AWS re:Invent

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

ENT203-R2

Building a data-driven enterprise

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Agenda

1. About Koch
2. Vision and transformation goals
3. Strategy and roadmap
4. What was Koch’s cloud journey?
5. Problems/blockers (cultural, organizational, practice)
6. Best practices/learnings

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Who Is Koch Industries?



Founded in 1940, Koch Industries is a multinational conglomerate with diversified operations involved in manufacturing, refining, distribution, trading, investments and technology

Global scale

- Over 130,000 employees
- Presence in 50 countries
- 350+ plants, factories, warehouses

Private ownership

- One of the largest privately held companies in America with $130 billion in annual revenues

Distinctive corporate culture

- Market-Based Management®

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INVISTA



POLYMERS & FIBERS

KOCH AG & ENERGY SOLUTIONS



FERTILIZERS

Phillips Medisize a molex company



ELECTRONICS, SOFTWARE & DATA ANALYTICS

molex



AUTOMOTIVE COMPONENTS

Georgia-Pacific



FOREST & CONSUMER PRODUCTS

KOCH MINERALS



MINERALS

GUARDIAN INDUSTRIES



GLASS

KOCH ENGINEERED SOLUTIONS



PROCESS & POLLUTION CONTROL SYSTEMS

FLINT HILLS resources



REFINING, CHEMICALS & BIOFUELS

KOCH SUPPLY & TRADING



COMMODITY TRADING

KOCH EQUITY DEVELOPMENT



INVESTMENTS



RANCHING



ELECTRONICS, SOFTWARE & DATA ANALYTICS

Many of our Koch companies are represented within multiple industries; this just gives you an idea!

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Vision: To succeed in today's world of rapid change, we must have a heightened sense of urgency and the commitment to continually transform our performance; our approach, Market-Based Management, encourages and equips individuals to practice lifelong learning, drive innovation, embrace transformation and achieve self-actualization – All contributing to a healthy, growing organization

However, changing consumer behavior coupled with innovations in energy, transportation and manufacturing operations provides Koch with an urgency to transform themselves in the cross-industry digital revolution

Transformation goal: Koch is looking to transform into a data-driven digital–first company

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Executive goals/desired outcomes

- **Earnings growth:** 2x earnings growth every six years
- **Creative destruction:** Disrupt ourselves before the market disrupts us
- **Become a digital supplier of goods and services:** Leverage data as an asset
- **Koch as a laboratory:** Leverage the scale and breadth of Koch to discover and evaluate disruptive technologies

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Koch cloud journey

Data-driven enterprise

2015–2017

Strategy: Recognized need to transform and identified that cloud can and must be a key enabler in accelerating their transformation

Build cloud foundation
- Formed cloud teams
- Established cloud platform
- Enabled cloud services
- Established cloud strategy
  - Data center migrations
  - System consolidation

2017–2018

Build data infrastructure
- Where is our data?
- Do we understand our data?
- How do we connect with our data?
- Focus on infrastructure

2019

Build data capability
- Consolidate data
- Drive insights out of data
- Making data secure
- Connect data silos

2020

Build data-driven decision capability
- Automate data
- Leverage ML
- Build/refactor modern applications
- Leverage data from plants and factories

2021

Harvest insights from previous cloud and data efforts
- Culture of data literacy
- Maturity of data teams and transformation efforts
- Inner sourcing
- Koch as a lab

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Koch’s challenges

- Existing workforce needing to learn modern skills
  - Establishment of Koch University and cloud fluency workshops
- Lack of leadership buy-in, in early stages
  - Education and experimentation to gain confidence
- Lots of silos and difficult for business and teams to work together
  - Focus on building knowledge networks and establishment of inner sourcing networks

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Koch's challenges

- Legacy governance in place and waterfall development practices
  - Education and transformation to agile practices
- Legacy technology environments that hinder rapid growth
  - Embracing a cloud-first mentality
- Decentralized operating model results in duplicate investment and effort
  - Knowledge sharing via various Koch councils

aws

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Top AWS/Koch partnership challenges

- Responding to customer requests and service gaps
  - AWS team formed SWAT mechanism
  - AWS team fostered Koch Cloud Champion team to regularly provide service visibility
  - AWS team focused on building partnership capabilities – Industrial collaboration and thought leadership

- Talent gap
  - Koch experiences a talent gap, hampering their transformation efforts
  - AWS team created Talent Transformation Program
  - AWS helped scale Koch University for data and technology enablement

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Top AWS/Koch partnership challenges

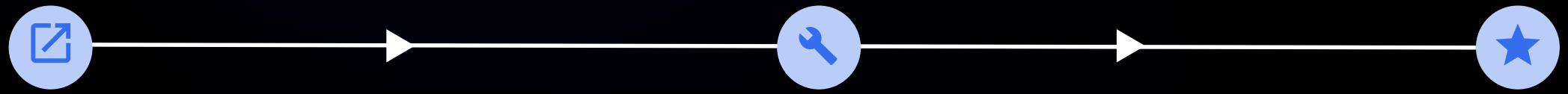
- Globalized support
  - Koch operates globally and often encounters internal and external challenges that cannot be addressed in a timely manner due to time zone differences, skill sets available, and communication challenges
  - AWS teams and Koch went into a joint effort to establish a global model
  - AWS teams formed “OneTeam” from across various verticals to support Koch

- Enterprise visibility and executive communication
  - Account team generated concise summaries of activities and outcomes across the partnership

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Koch talent development

Koch University – Data Analytics – Journey and roadmap



Delivered 2020–2021

- Virtualization of curriculum
- Exponential increase in learners

In progress 2021

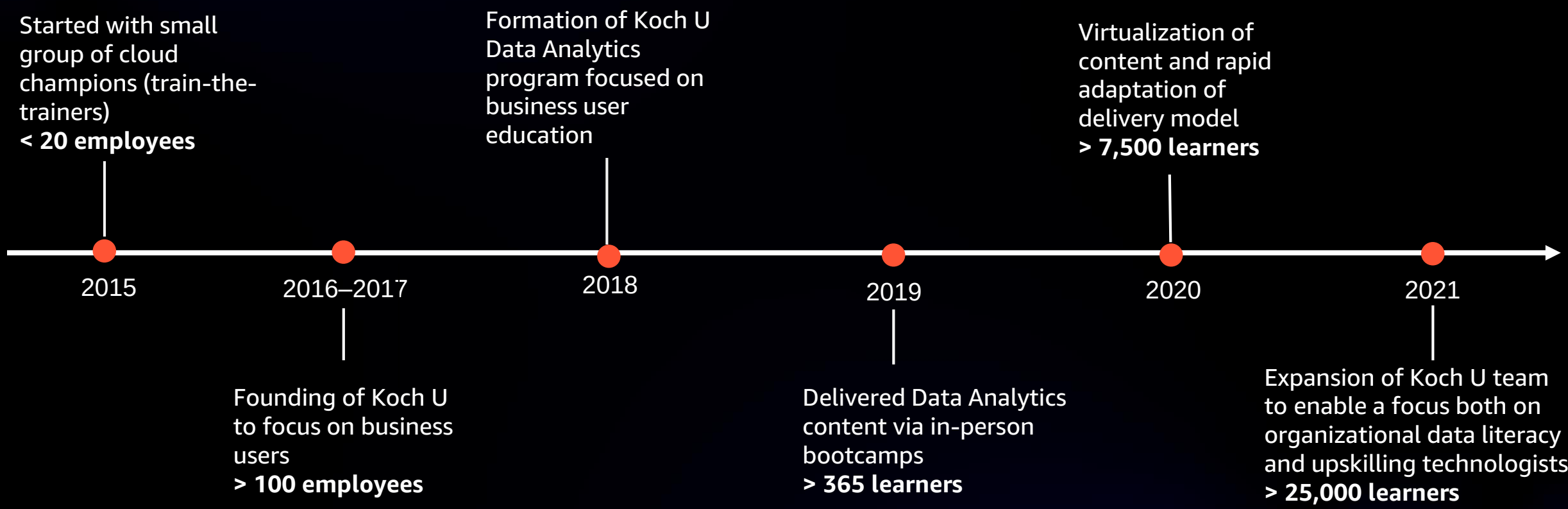
- First EVERLEARN LIVE event
- Fourth quarter 2021 cohort-style data analytics bootcamps

What's next 2021–2022

- Creation of hybrid bootcamps
- Development of Level 400 Citizen Data Scientist curriculum
- Coordination of CoP/Republic of Science
- Content refreshes

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Talent success metrics



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Analytics platform transformation: Koch success story

Objectives

- Technology modernization/cloud transformation
- Enhance user experience and enable data-driven decisions

Why

- Aging on-premise hardware; overnight refreshes; data-dump reporting

Technologies

- Amazon Redshift, Amazon S3, AWS Glue, Matillion, AtScale, Tableau, Power BI, Excel, Alteryx

Wins:

- Completed in less than nine months; core team of 12 and an extended business team of up to 70
- Enabled new analytics opportunities for more than 750 business users
- Delivered near real-time data and better data organization to enable data-driven decisions
- Enhancement of the user experience; reduced number of subject areas from 168 to less than 30

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Where are we today?

- Indicators of success
  - 2 data centers closed by 2020 and 3 more by 2022
  - 4 operating companies ”all in” on AWS

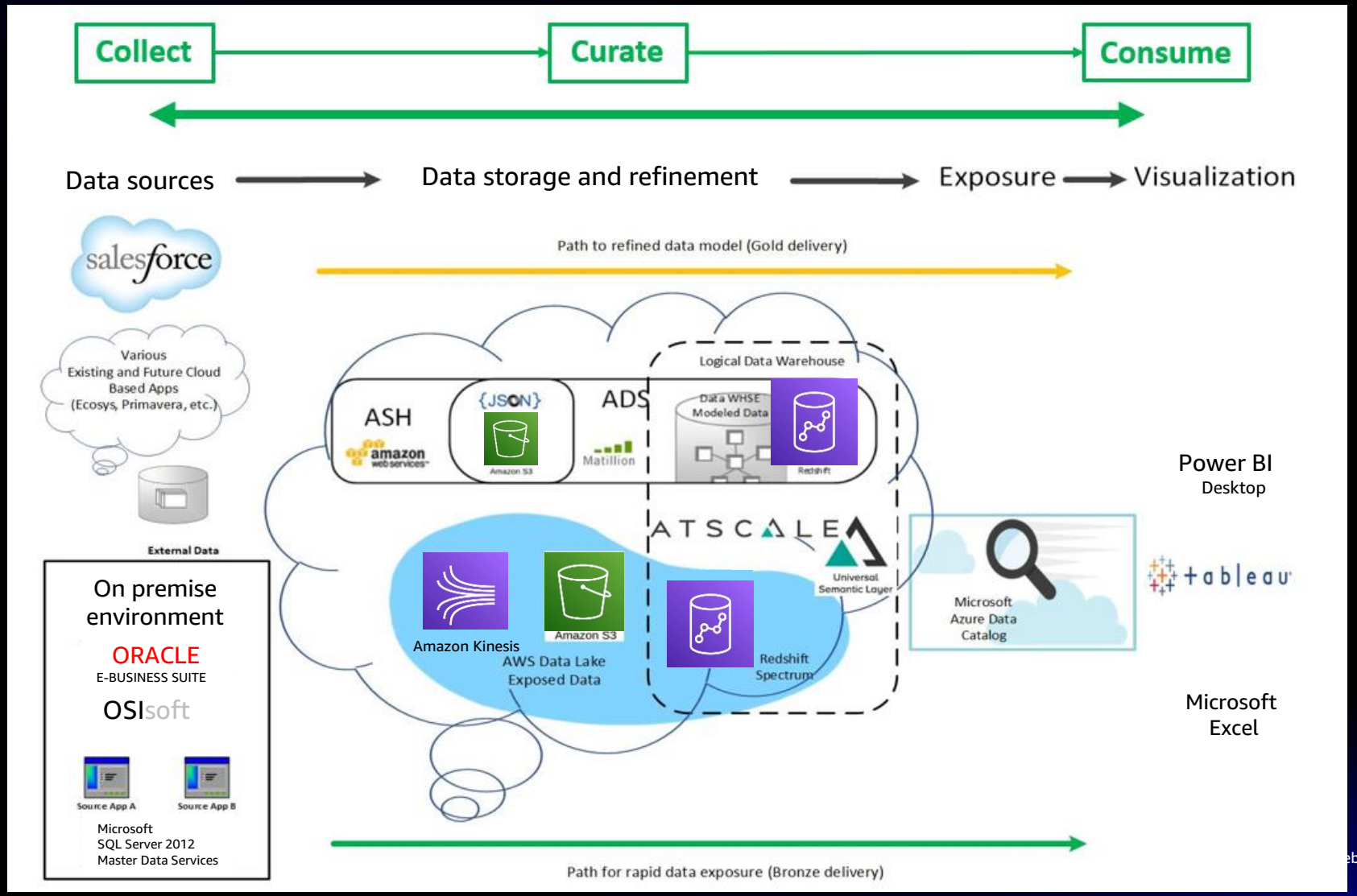
- Strategic partnership
  - 3 presentations during re:Invent 2018, 2 in 2019, 2 in 2020 and 2 in 2021
  - Joint development of 6 ML capabilities and 1 manufacturing service – re:Invent 2019
  - Joint development of 3 ML capabilities – re:Invent 2020
  - Public reference to multiple customers
  - 4 public video testimonial and 9 joint articles published to date

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Appendix

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Analytics platform transformation: Reference architecture



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Koch’s cloud journey

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Koch’s journey on AWS



Strategy:
- Recognized need to transform and identified that cloud can and must be a key enabler in accelerating the transformation

Challenge:
- Did not know where to start
- Lacked organizational alignment and executive sponsorship
- Recognized talent development as a need



AWS: First Experience Based Center (EBC) in Seattle focusing on innovation at Amazon as innovation is a key tenet for Koch

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Koch's journey on AWS



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Decision: Decision made to re-focus on AWS – Cloud first
Sponsor: Global CTO
Team: First generation of Cloud Champions



AWS: First EBC in Seattle focusing on innovation at Amazon as innovation is a key tenet for Koch

AWS: Enterprise Accelerator Program (AWS investment)

AWS: Cloud Enablement Workshop – A 3-day and outcome-based workshop with 13 key stakeholders from various silos within Koch

Key to success (realizing this is a hard decision to make):
- Participants had final decision rights in their particular technology areas
- Designed and built Koch's "enterprise on-ramp to AWS"
- Koch left session with clear vision and direction

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Sponsor: Global CTO
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AWS: EBC with global CFO
Decision: AWS was selected as "Preferred Cloud Provider"



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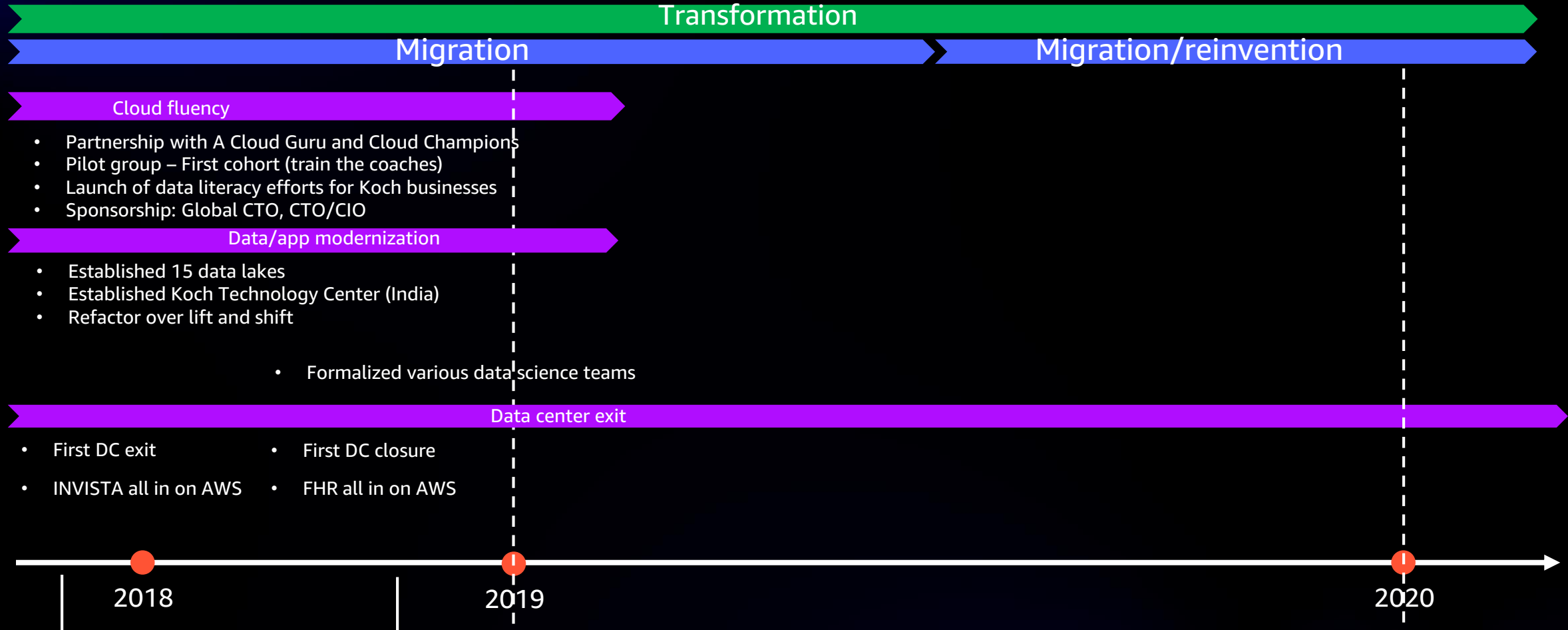
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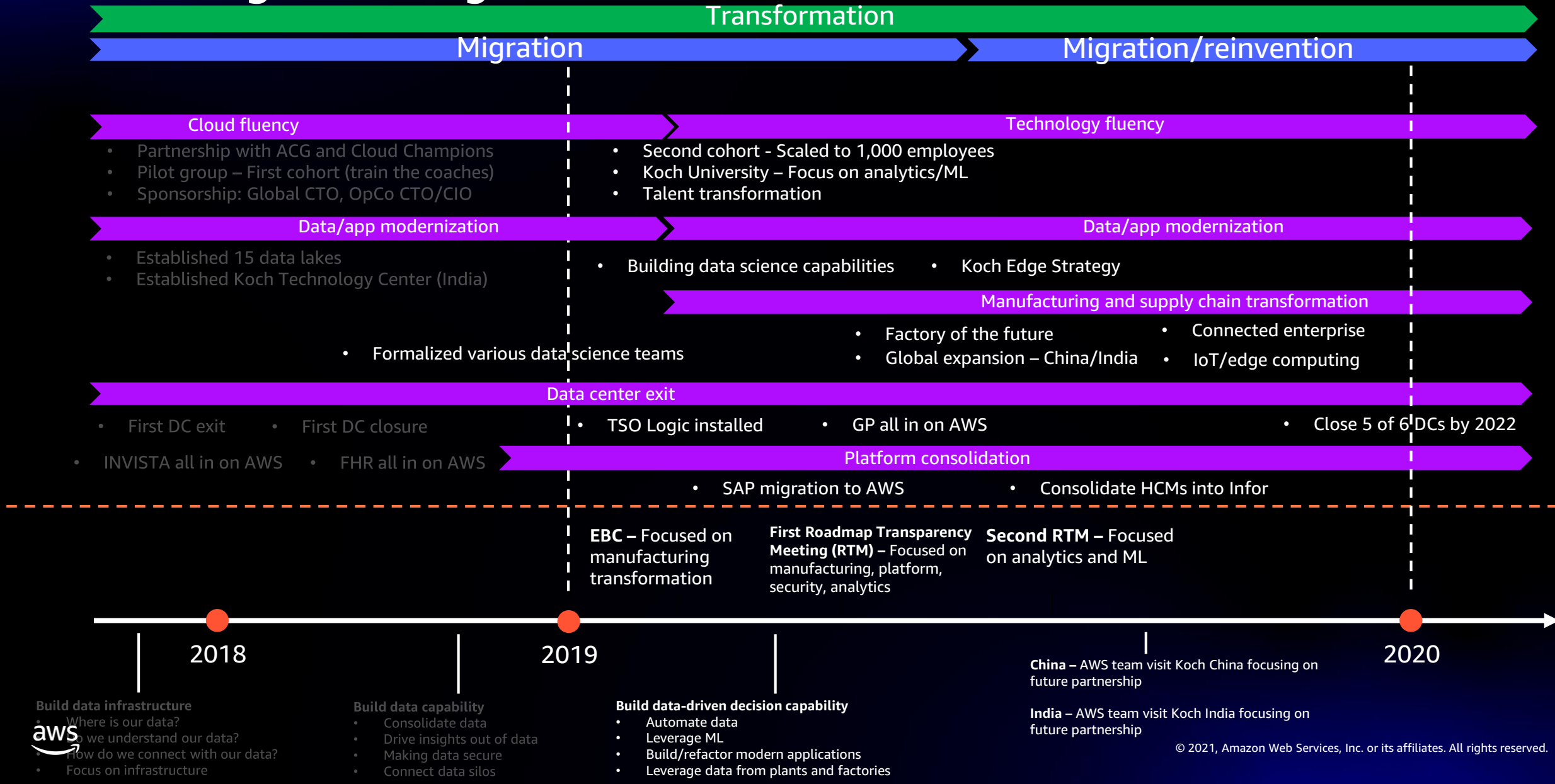
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Koch's journey on AWS



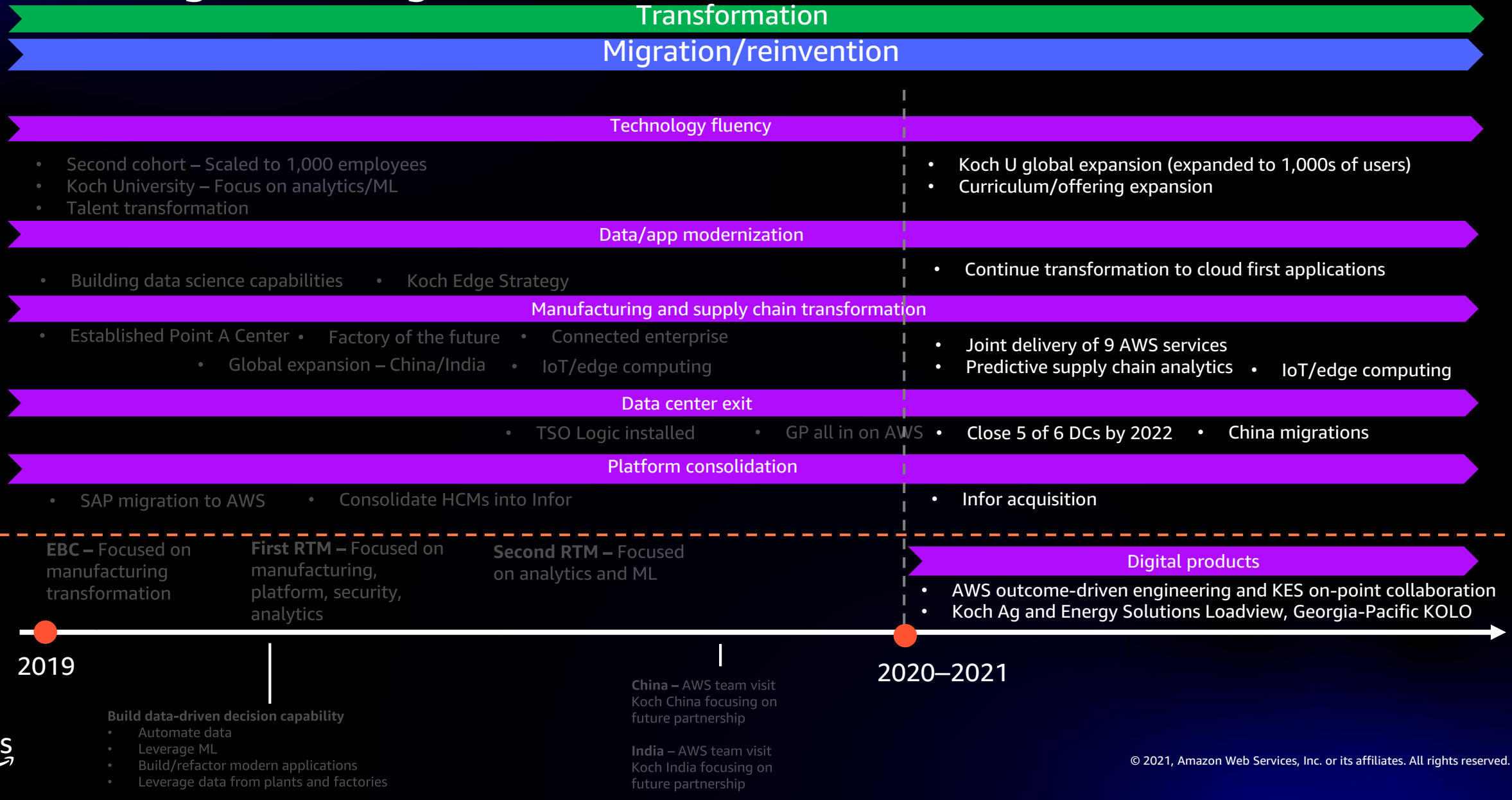
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Koch's journey on AWS



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Koch's journey on AWS



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Account team engagement model

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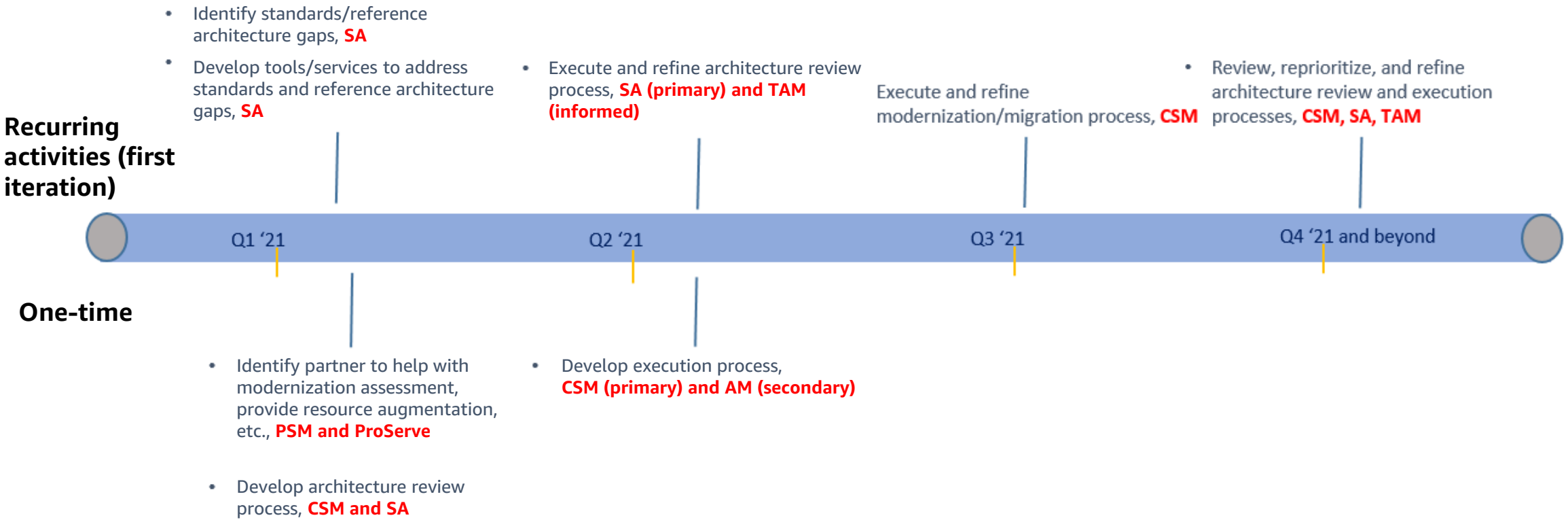
AWS account team: Organized by value not company

Strategy verticals (teams)			
Pod 1		Pod 2	
1. Accelerate impact of Koch ecosystem across Koch and broader market	2. Execute supply chain optimization	3. Execute manufacturing optimization	4. Accelerate industrial SAAS initiatives across existing businesses

Solution verticals (teams)				
1. Data modernization (Edge, Lake, Insights)	2. Advanced analytics (ML)	3. Application modernization	4. Migration acceleration	5. Operational effectiveness (WAFR, talent, operating model)

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Account team sample engagement plan



AM – Account manager
SA – Solutions architect
CSM – Customer solutions manager
TAM – Technical account manager
PSM – Partner services manager

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Thank you!



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