



aws INNOVATE

DATA EDITION

23 August, 2022

Modernize government analytics and unlock digital transformation

Eric Conrad

Regional Managing Director
ASEAN, Public Sector
Amazon Web Services





Improved Citizen
Services



Efficient
Operations

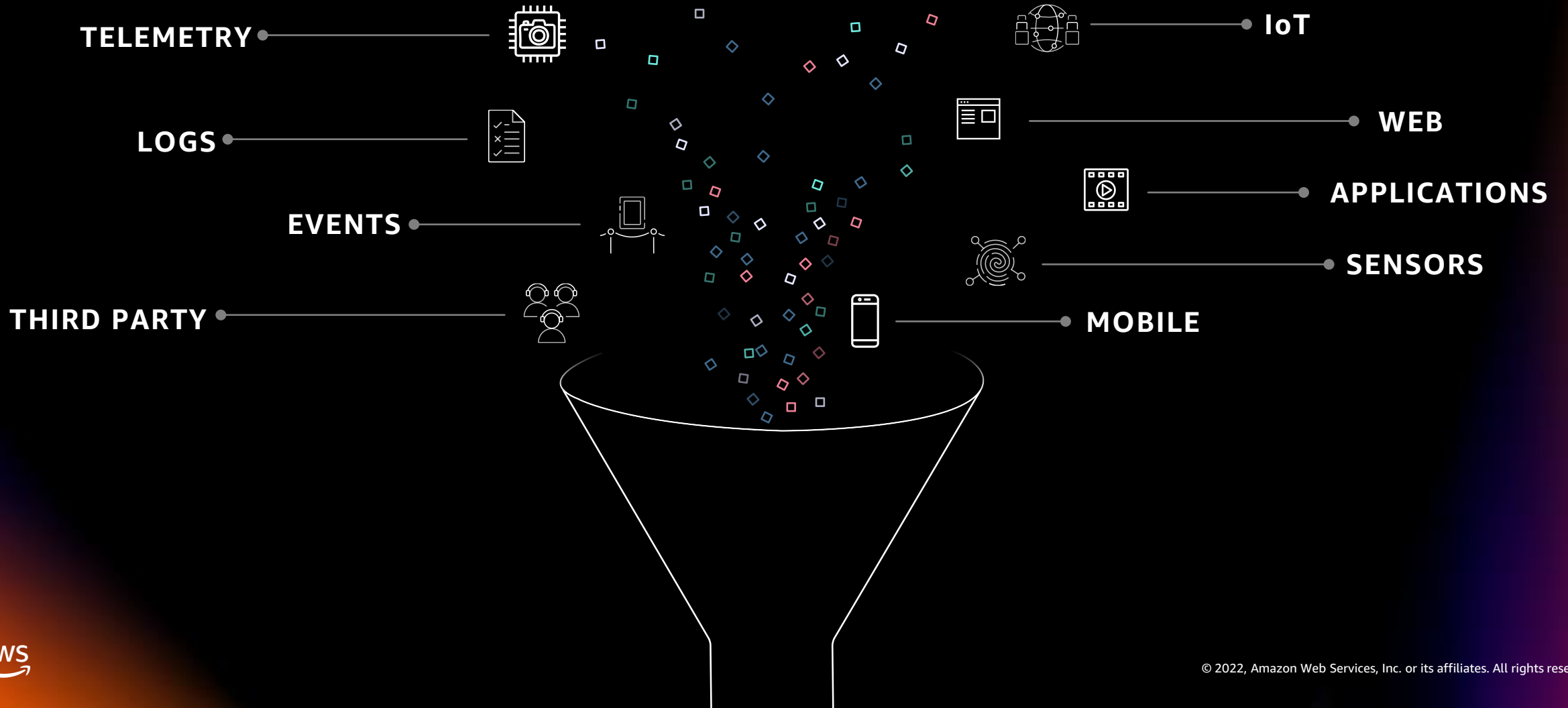


Better/Faster
Decision Making



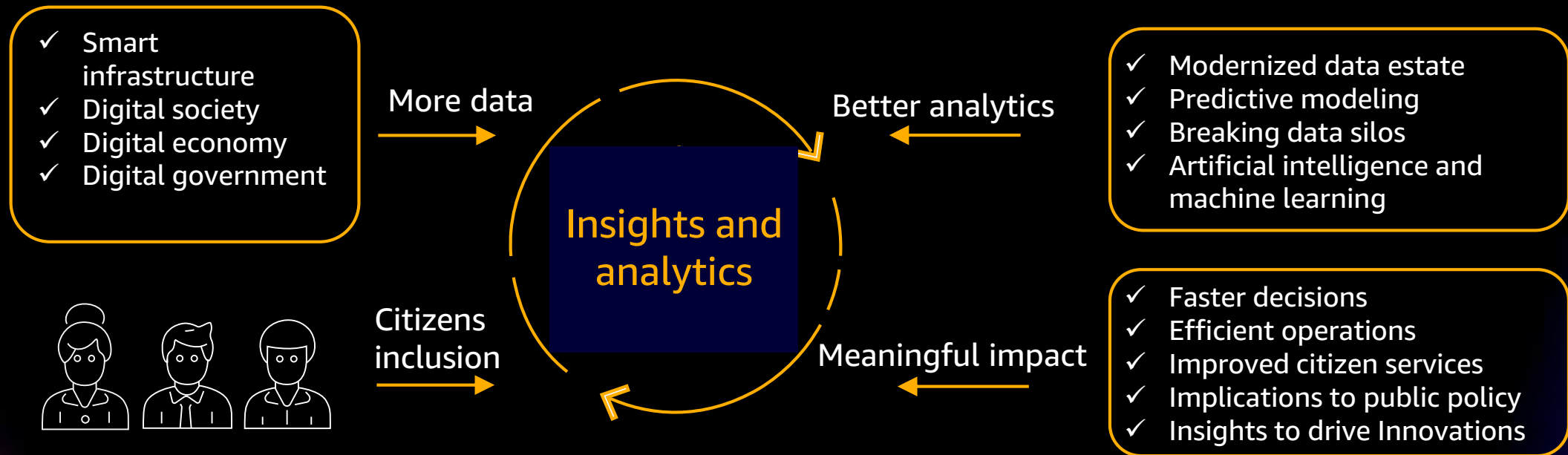
Innovation

Data sources are growing

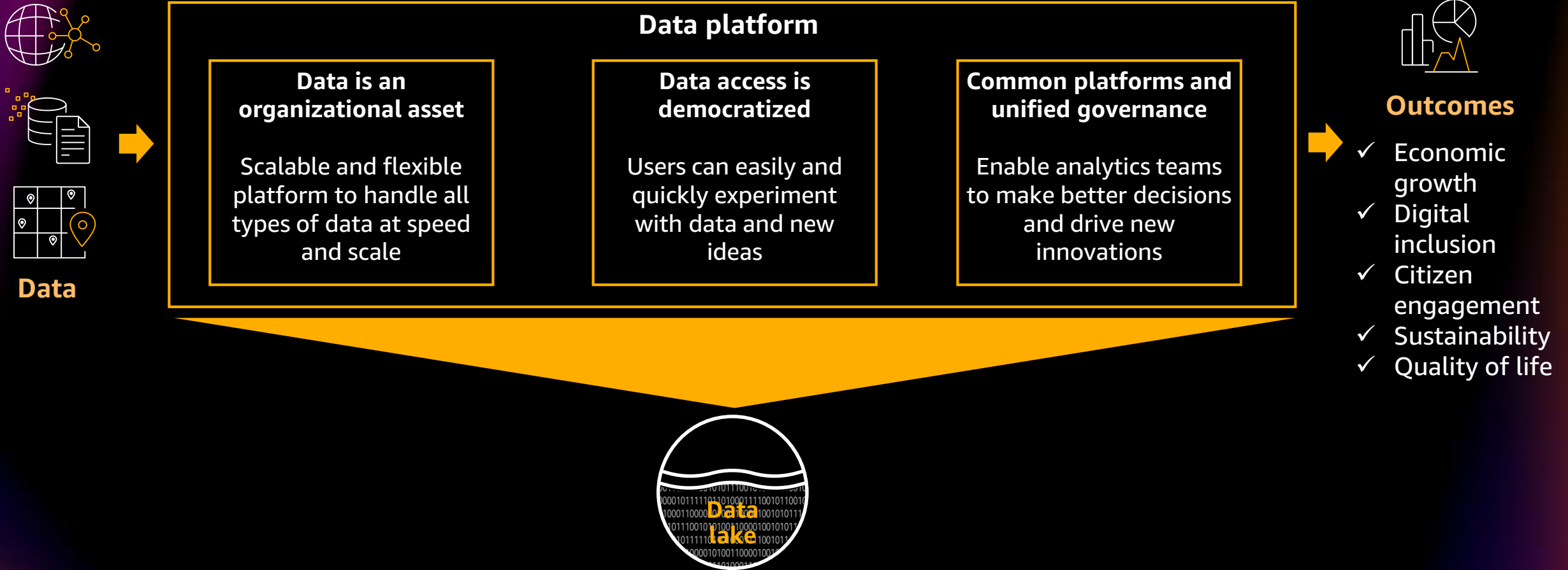


Analytics Flywheel for digital transformation

Analytics to unlock digital transformation



Enabling the Analytics Flywheel



- Centralized repository that allows you to store all of your data, structured and unstructured, at any scale
- Store your data as is
- Run different types of analytics - from dashboards and visualizations to big data processing, real-time analytics, and machine learning - to guide better decisions

Building and Scaling Capabilities



$$(\text{Culture} \times \text{Scale}) + (\text{Capability} \times \text{Scale})$$



Engage



Educate



Enable



Eliminate



Organization



Governance



Execution

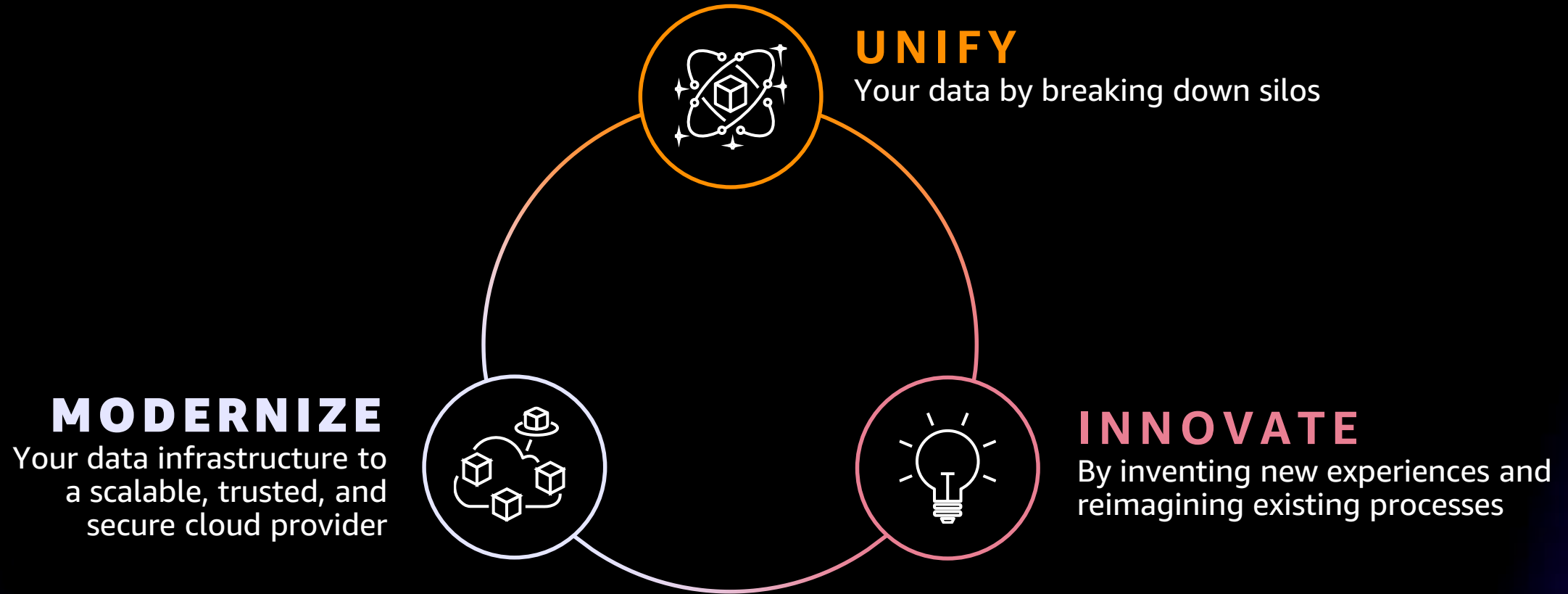
Simplified data journey

INVENTING ON BEHALF OF CUSTOMER

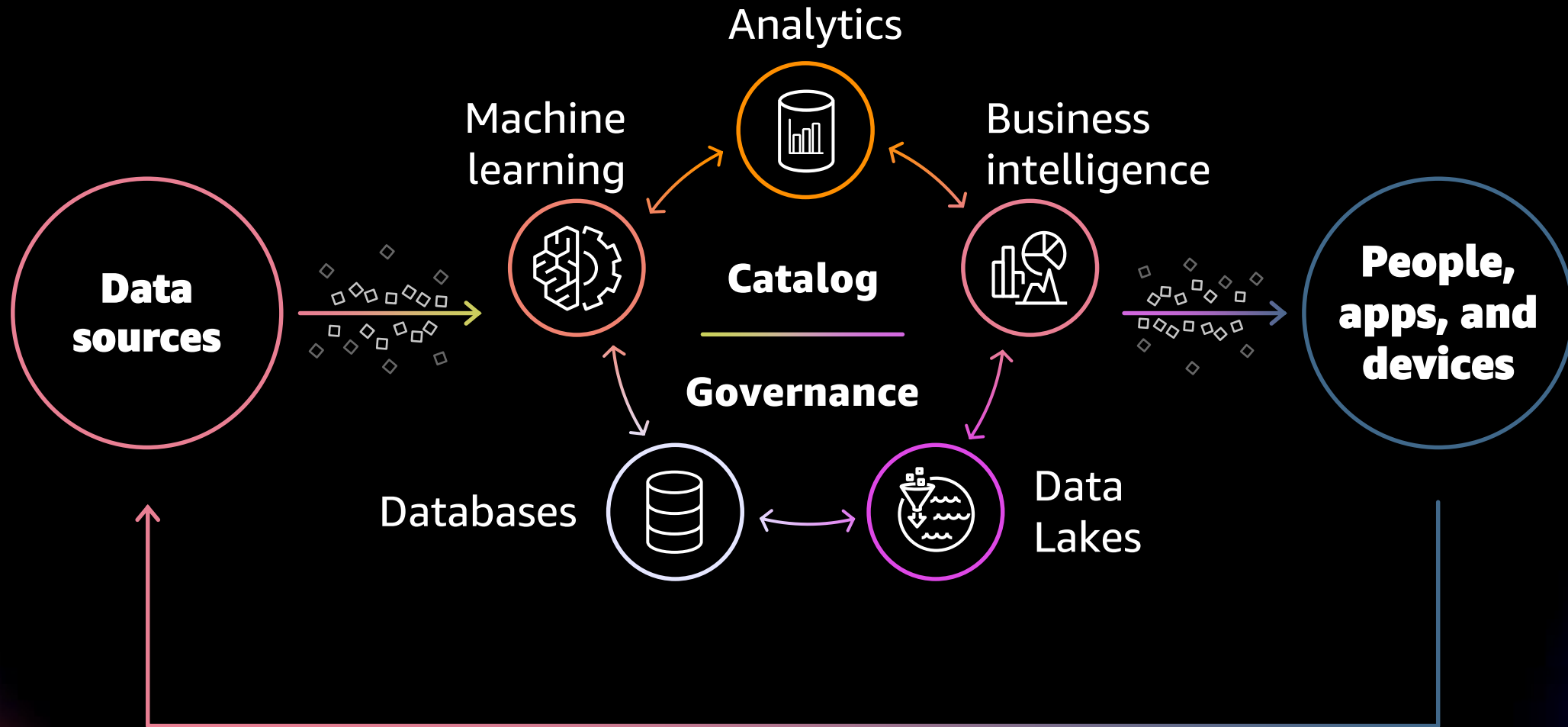


Modern data strategy for better business outcomes

Start anywhere

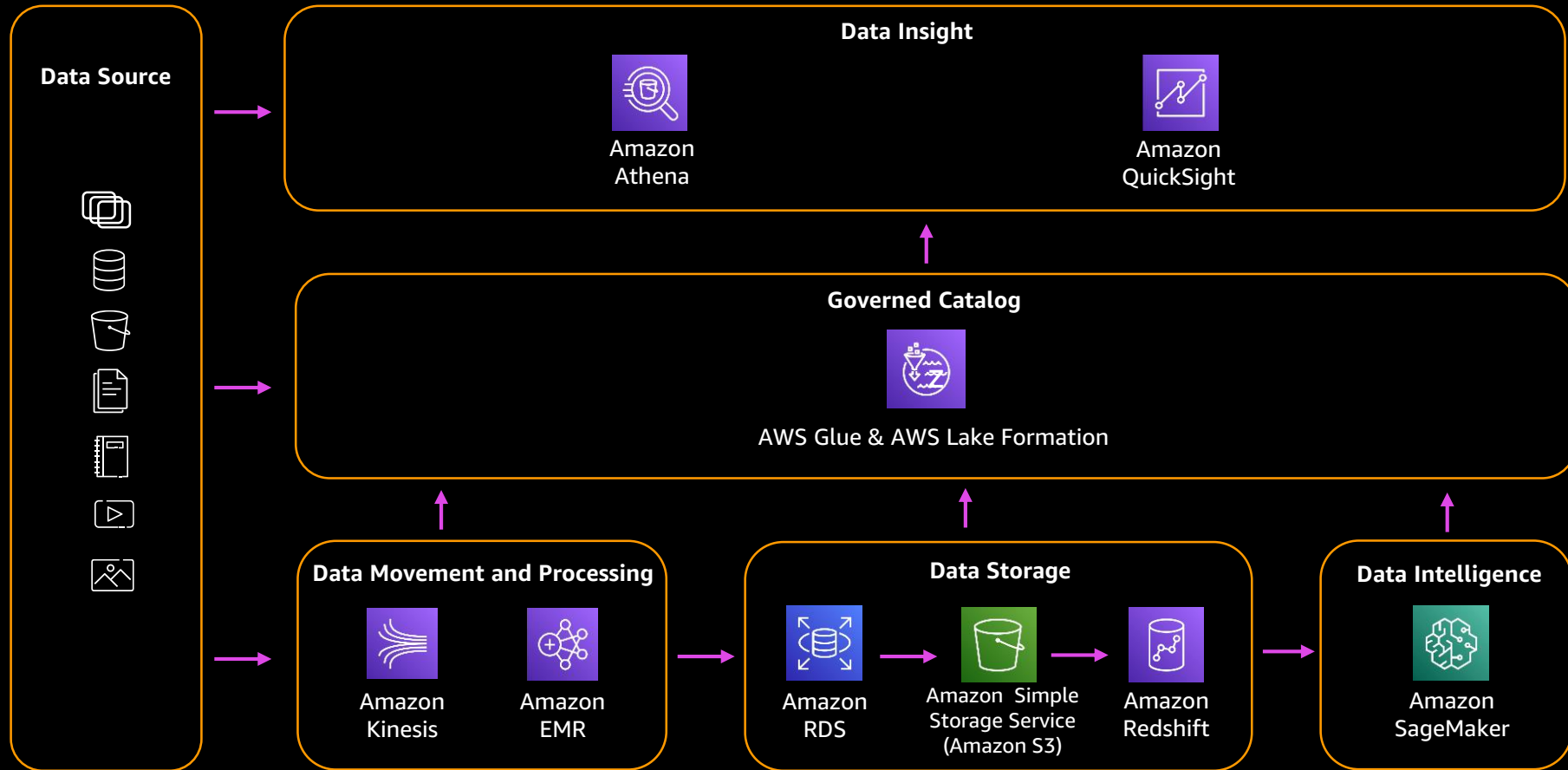


Modern data strategy in action



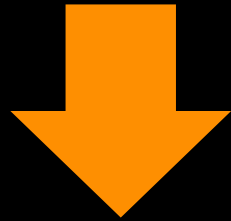
Simplified Serverless Modern Data Platform

ACCELERATE DATA JOURNEY WITH AWS FOR DATA



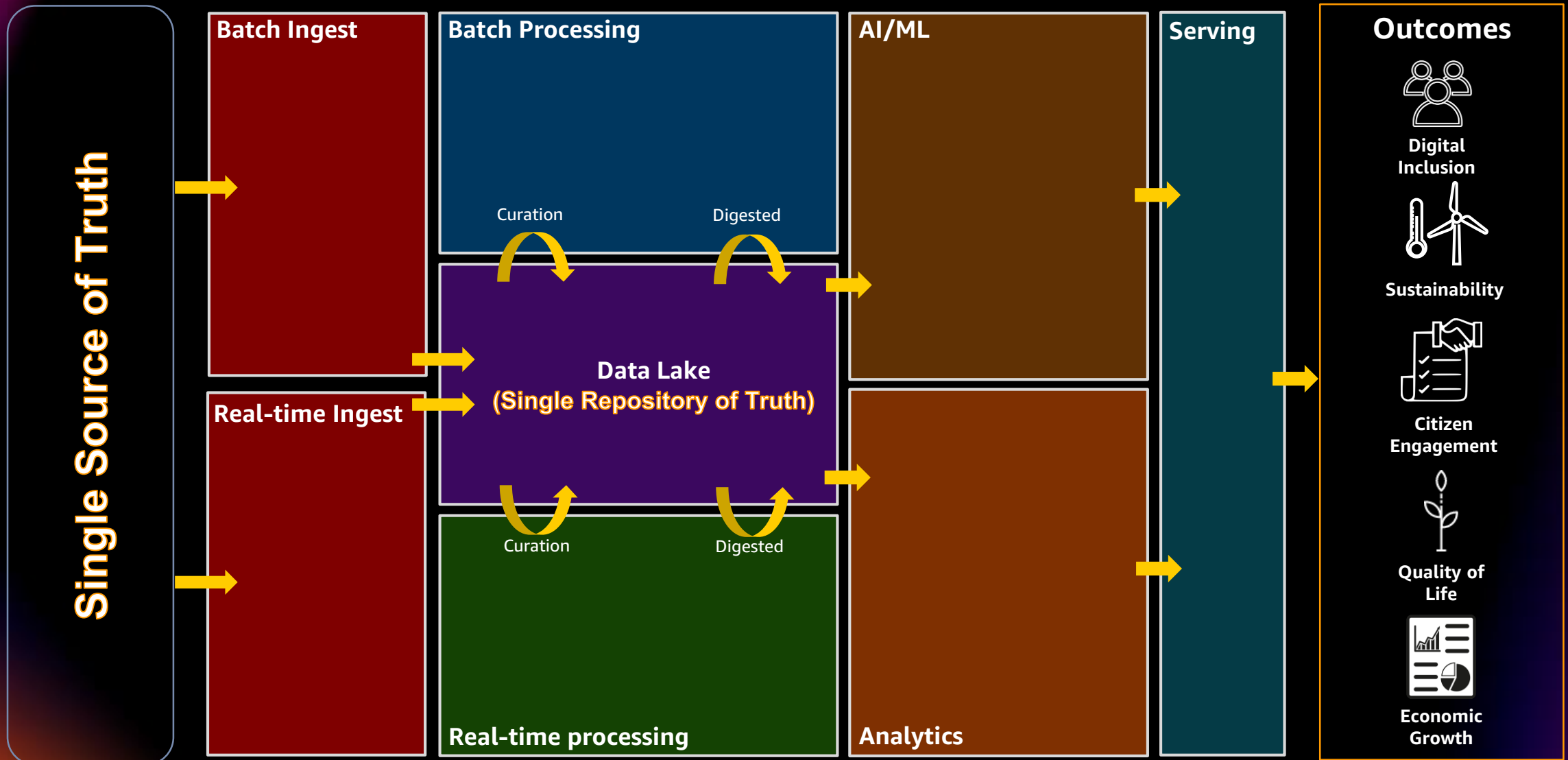
Work backwards from Outcomes

Work backwards from
Outcomes

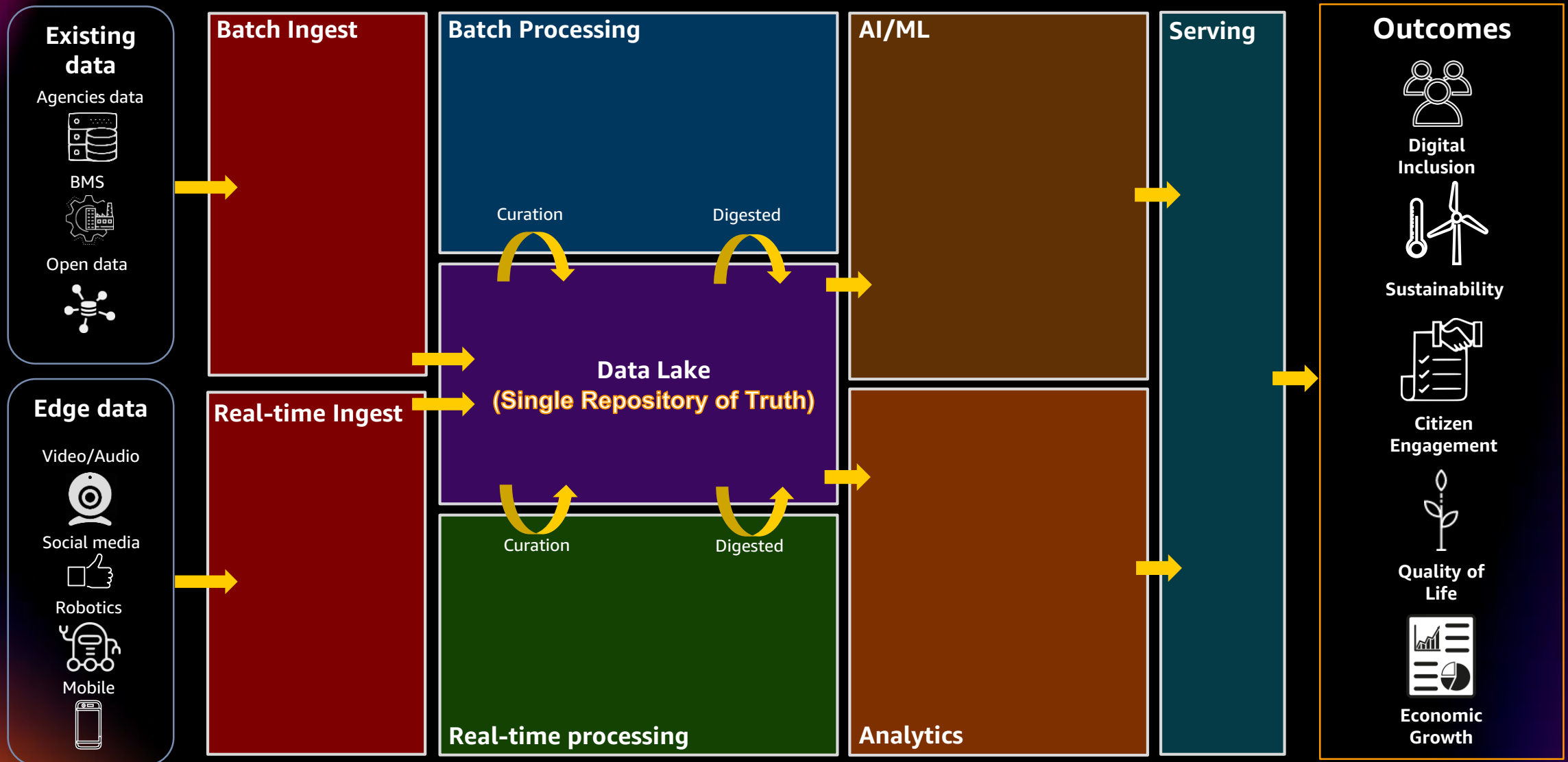


Identify the suitable
Data and Technology

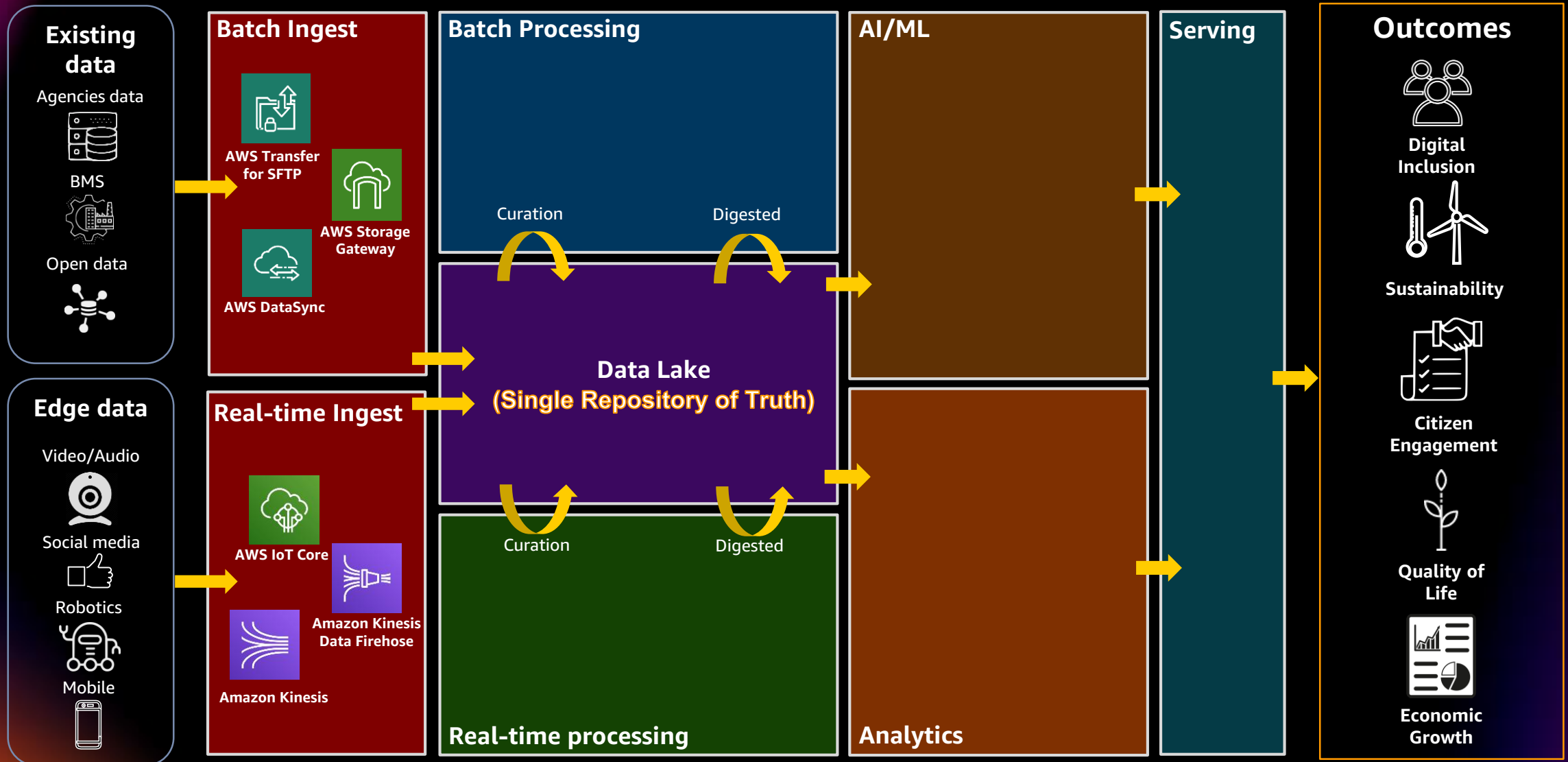
AWS Solution Blueprint for Digital Transformation



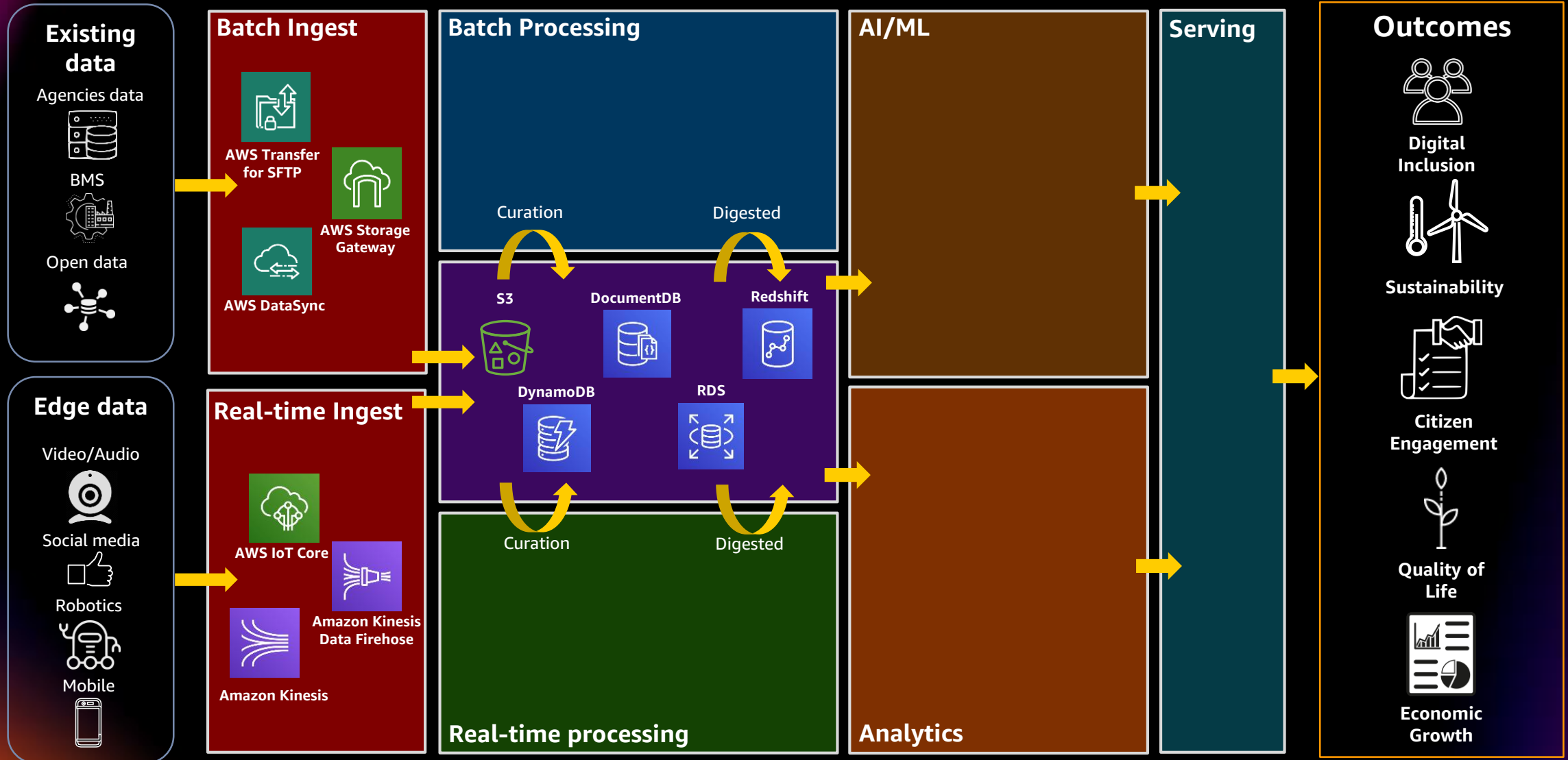
AWS Solution Blueprint for Digital Transformation



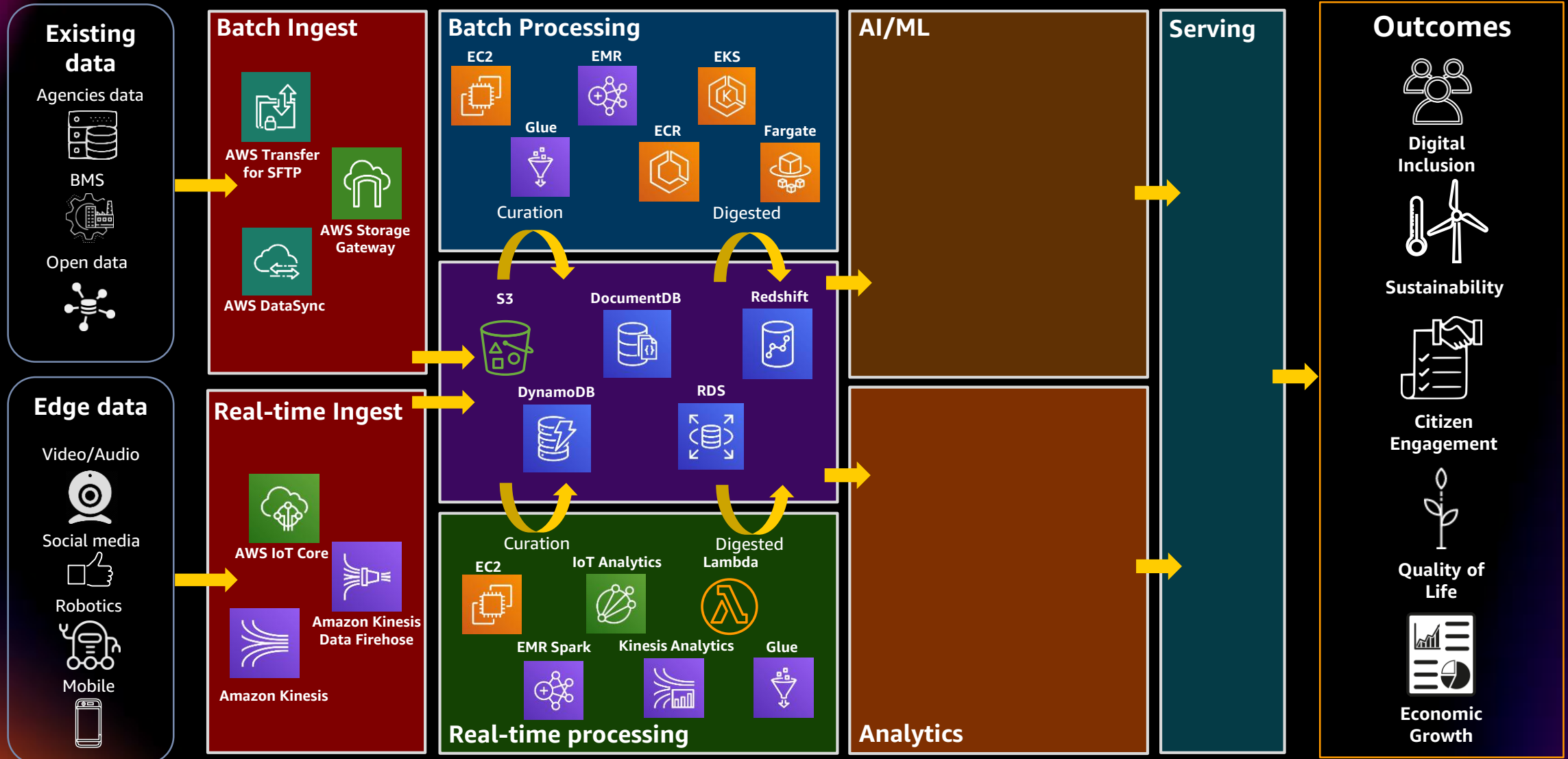
AWS Solution Blueprint for Digital Transformation



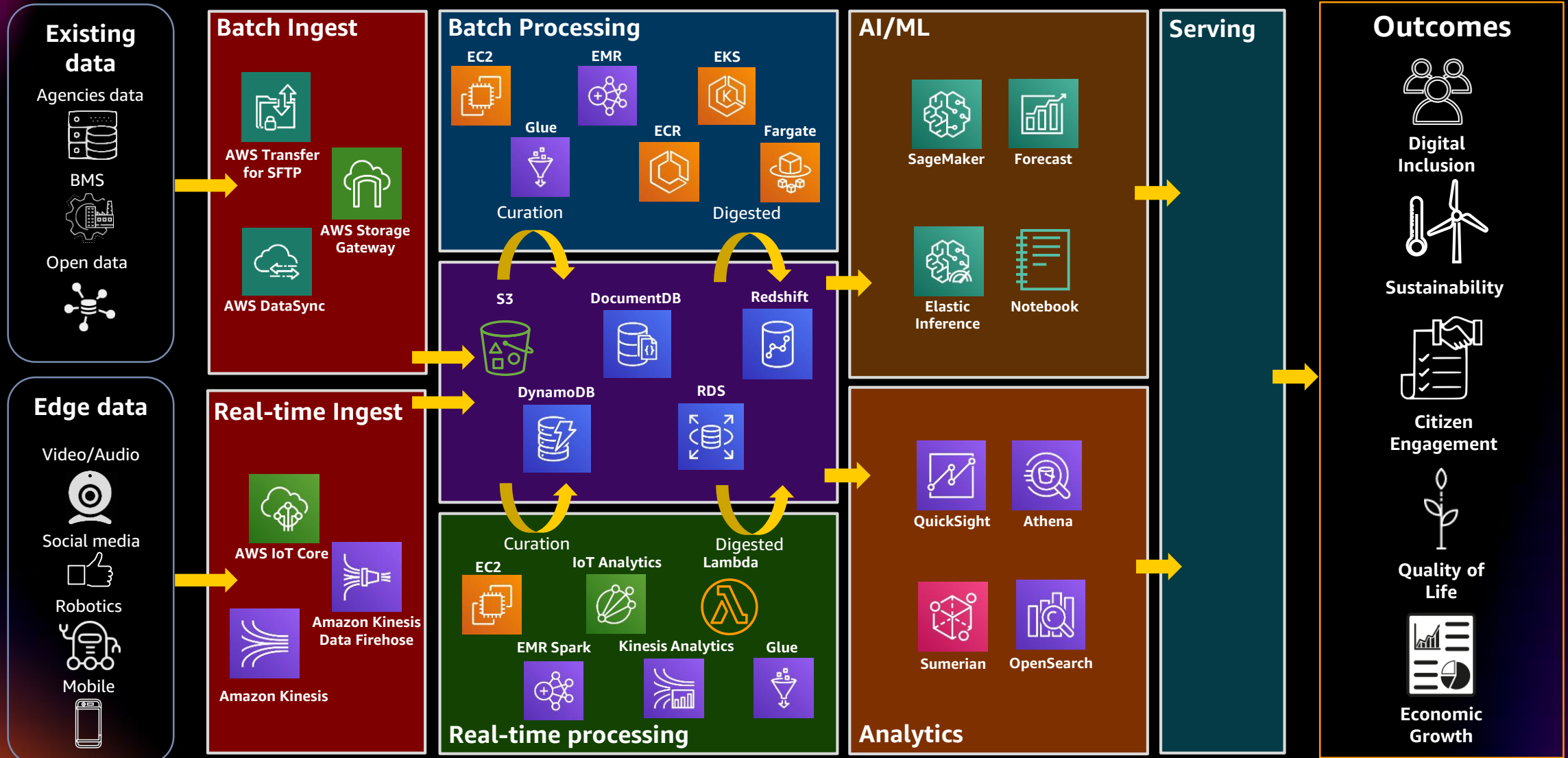
AWS Solution Blueprint for Digital Transformation



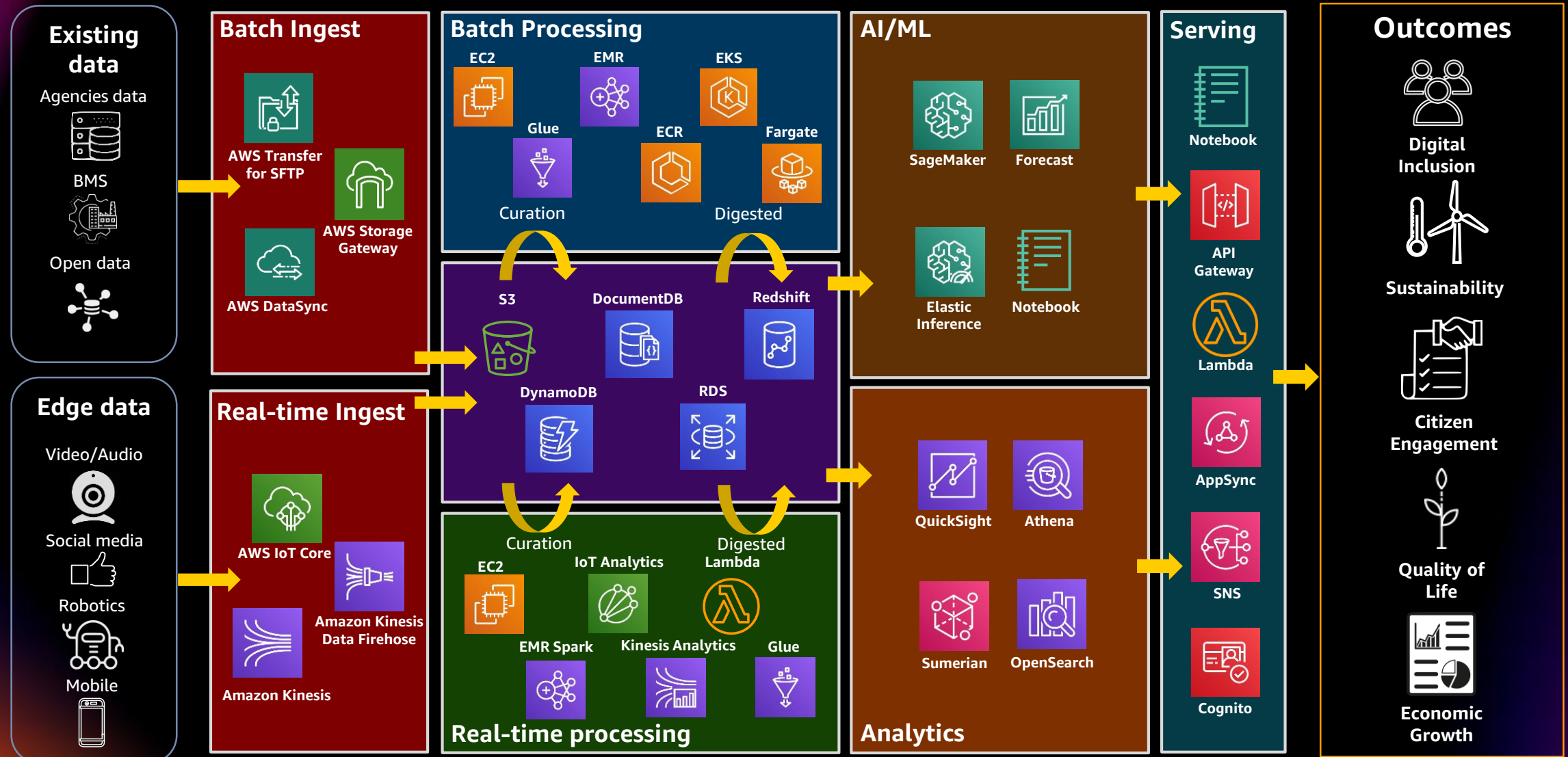
AWS Solution Blueprint for Digital Transformation



AWS Solution Blueprint for Digital Transformation

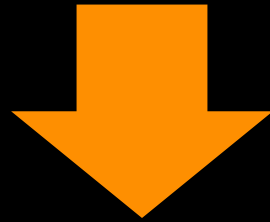


AWS Solution Blueprint for Digital Transformation



One Size fits
Nothing
at all

**One Size fits
Nothing
at all**



**Different Use Cases require
Different Purpose-Built Building
Blocks**

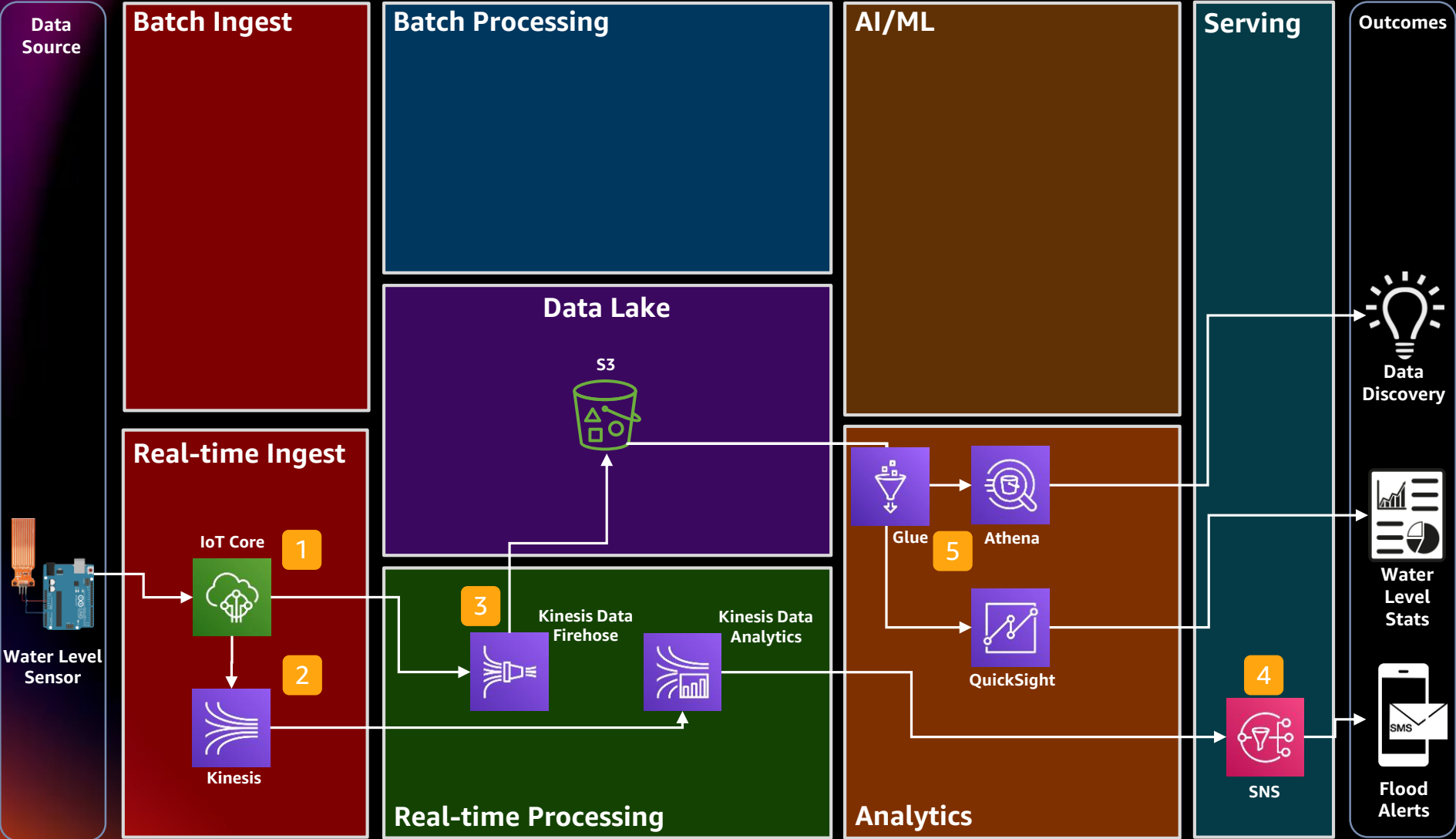
Same Blueprint, Different Innovations

Flood Monitoring and Disaster Response Solution Blueprint



Smart Living

Disaster Management

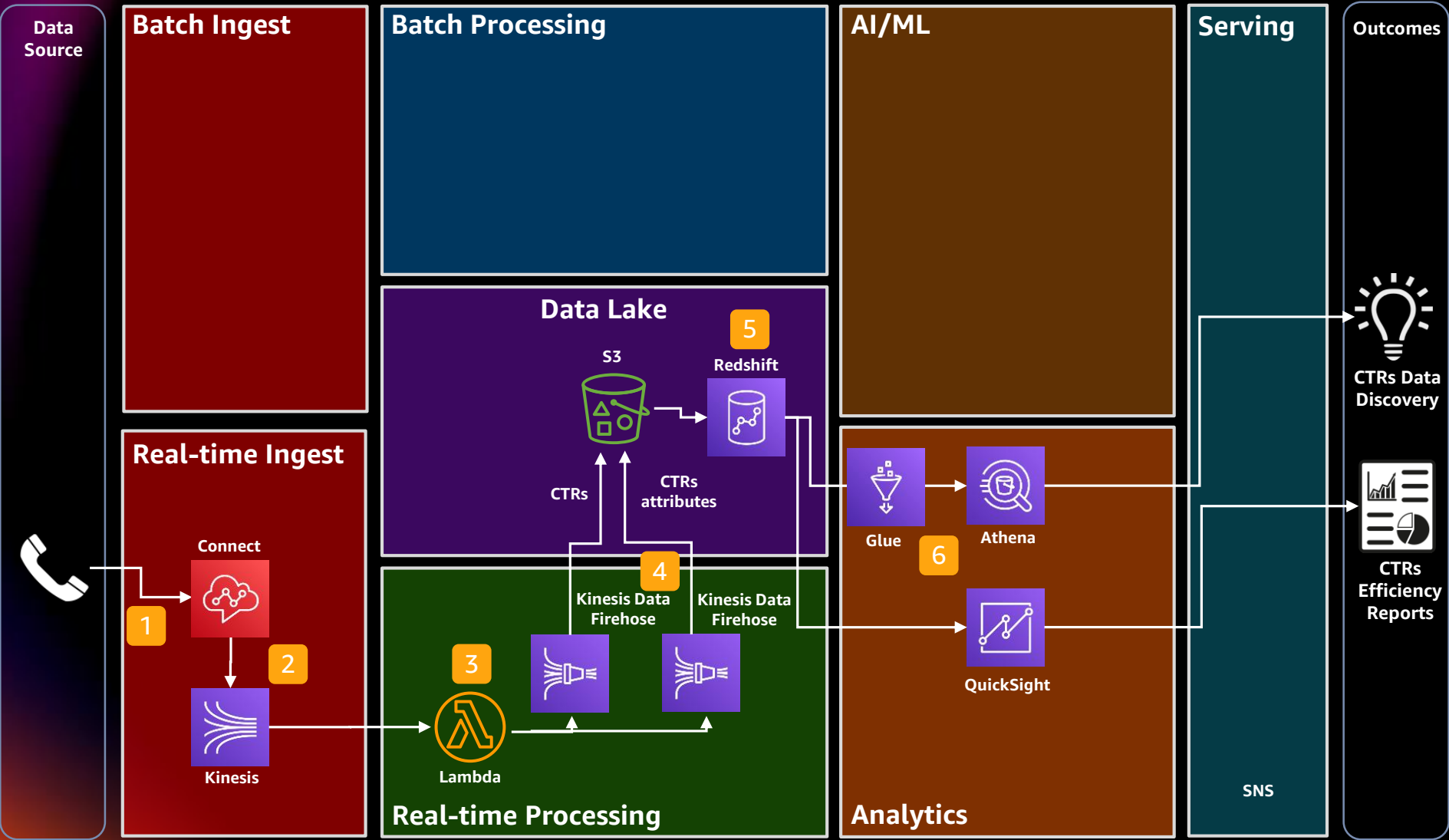


- 1 Water sensors will be connected to the IoT client which will send data to AWS through Amazon IoT Core.
- 2 These data are ingested and processed using Amazon Kinesis Data Firehose and Amazon Kinesis Data Analytics.
- 3 The Amazon Kinesis Data Firehose will store the processed data in the Amazon S3 bucket.
- 4 The Kinesis Data Analytics will process the real-time data and send a SMS to the public through Amazon SNS if a flood is detected.
- 5 To build river level visualization or dashboard, Amazon Athena can be used to query Amazon S3 and Amazon QuickSight can be used to visualize the findings.

Call Center Optimization Solution Blueprint



Call Center Optimization



- 1 Citizens call to Amazon Connect
- 2 Streaming of Contact Trace Records (CTRs)
- 3 Extract CTRs and CTRs attributes
- 4 Amazon Kinesis Data Firehose to buffer and store CTRs and CTRs attributes to Amazon S3 bucket
- 5 Amazon Redshift to serve as data warehouse of CTRs
- 6 To build CTRs efficiency visualization dashboard, Amazon Athena and Amazon QuickSight can be used to query Amazon S3 or Amazon Redshift for data discovery or visualizations.

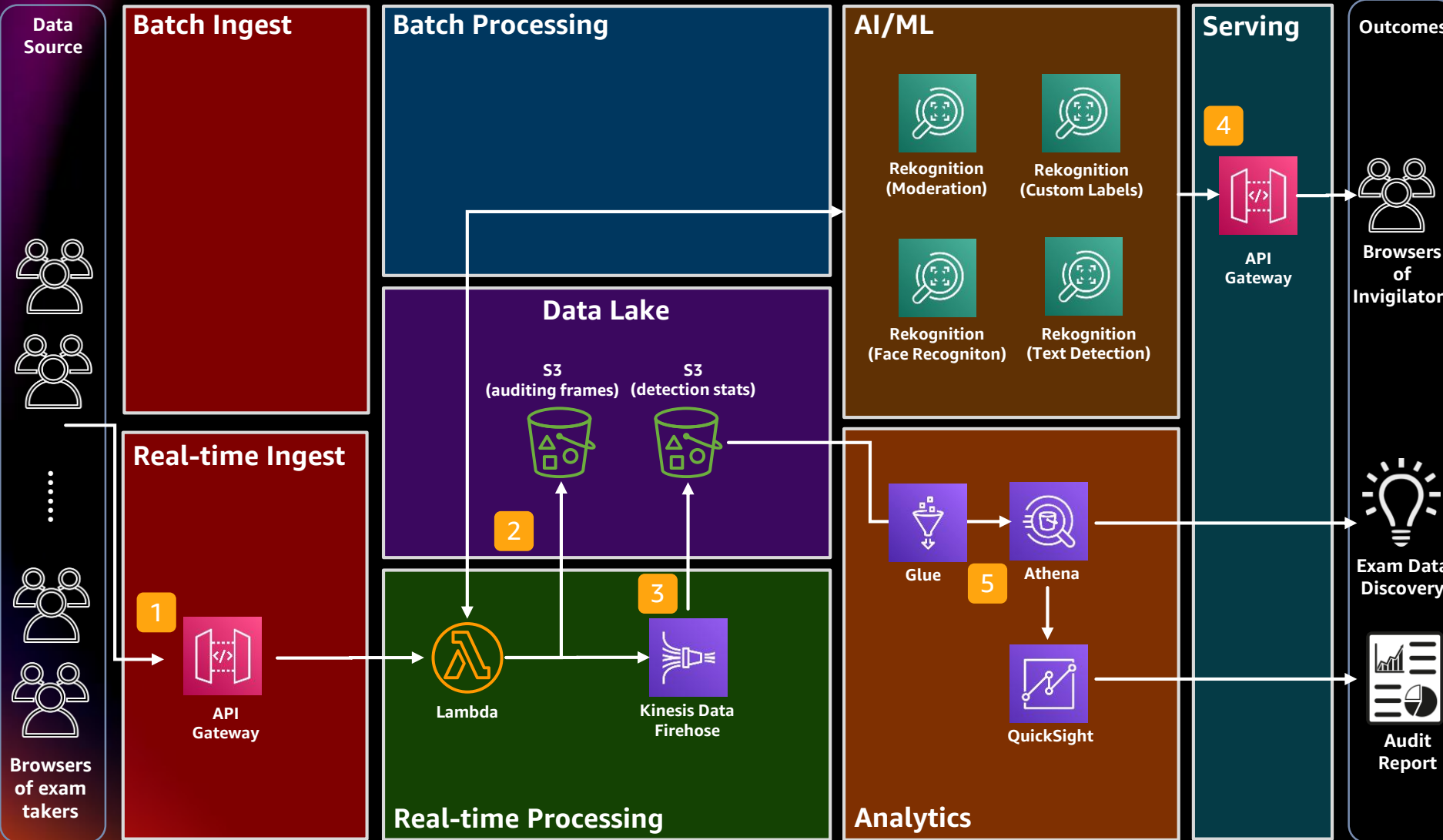
Virtual Proctoring Solution Blueprint



Smart People

Virtual Proctoring

- 1 Exam takers' browsers send snapshots from webcams via Amazon API gateway
- 2 The AWS Lambda function would store snapshots in an Amazon S3 bucket for subsequent auditing process, as well as triggering Amazon Rekognition to detect customer labelled objects, verify exam candidates' IDs via face recognition, and detect text from ID documents.
- 3 The detection stats from [2] would be sent to Amazon Kinesis Data Firehose, for storing into another Amazon S3 bucket.
- 4 The API gateway would serve the detection results to proctors/invigilators to notify them about verifications and exam anomalies.
- 5 Use AWS Glue, Amazon Athena and Amazon QuickSight to query exam audit data from Amazon S3 for exam data discovery and audit reporting.



Customer References

Changi Airport Group uses DIVA Digital Factory to meet global travel challenges alongside AWS and Accenture

Challenge

In early 2020, Changi Airport Group (CAG) saw a 98 percent decrease in passengers. CAG needed to develop solutions to resolve passenger challenges, such as changing restrictions and document requirements.

Solution

CAG used its Digital, Innovations, Ventures, and Analytics (DIVA) digital factory, which bring data into single enterprise data hub via serverless technologies, to quickly harvest data insights that inspire the development of resilient solutions to streamline the passenger experience during the COVID-19 pandemic.

Benefits

- Centralized enterprise data in a single hub
- Shortened development cycle to 4 weeks
- Helps customers navigate evolving travel requirements



Company: Changi Airport Group

Industry: Travel

Country: Singapore

Website: <https://www.changiairport.com/>

About Changi Airport Group

Changi Airport Group operates Singapore Changi Airport, recognized by Skytrax as the world's best for 8 consecutive years. Having served nearly 70 million travellers in 2019, Singapore Changi Airport is also one of the world's busiest airports.

“Improving access to all the necessary data helped us connect the dots between different sources and glean the insights needed to create products quickly.”

Jeffrey Loke, senior vice president, Changi Airport Group



Diskominfos Helps Bali pursue Smart Island Digital Transformation on AWS

Challenge

The COVID-19 pandemic presented the Bali island with a challenge to make public services available to citizens 24/7. Bali needs to pursue a solution that enabled public service employees to work from home without sacrificing the productivity of having everyone physically present at work.

Solution

- Consolidate public service data resources into a single aggregated management system, to accelerate transformation and make remote work possible.
- Use Amazon Rekognition to accurately verify the identity of employees through facial comparison and provide the right resources for each employee after login.

Benefits

- Makes public services available 24/7
- Enables 19,000+ employees to work in a hybrid working environment
- Saves employees time for more innovation
- Increases productivity
- Provides seamless digital identity verification



Company: Communication, Information, and Statistics Agency of Bali (Diskominfos)

Industry: Government

Country: Indonesia

Website: <https://diskominfos.baliprov.go.id/>

About Diskominfos

The Communication, Information, and Statistics Agency of Bali (Diskominfos) formulates and implements communication, information, statistics, and encoding policies for the Indonesian province of Bali, which is looking to become a smart island through technological advancements.

“ Being exposed to new technology like AWS services pushed us to enhance our knowledge, especially in allocating resources efficiently. This milestone is important to us in realizing Bali as a smart island. ”

Ngurah Udiyana. Head of the informatics application section, Diskominfos



Kartu Prakerja Detects fraudulent registrations at scale using Amazon Textract

Challenge

During the pandemic, the government allocated Kartu Prakerja US\$1.4 billion in 2021 to offer monetary incentives on top of skills training for those who complete these training courses.

However, many attempted to exploit the government program for their own monetary gain by submitting multiple registrations under different identities.

Solution

To make sure more Indonesians can benefit from its program, Kartu Prakerja worked with Amazon Web Services (AWS) to improve and scale its identity verification process.

With Amazon Textract's computer vision technology, it can automatically extract data from copies of personal identification cards in seconds.

Benefits

- Make complete user verification within seconds
- Can verify applicants' information more accurately and detect fraud, improving the application experience
- Has made it easier for Indonesians to register and access upskilling courses
- Can leverage AI/ML technologies without having previous experience



Company: Kartu Prakerja

Industry: Public Sector, Government

Country: Indonesia

Website: <https://www.prakerja.go.id/>

About Kartu Prakerja

Kartu Prakerja is a competency and entrepreneurship development program initiated by the Government of Indonesia aimed at job seekers, workers affected by termination of employment, workers who require competency improvement and micro and small enterprises.

“

We are able to use artificial intelligence (AI) and machine learning (ML) to process registrations more efficiently, even without having the prerequisite experience. Now we are able to verify applicants' IDs more accurately, detect fraud, and improve the application experience. This has ultimately made it easier for Indonesians to access and apply for the upskilling courses.

Hengky Sihombing, Director of operations, Project Management Office of Kartu Prakerja

”



State of Selangor's cashless economy runs on AWS

Challenge

In order to drive a cashless economy in Selangor, SSDU needed a secure, scalable platform capable of handling multiple transactions and different data sources across the state for 6.5 million users.

Solution

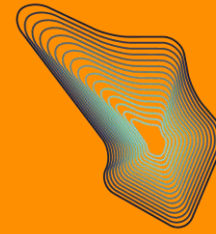
SSDU powers its Citizen E-Payment (CEPat) solution using AWS User Management, Data Management, and Auto Scaling services, which allows citizens to access paid government services, such as tax assessment and compound payments, through mobile and web portals.

Benefits

- Incorporates all state and local government services with multiple e-payment channels
- Secure platform due to AWS robust security frameworks
- Scales on-demand to meet user demand with AWS Auto Scaling features
- Auto notify users about upcoming payment dues

“The Citizen e-Payment platform incorporates **all state and local government services** with multiple e-payment channels from online banking and more than 40 e-wallets that currently operate in the state. Using AWS has helped SSDU to **accelerate the digital transformation journey** in delivering accessible and equitable citizen-centric services.

Dr. Fahmi Ngah, Managing Director at SSDU



SMART SELANGOR
DELIVERY UNIT

Customer: Smart Selangor Delivery Unit (SSDU)

Industry: Government

Country: Malaysia

Website: <https://www.smartselangor.com.my/>

About SSDU:

SSDU Innovations Sdn Bhd also known as Smart Selangor Delivery Unit (SSDU) is a wholly-owned subsidiary of Menteri Besar Selangor (Incorporated) (MBI), that has been mandated by the Selangor State Government to spearhead the implementation of smart initiatives and suitable solutions and technologies for smart state applications. The goal is to help Selangor achieve its vision to become a premier regional smart state in ASEAN by 2025.



Smart Urban Co-Innovation Lab

Challenge

To support smart city innovations, it is important to bring together leaders in the smart cities space to co-create and test innovations with local built environment and technology enterprises in a live environment.

Solution

Smart Urban Co-Innovation Lab with a data platform for local and overseas companies to identify opportunities for new business models and innovations through data-driven approach. By landing data from different solution providers into AWS datalake, data can be exchanged easily for inter-domain innovations.

Benefits

- Quick insights discovery through analytics and AI/ML
- Accelerate innovation cycles
- Data as the common language to foster public-private partnership



Customer: CapitaLand

Industry: Real Estate

Country: Singapore

Website: <https://www.capitaland.com>

About CapitaLand:

CapitaLand Group (CapitaLand) is one of Asia's largest diversified real estate groups. Headquartered in Singapore, CapitaLand's portfolio spans across diversified real estate classes which include integrated developments, retail, office, lodging, residential, business parks, industrial, logistics and data centres. With a presence across more than 260 cities in over 40 countries, the Group focuses on Singapore and China as its core markets, while it continues to expand in markets such as India, Vietnam, Australia, Europe and the USA.

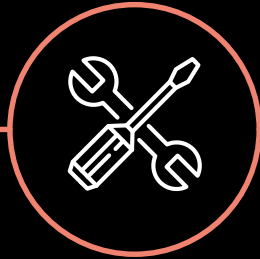
“ The Smart Urban Co-Innovation Lab reinforces Singapore's strengths as a deep innovation ecosystem where tech, industry and government work together to co-create and accelerate solutions for smart cities solutions. ”

Miss Jane Lim, Assistant Chief Executive, IMDA



Get started

BUILD WITH US



AWS Data Lab
AWS ML Solutions Lab
AWS Professional Services
AWS Immersion Day
AWS Data-Driven Everything (D2E)
AWS Migration Acceleration Program

BUILD WITH PARTNERS



AWS Partner Network—
100,000+ partners
AWS Marketplace (ISVs)

UPSKILL YOUR TEAMS



AWS Training and Certification
AWS ML Embark Program

Thank you for attending AWS Innovate – Data Edition

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Thank you!