for partner payment from 17% to 0.06%

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Why does it matter?



Make better decisions, faster



Respond better to the unexpected



Create better customer experience



Uncover new opportunities



Improve efficiency

Georgia-Pacific

TOYOTA RACING DEVELOPMENT TRD

vyaire MEDICAL

moderna

AXA

Disney+

NFL

amazon.com

Expedia

aws

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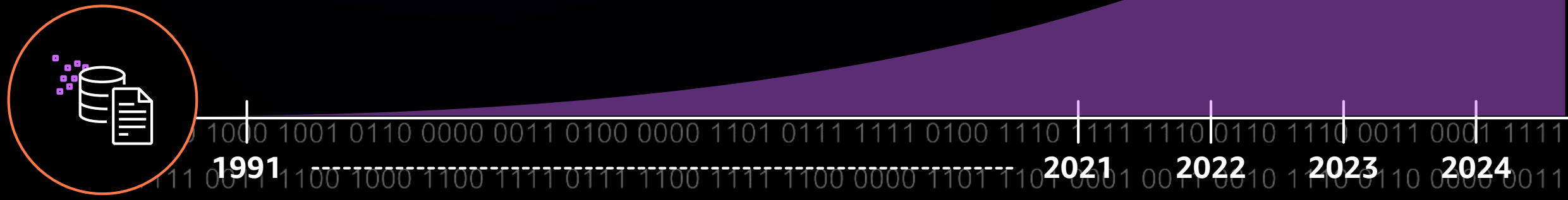
Using data
since 18000 B.C.



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What has changed?

More data
than ever before



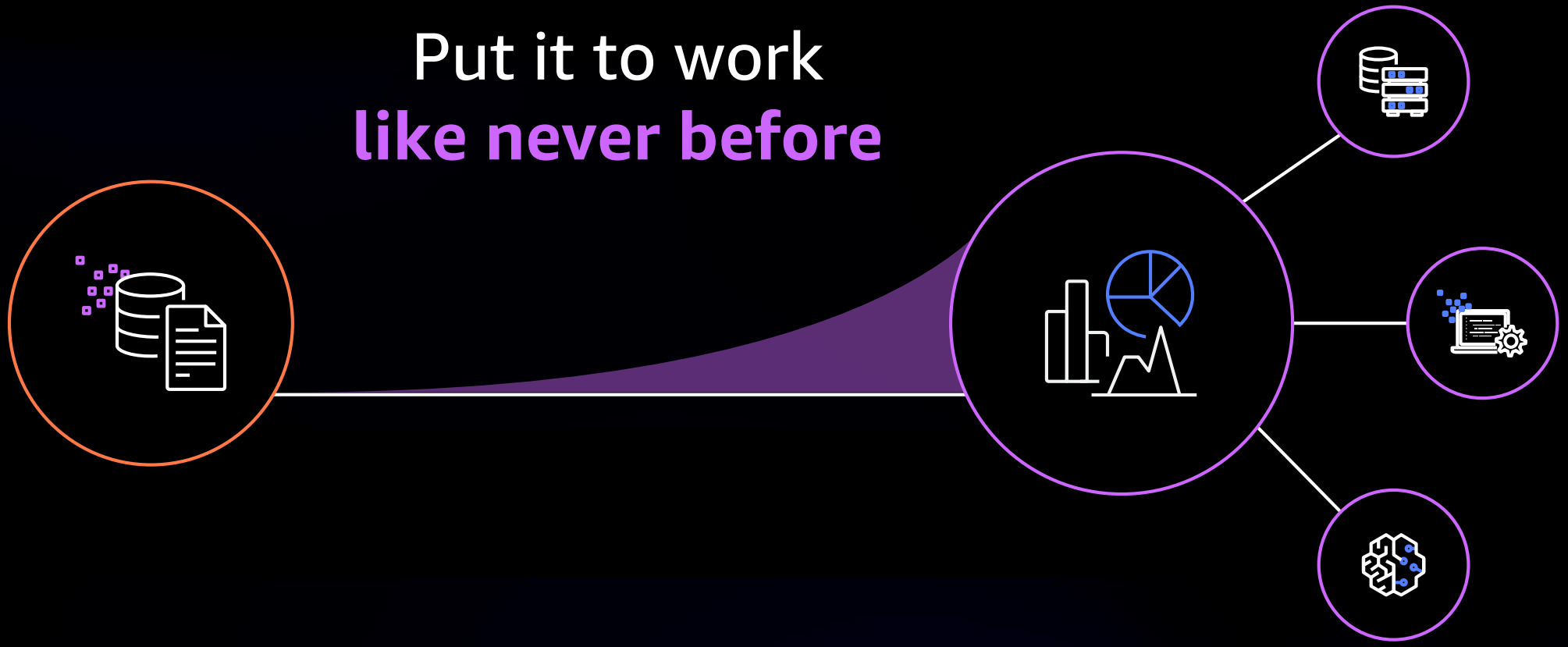
"The amount of data created over the next 3 years will be more than the data created over the past 30 years . . ."

Source: IDC's Global DataSphere forecast, 2020

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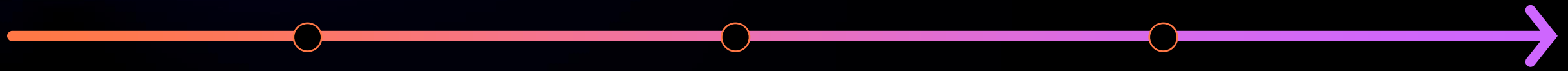
What has changed?

Put it to work
like never before



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Evolution of enterprise data

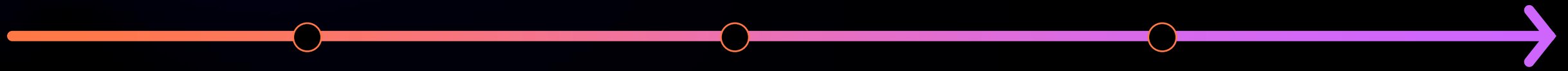


	Data aware	Data informed	Data driven
Capability	Data	Insights	Actions
Consumers	Executives	Functional experts	Everyone
Questions	What happened?	Why did it happen?	How can we make it happen?
Ownership	Data is no one's job	Data is someone's job	Data helps me in my job
Activity	Create reports for others to use	Analyze data to find patterns	Act and experiment every day
Nature	Heavily aggregated, highly formatted	Aggregated with some drill downs	Granular, flexible, and scalable
Technology	Old guard databases	Data warehouse/ interactive query	Cloud, AI/ML

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Evolution of enterprise data

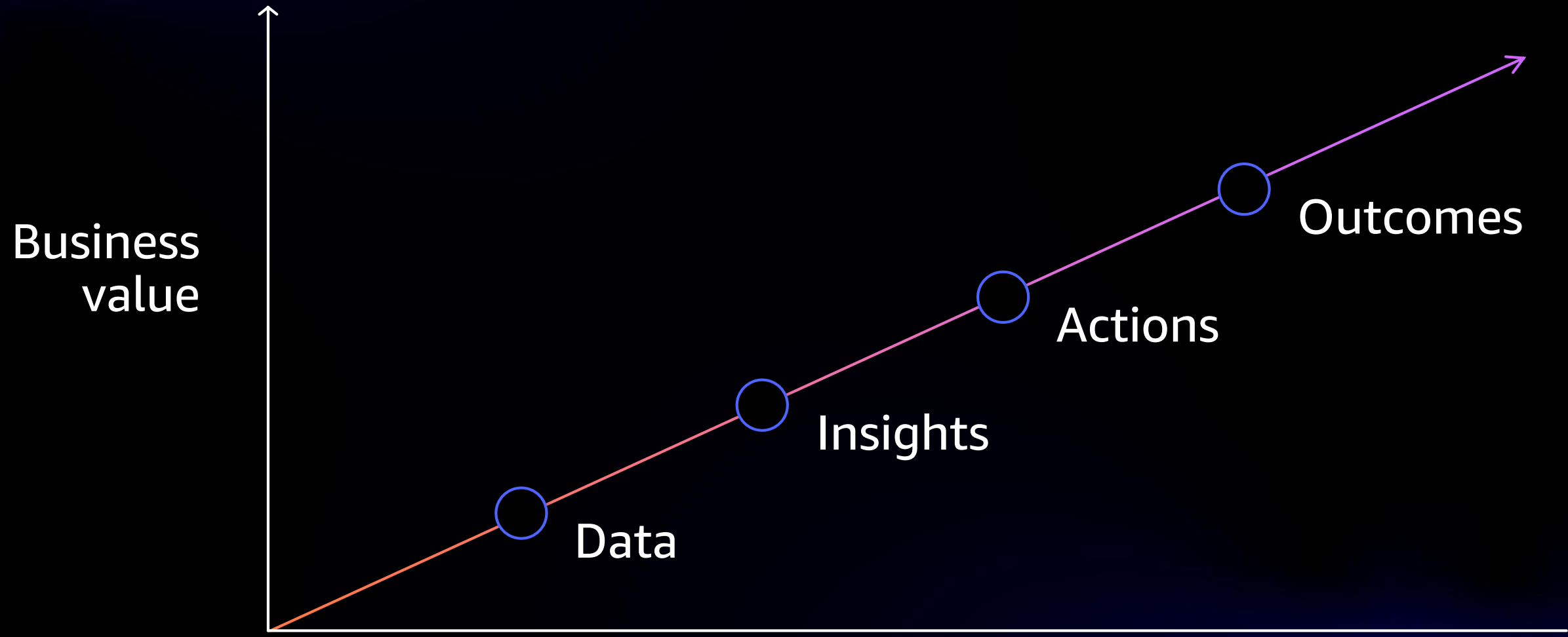


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Data-driven enterprise



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And yet . . .

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And yet . . .

while 99% of the 85 leading companies are investing in data, only 24% report being successful in creating a data-driven organization

Source: New Vantage Partners LLC (2021). Big Data and AI Executive Survey 2021

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How to realize the vision of a data-driven enterprise

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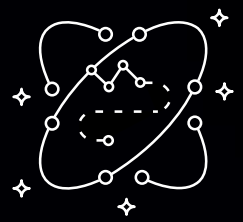
How to realize the vision of a data-driven enterprise

- [ ] Proclaim that “data is the new oil”
- [ ] Launch several “big data” initiatives, including an AI project
- [ ] Start by hoarding as much data as possible
- [ ] Hire a chief data officer (CDO) but change little else
- [ ] Create centralized function and funnel all “data” requests to them
- [ ] Repeatedly say that we are in the data business
- [ ] All of the above

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Realizing the vision of a data-driven enterprise

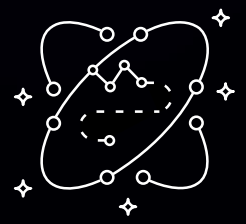


Culture

Beliefs, values, and behaviors that create a data-driven culture

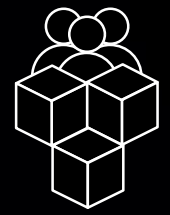
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Realizing the vision of a data-driven enterprise



Culture

Beliefs, values, and behaviors that create a data-driven culture

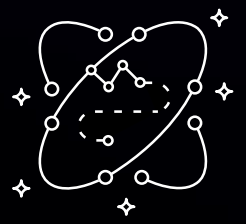


Organization

Structure and roles that accelerate data-driven outcomes

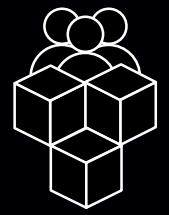
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Realizing the vision of a data-driven enterprise



Culture

Beliefs, values, and behaviors that create a data-driven culture



Organization

Structure and roles that accelerate data-driven outcomes



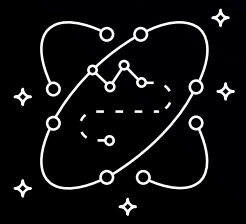
Mechanisms

Processes that enable and scale effective use of data

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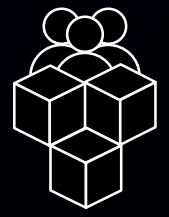
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Realizing the vision of a data-driven enterprise



Culture

Beliefs, values, and behaviors that create a data-driven culture



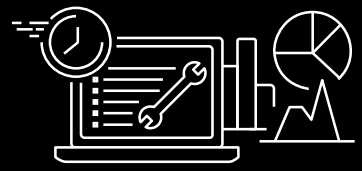
Organization

Structure and roles that accelerate data-driven outcomes



Mechanisms

Processes that enable and scale effective use of data



Execution

Execution approach and tools to rapidly unleash the value of data

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Culture

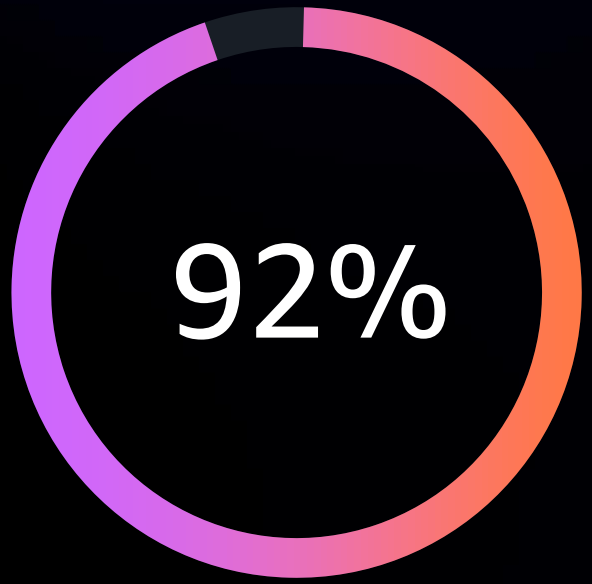


Facts, not feelings; freedom to act, not fiefdoms to please

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Culture



# of challenges to business adoption of data are cultural

Source: Big Data and AI Executive Survey 2021 by NewVantage Partners

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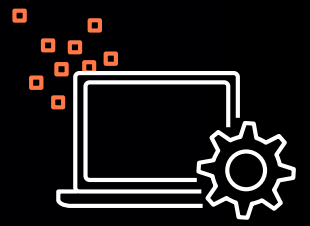


Engage

Executive sponsorship	Executive engagement
Data to justify decisions	Data to guide decisions

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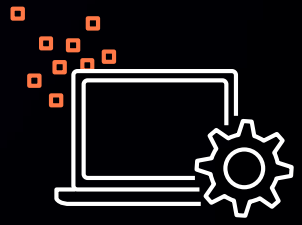


Engage	Enable
Democratize access to data	Democratize actions using data
Make data easy to use	Make data enjoyable to use

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Engage



Enable



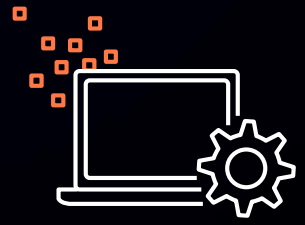
Educate

Selective data literacy	Data proficiency as a core skill
Lack of common definitions	Common understanding and vocabulary

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Culture









Engage | Enable | Educate | Eliminate

Data as a departmental property | Data as an organizational asset

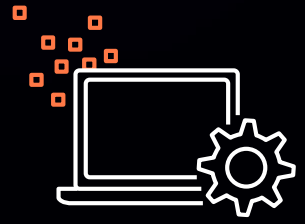
Reporting ghost towns | Data integrated into everyday workflows

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Engage



Enable



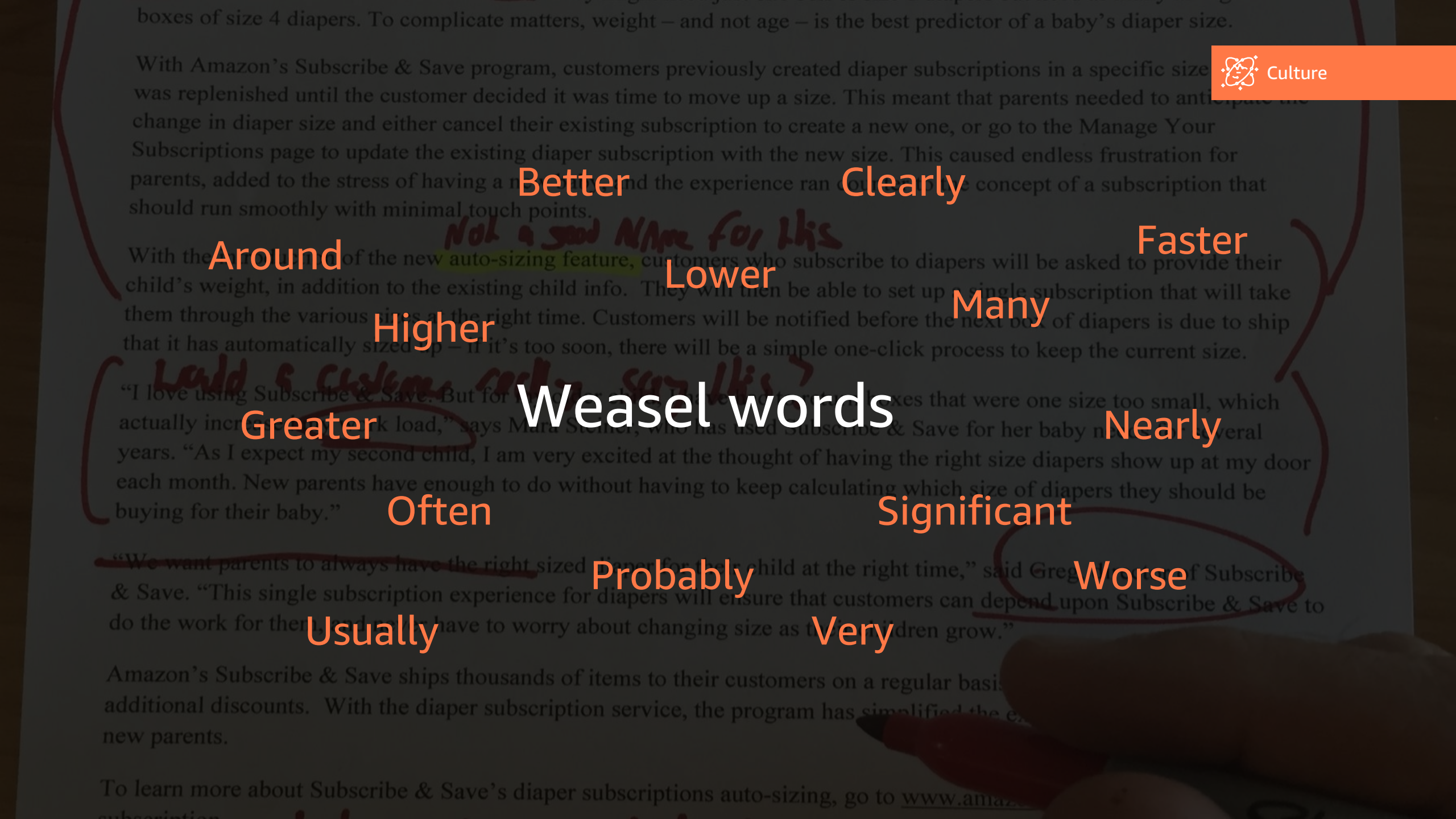
Educate



Eliminate

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Culture
Better
Clearly
Around
Faster
Lower
Many
Higher
Weasel words
Greater
Nearly
Often
Significant
Probably
Worse
Usually
Very



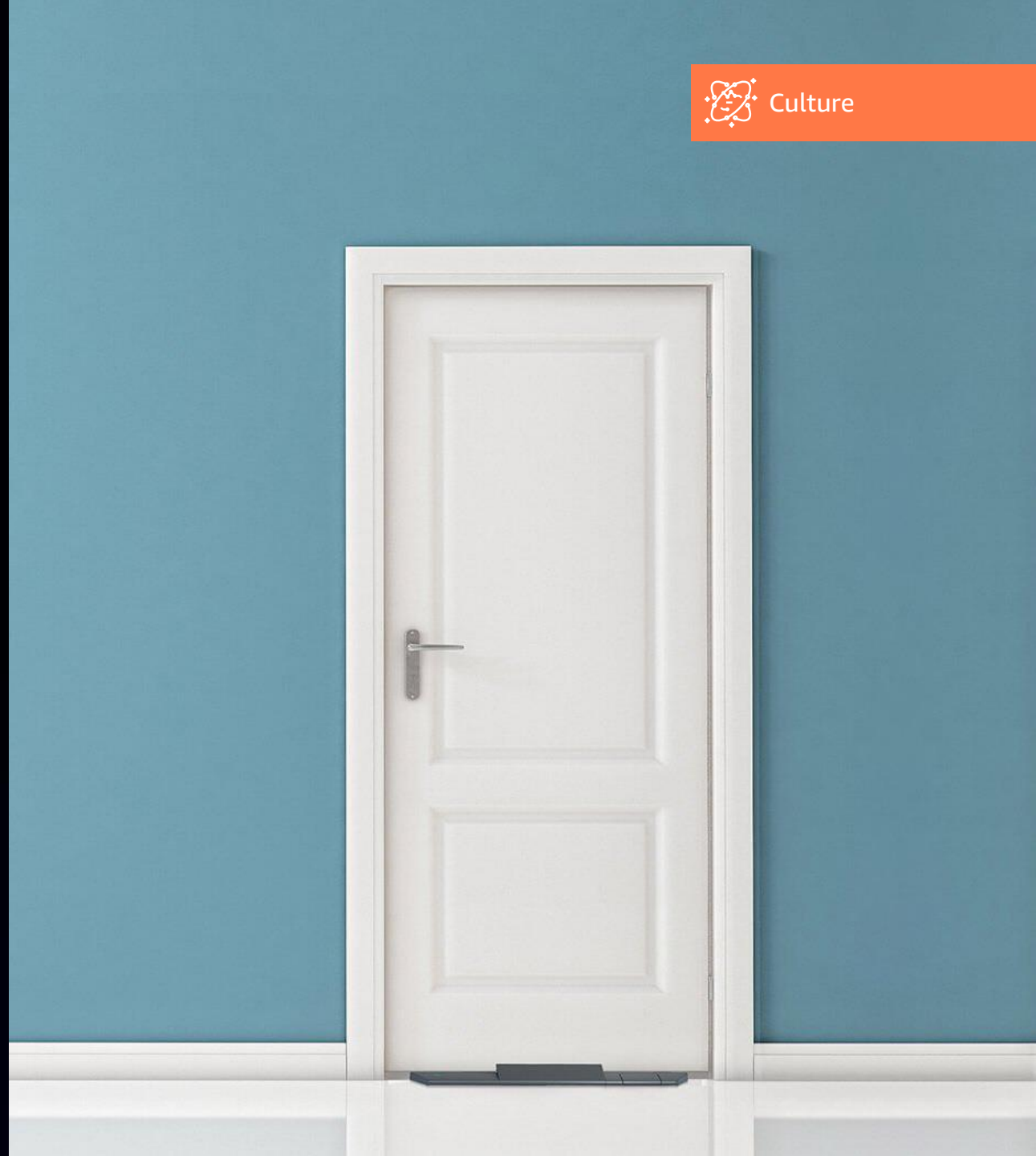
Culture

“We gained more customers this quarter”	“We gained 100 new customers in Q4 of 2021 compared to 75 in Q3 of 2021”
“Response to our new marketing campaign is great”	“Our new marketing campaign resulted in 30% increase in new customer signup”
“We improved the performance significantly”	“We reduced our page-load times by 20%”

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Culture

Is it a one-way or a two-way door?





Organization

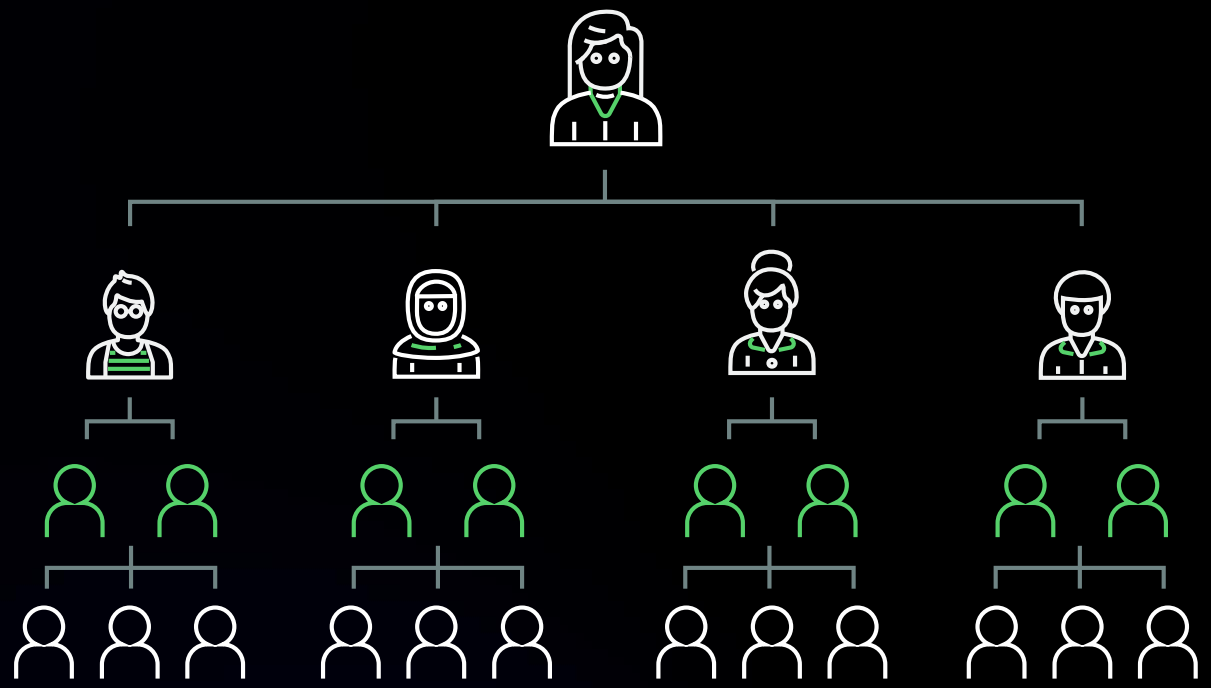


Organize for agility, not control

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Organization

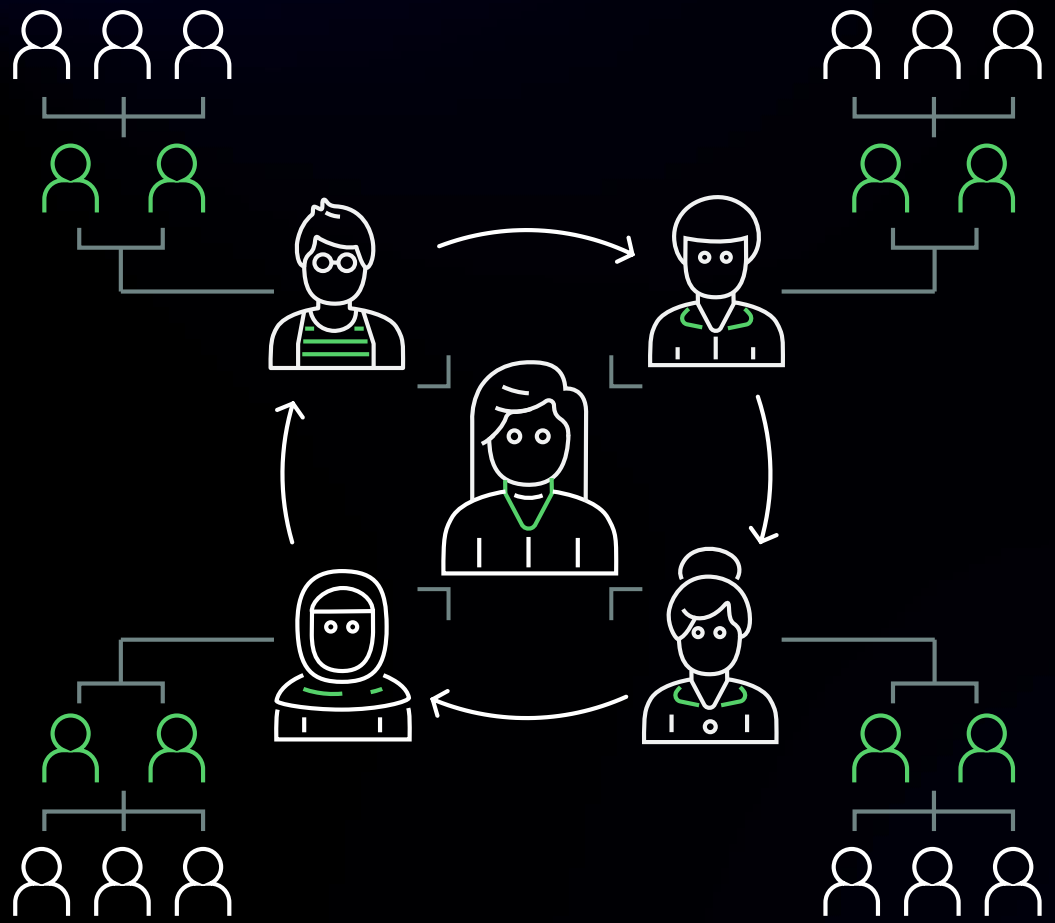
What got you here will not get you there



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Data-driven organization

Organization



- Align around outcomes, not activity
- Embrace autonomous cross-functional teams
- Teams are expected and empowered to act
- Operate with a ”you build it, you run it” mentality

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The modern data community

Organization

Producers

Teams that want to share data

Marketplace

Team that runs the marketplace

Consumers

Teams that want to use data



Domain expertise

Data ownership and governance

Data quality

Metadata management

Build security controls

Build and run the platform

Simplify onboarding

Enterprise datasets

Training and community

Execute business priorities

Business analytics development

Data discovery

Data pipeline development

Creation of new insights

Level of decentralization depends on maturity of skills, complexity of business, domain knowledge required, and pace of tech change

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New roles and skills

Organization



Single-threaded leader

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New roles and skills

Organization



Single-threaded leader



Storytelling and visualization

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New roles and skills

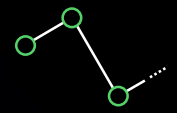
Organization



Single-threaded leader



Storytelling and visualization



Connector of the dots across functions

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New roles and skills

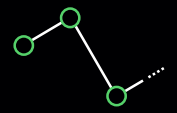
Organization



Single-threaded leader



Storytelling and visualization



Connector of the dots across functions



Translators to marry the art of business with the science of data

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New roles and skills

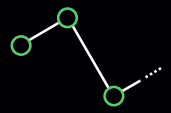
Organization



Single-threaded leader



Storytelling and visualization



Connector of the dots across functions



Translators to marry the art of business with the science of data



Data evangelists

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Mechanisms



Mechanisms work, not just good intentions

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Measurement

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Measurement



Governance

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Measurement



Governance



Data quality

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Measurement

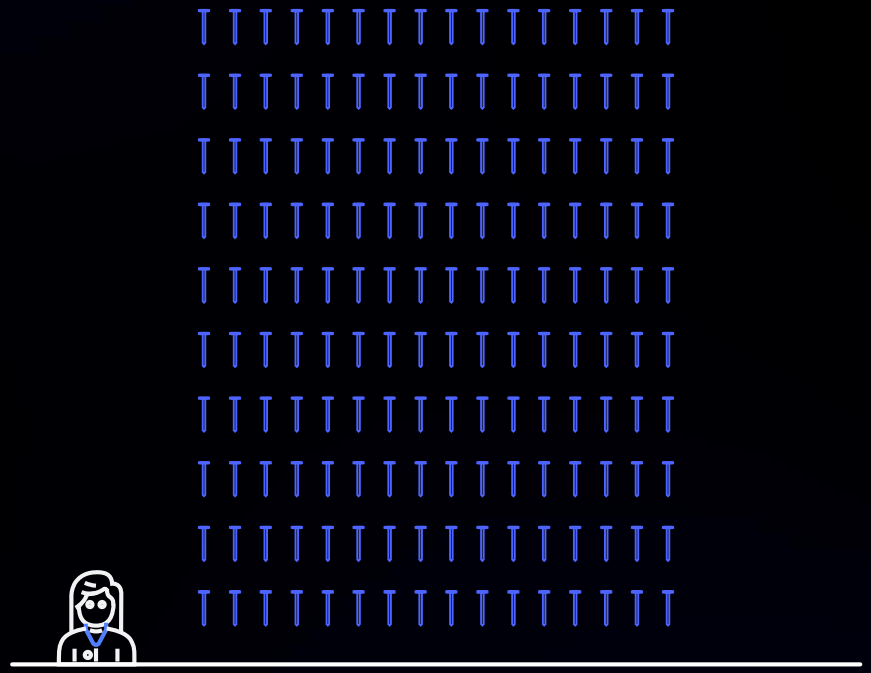


Measure the right thing, not everything

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Measurement

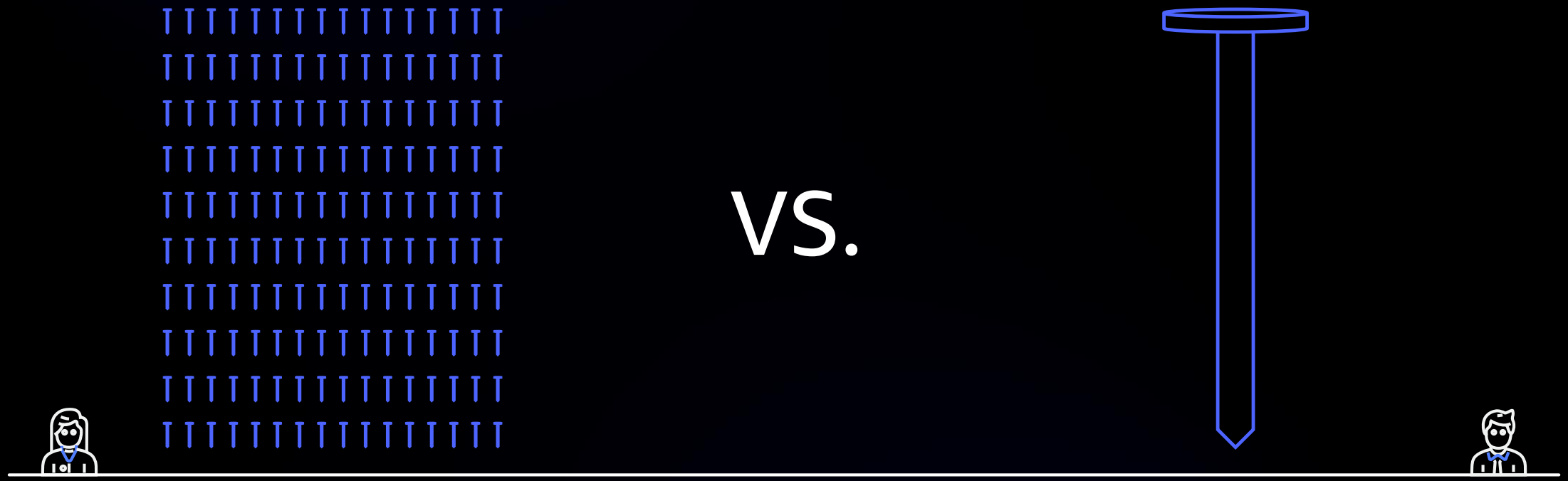
Number of nails made



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Measurement

Number of nails made



VS.

Weight of the nails

“When a measure becomes a target, it ceases to be a good measure.”

Goodhart’s law

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Rethinking measurement

Absolutes	Relatives/rates
Investment	Price per unit
Budget	Burn rate
Deadline	Velocity
Capacity	Consumption
Ideal use case	Cost of experimentation

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Beware of the watermelon goals

Mechanisms

Retention rate

CANCEL or 1-800-I-CANCEL

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Beware of the watermelon goals

Mechanisms

Retention rate



Engagement rate

CANCEL or 1-800-I-CANCEL

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Beware of the watermelon goals

Mechanisms

Retention rate	Engagement rate
Customer acquisition cost	Lifetime value
Click-through rate	Conversion rate
Revenue	Contra revenue



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Measurement



Governance



Data quality

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Governance

Mechanisms



Govern to enable, not restrict

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How?



Establish tenets before policies and procedures

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Examples of tenets



We will make the secure path the path of least resistance

We enable our customers to do the right thing easily and by default

If it hurts, do it more often

Speed will not result in poor security and compliance

Being secure and compliant will not result in slow progress and poor proliferation of data

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How?



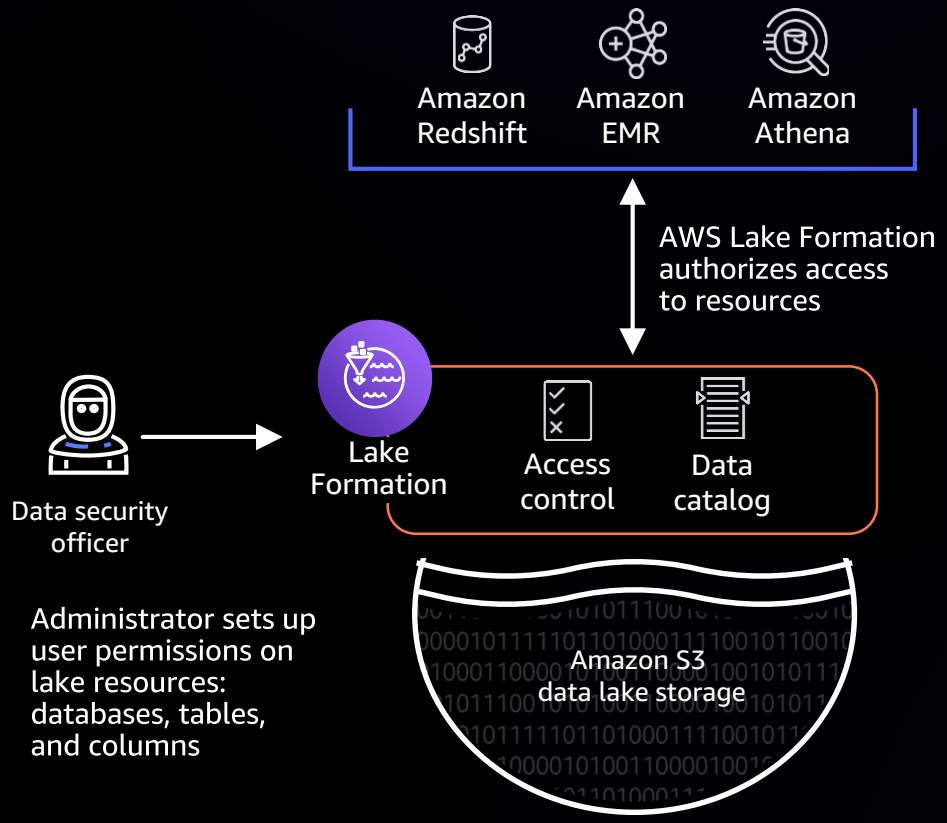
Establish tenets before policies and procedures

Centralize implementation, decentralize decisions

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Centralize security, governance, and auditing

Mechanisms



Centrally implement security, governance, and auditing

Policies are consistently enforced

Integrated with security, storage, analytics, and machine learning services

Permissions on databases, tables, and columns

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How?



Establish tenets before policies and procedures

Centralize implementation, decentralize decisions

Good metadata = good data catalog

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How?



Establish tenets before policies and procedures

Centralize implementation, decentralize decisions

Good metadata = good data catalog

Automate your bureaucracy

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How?



Establish tenets before policies and procedures

Centralize implementation, decentralize decisions

Good metadata = good data catalog

Automate your bureaucracy

Encrypt everything

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Measurement



Governance



Data quality

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Data quality

Mechanisms

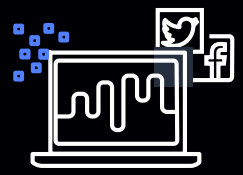


Build it in, don’t bolt it on

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Data quality

Garbage in, garbage out

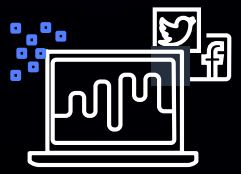


Incentivize better quality
at the source

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Data quality

Garbage in, garbage out



Incentivize better quality at the source

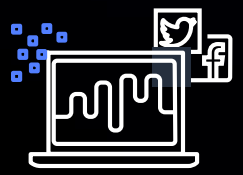


Ask for what you need, not everything

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Data quality

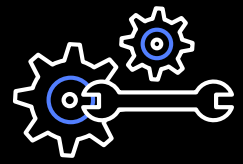
Garbage in, garbage out



Incentivize better quality at the source



Ask for what you need, not everything



Automate inferential data and quality checks

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Data quality

Mechanisms

Garbage in, garbage out

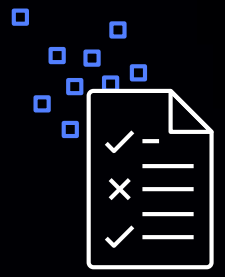
- Incentivize better quality at the source
- Ask for what you need, not everything
- Automate inferential data and quality checks



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Data quality

Quality is not all or nothing

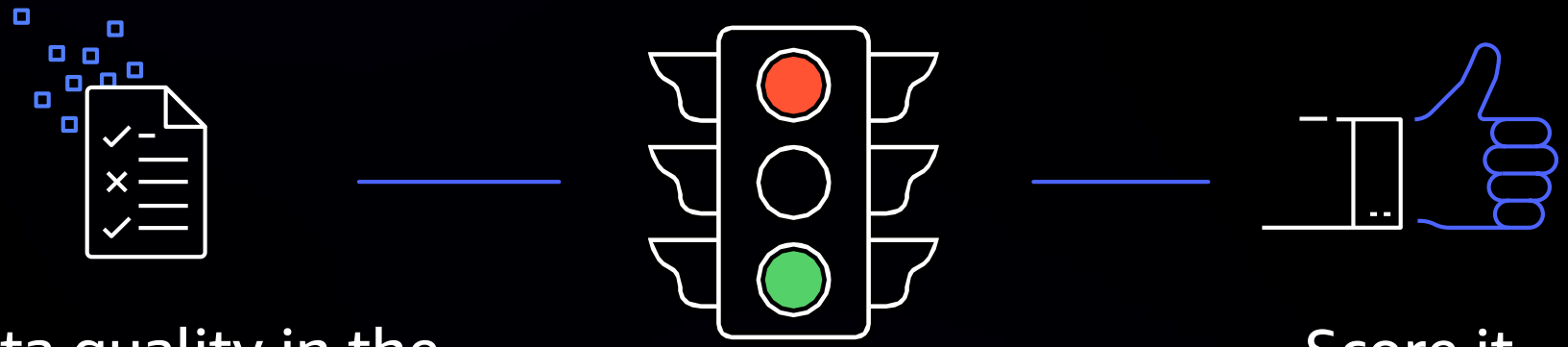


Put data quality in the context of the impact

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Data quality

Quality is not all or nothing



Put data quality in the context of the impact

Score it and show it

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Execution



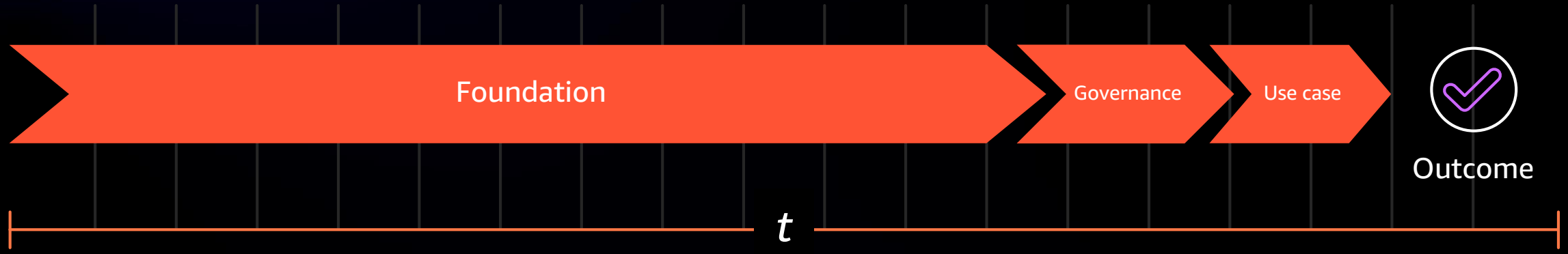
Think big but execute small

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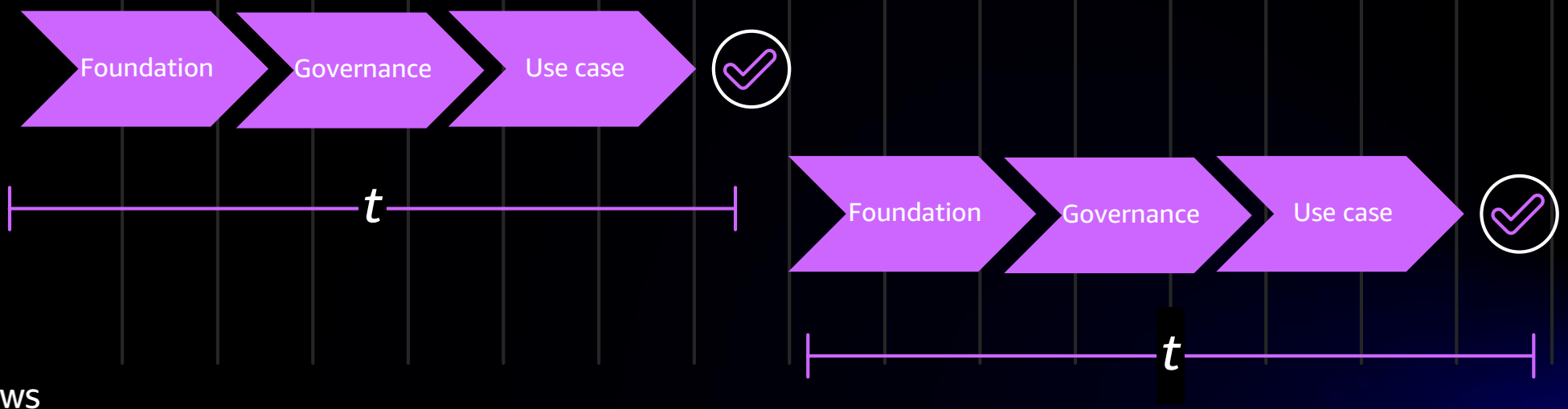
Time to value

Execution

Traditional approach



Iterative approach



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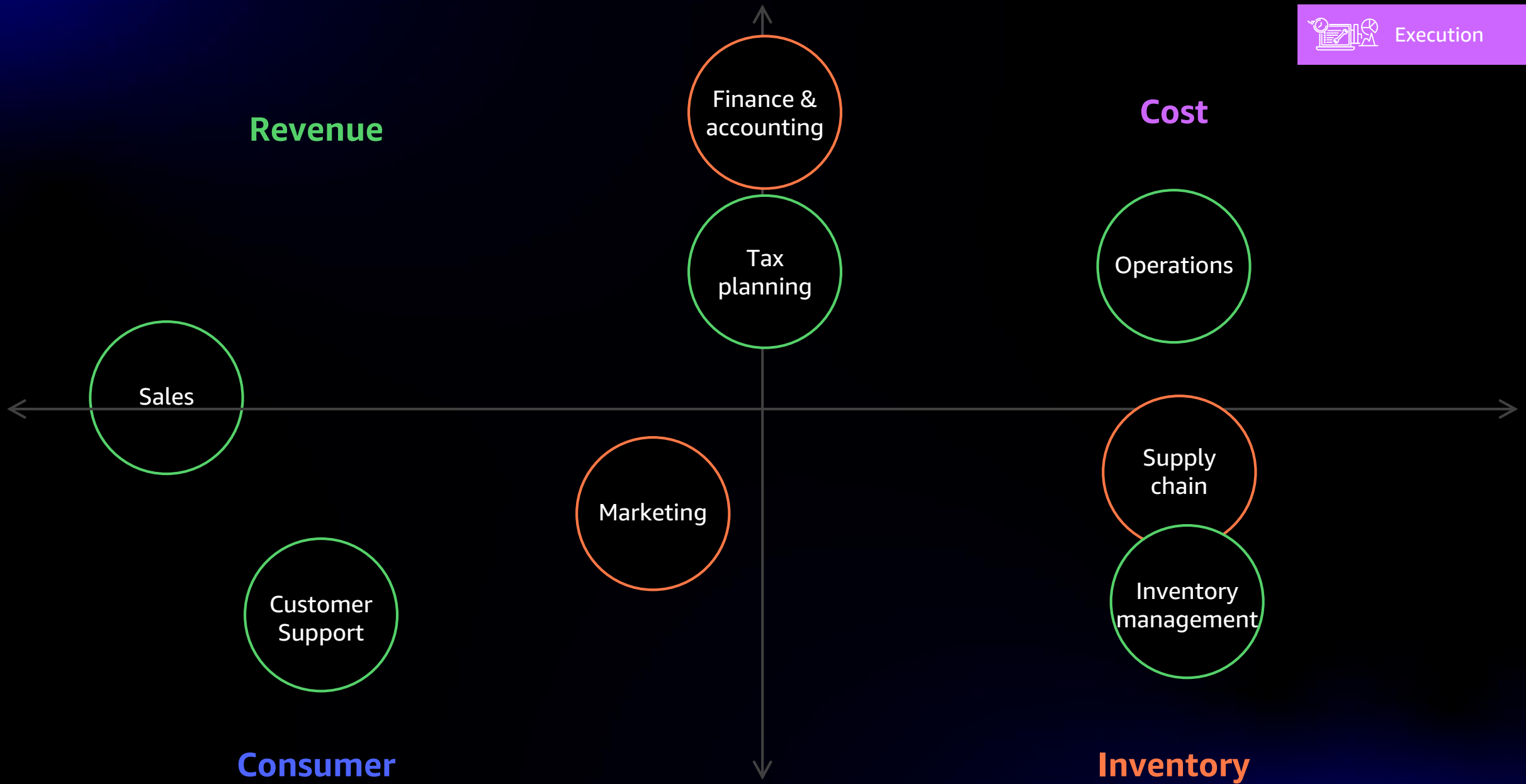


Execution

Revenue

Cost

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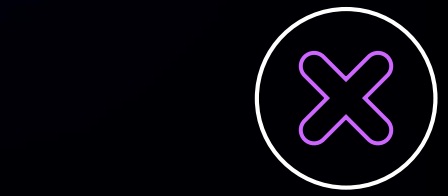
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Don’t build a data lake to nowhere



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Instead



If you don’t capture it,
you can’t consume it

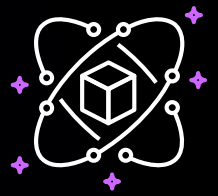
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Instead

Execution



If you don’t capture it, you can’t consume it



Integrate data in the core products

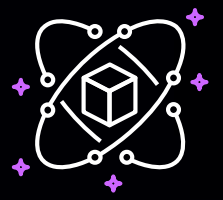
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Instead

Execution



If you don’t capture it, you can’t consume it



Integrate data in the core products

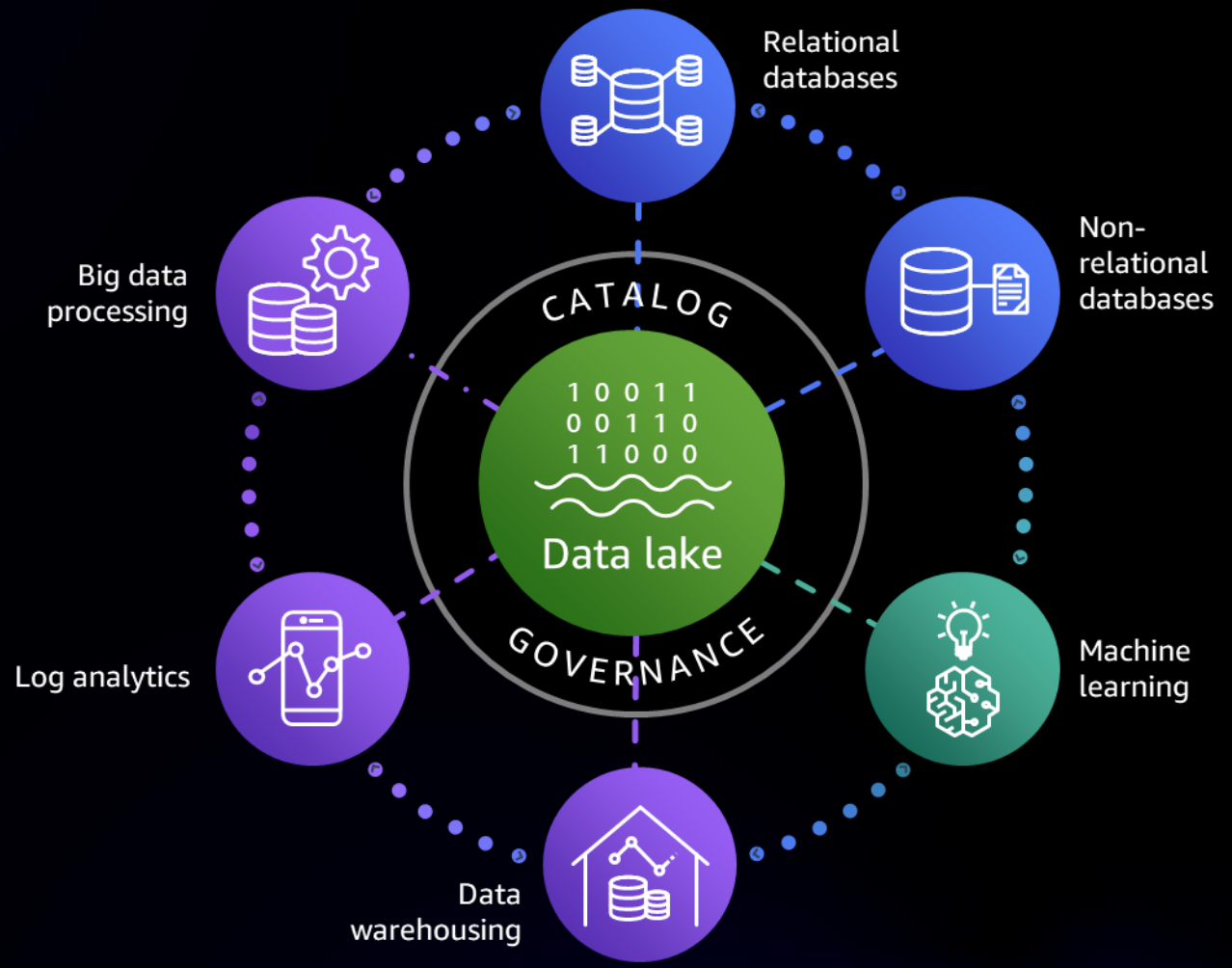


Use the right tool for the right job

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Execution

The right tool for the right job

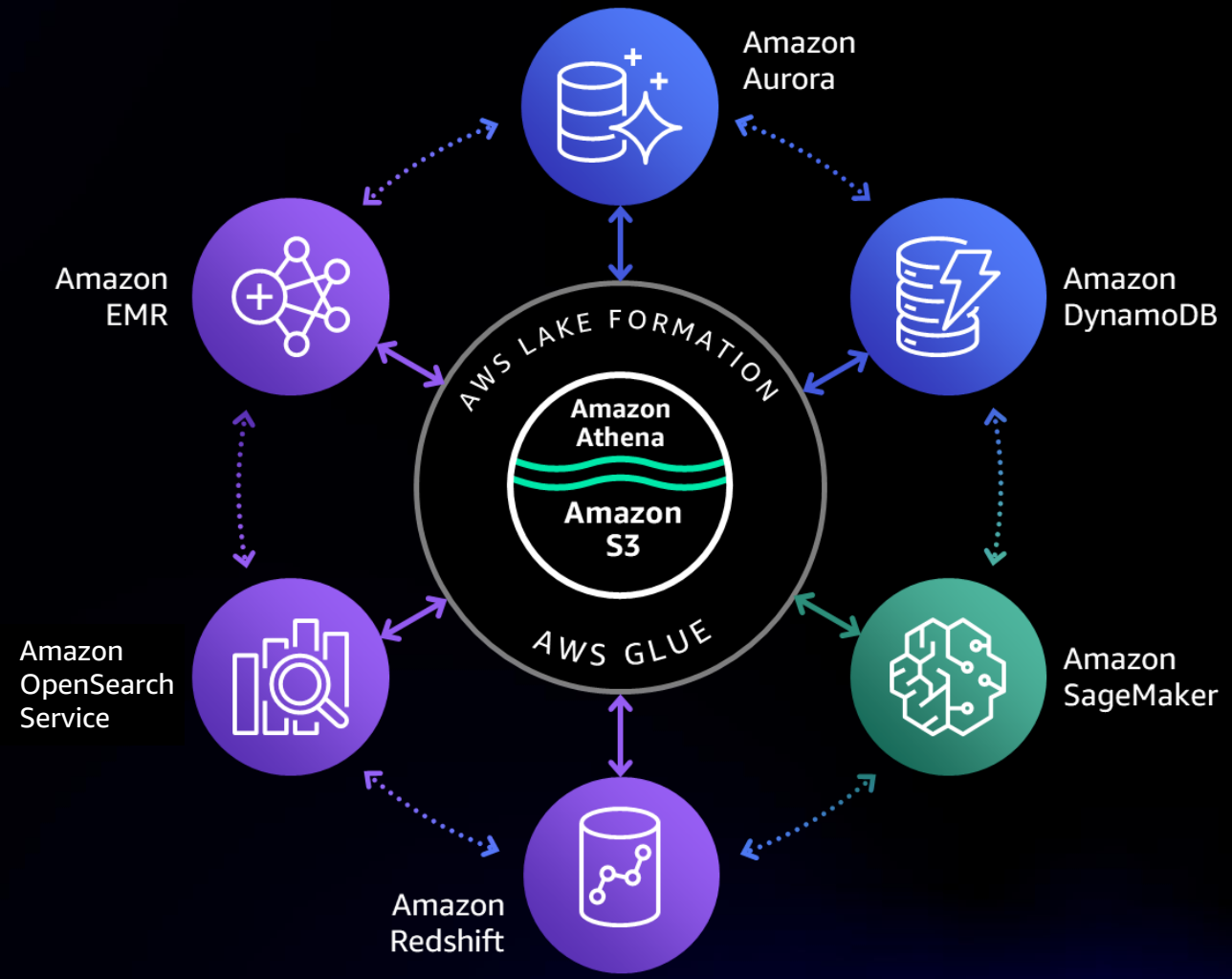


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The right tool for the right job

Execution

- Data at any scale
- The best price-performance
- Seamless data access
- Unified governance
- AI and ML to solve business challenges



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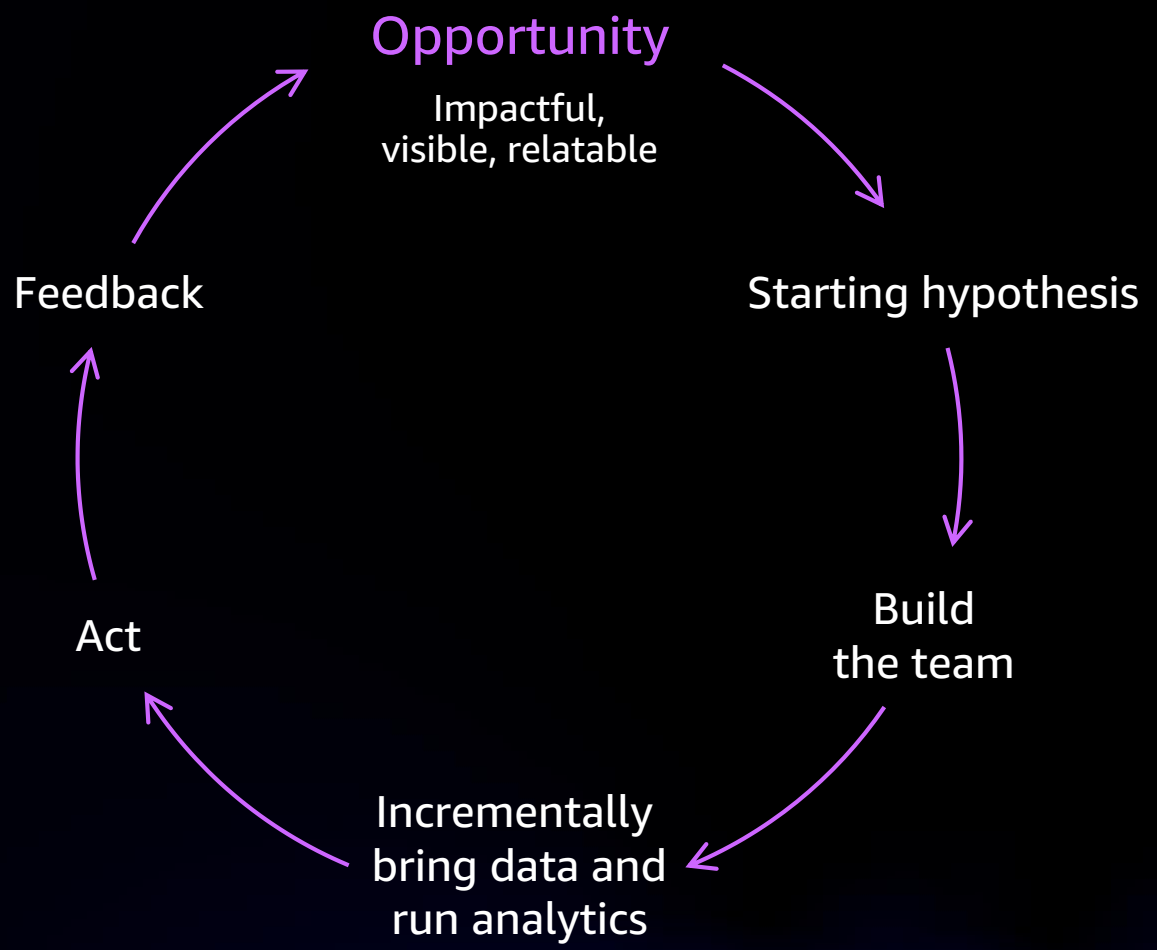
Start business backwards, not data forward

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Start business backwards, not data forward

Execution

1. Identify impactful, visible, and relatable business opportunity
2. Create a starting hypothesis
3. Enlist, educate, and enable stakeholders
4. Use cloud to bring relevant data and drive insights
5. Take action
6. Collect feedback



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Guiding principles

Culture	Facts, not feelings; freedom to act, not fiefdoms to please
Organization	Organize for agility, not control
Mechanisms	Mechanisms work, not just good intentions
	Measurement | Measure the right thing, not everything
	Governance | Govern to enable, not restrict
	Data quality | Build it in, don't bolt it on
Execution	Think big but execute small
	Don't build a data lake to nowhere
	Start business backwards, not data forward

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We are here to help

Need peer-level executive guidance?

aws Enterprise strategy

- ✓ Mental models and strategies based on the first-hand experience of former CXOs
- ✓ Get peer-level sounding board and sparring partner

Inspire and accelerate your digital transformation

Want to build a data vision and strategy?

aws Data-driven everything

- ✓ Create an organizational vision for innovation with data to drive business outcomes
- ✓ Define the first pilot, learn, and build

Jumpstart the data flywheel

Have a strategy and need help executing it?

aws Data lab

- ✓ Create tangible deliverables to accelerate strategic databases, analytics, and ML initiatives
- ✓ Leave with an architecture, working prototype, path to production, and deeper knowledge of AWS services

Come with an idea, leave with a solution

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Thank you!

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