Historically, there has been an information asymmetry in pharmaceutical R&D where the biopharmaceutical companies had the deepest understanding and knowledge about their products and how they helped and interacted with patients. Now, there's new, real-world data that exists from regulators, health plans, government authorities, and patients, which is helping pharma companies to understand how their therapies and their innovations drive value and impact in patient populations. There are imperatives to leverage that data, create new partnerships in their ecosystem, and get access to that data in an ethical way to derive insights to both fuel innovation and drive discovery. In this session, you learn best practices from Deloitte and Celgene about strategy, operating models, and execution frameworks when implementing a real-world, evidence data platform.

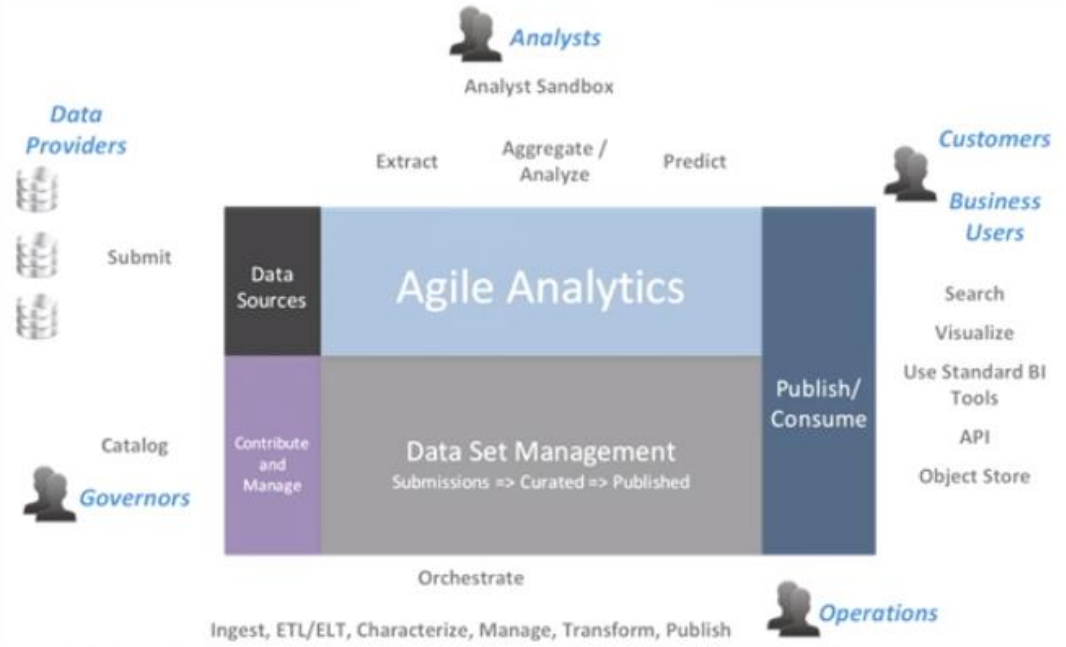
We need to continuously use data to drive outcomes

The Data-Value Chain

AWS re:Invent

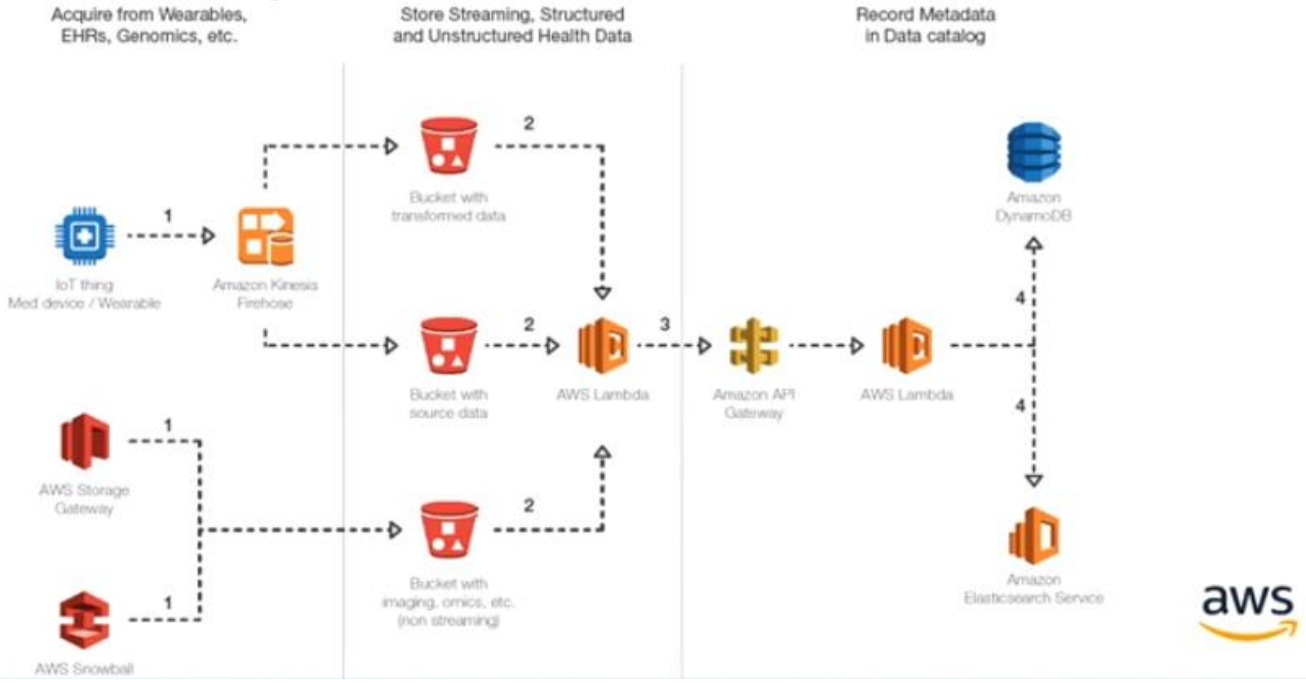
aws

Data Lake as a Source of Truth

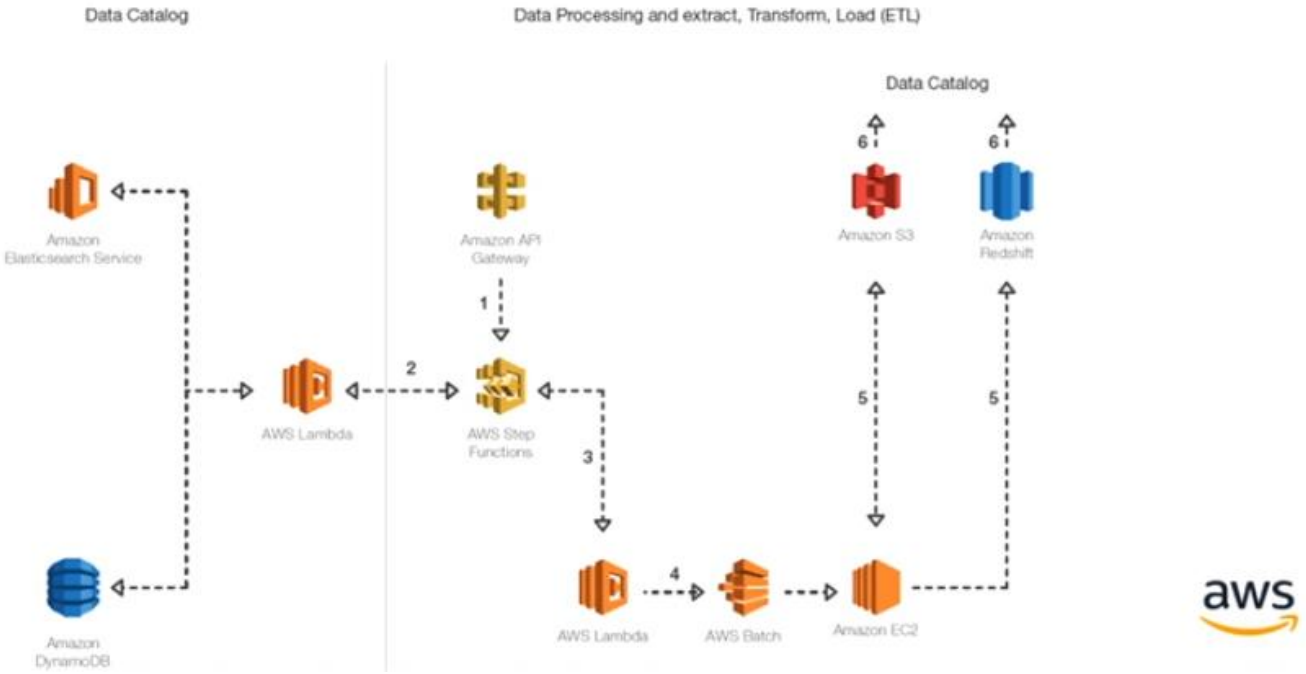


aws

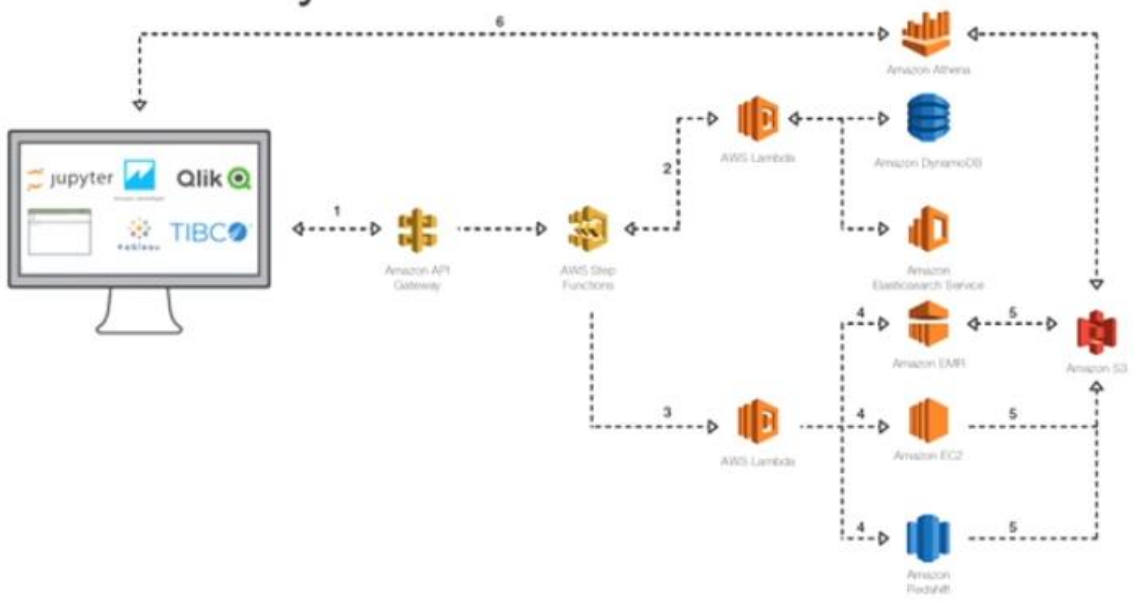
Data Acquisition



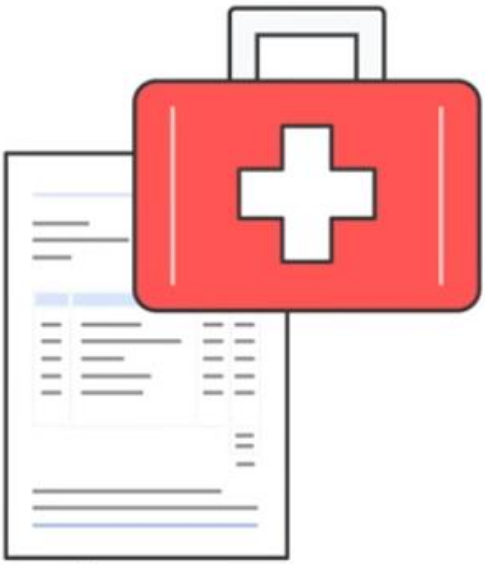
Data Processing

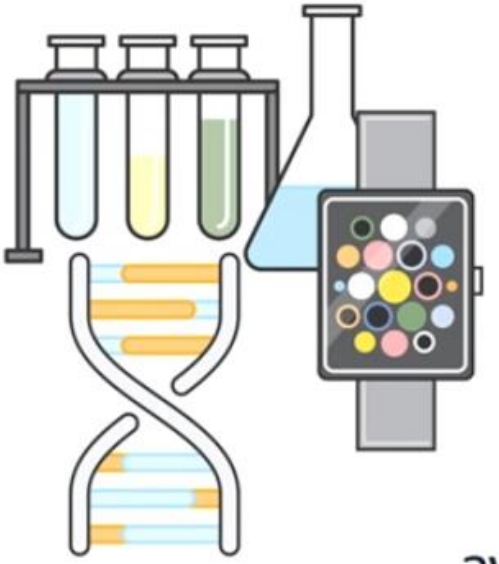


Data Analysis



Data in Health Care and Life Sciences





Synapse

Celgene's Platform for Therapeutic Innovation

AWS re:Invent

aws

THE SPEAKERS

DAN HOUSMAN
Consulting Managing Director, ConvergeHEALTH
Deloitte Consulting, LLP

Dan Housman is a Director with Deloitte Consulting. He is a software veteran with a scientific education at MIT in Chemistry and Biology. He brings a strong knowledge combining a passion for medicine and a demonstrated track record of providing valuable and innovative product management for supporting complex distributed data analytics systems.

Dan directs ConvergeHEALTH's product innovation efforts with a focus on creating packaged products for real world evidence and bioinformatics through the Deloitte data warehouse platform and Miner Suite.

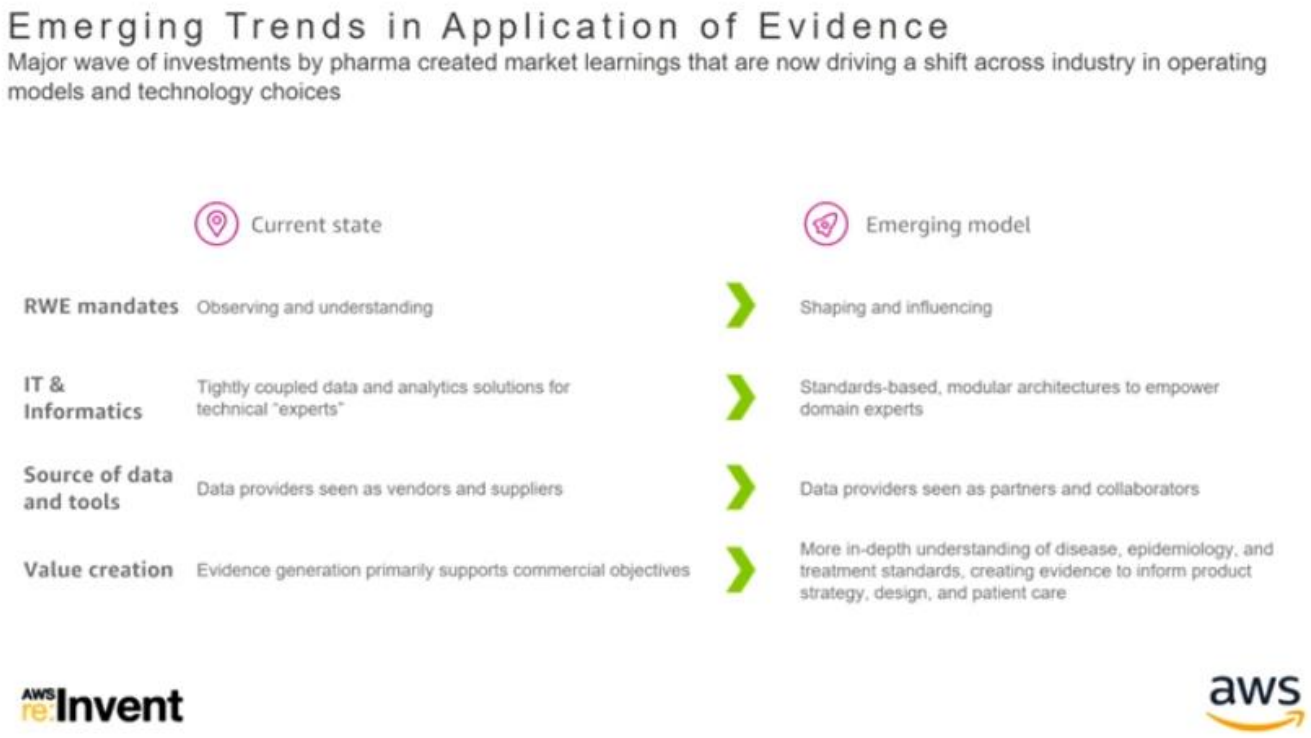
PATRICK LOERCH
Sr. Director, Data Sciences
Celgene

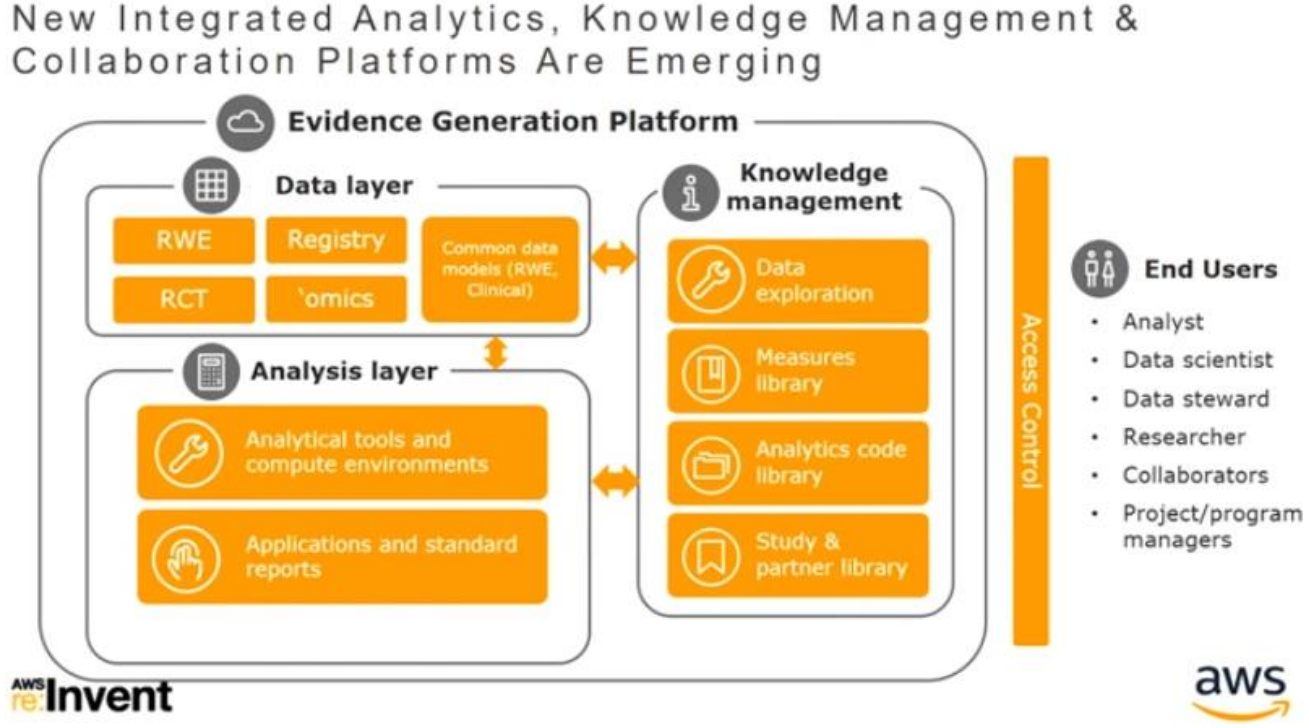
Patrick Loerch is a Sr. Director with Celgene. He is a biostatistician and biochemist by training with 15+ years of experience analyzing genomics, clinical and real world healthcare datasets in roles throughout the pharmaceutical pipeline; from target identification through to commercial operations. He is responsible for building out the core data sciences capability at Celgene. In addition to building out the global team, he actively codes in R and Python and brings a strong knowledge and appreciation of the challenges associated with applying scalable data sciences in healthcare to create value for patients.

AWS re:Invent

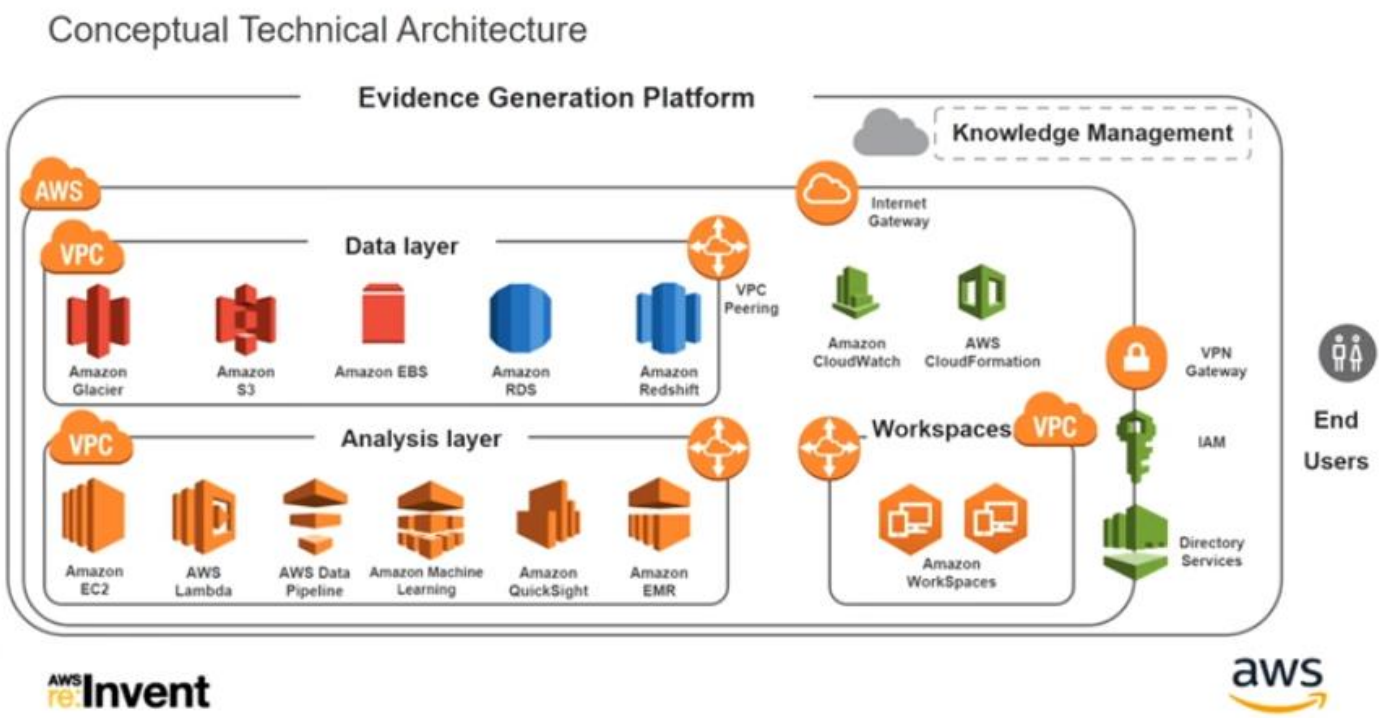
aws

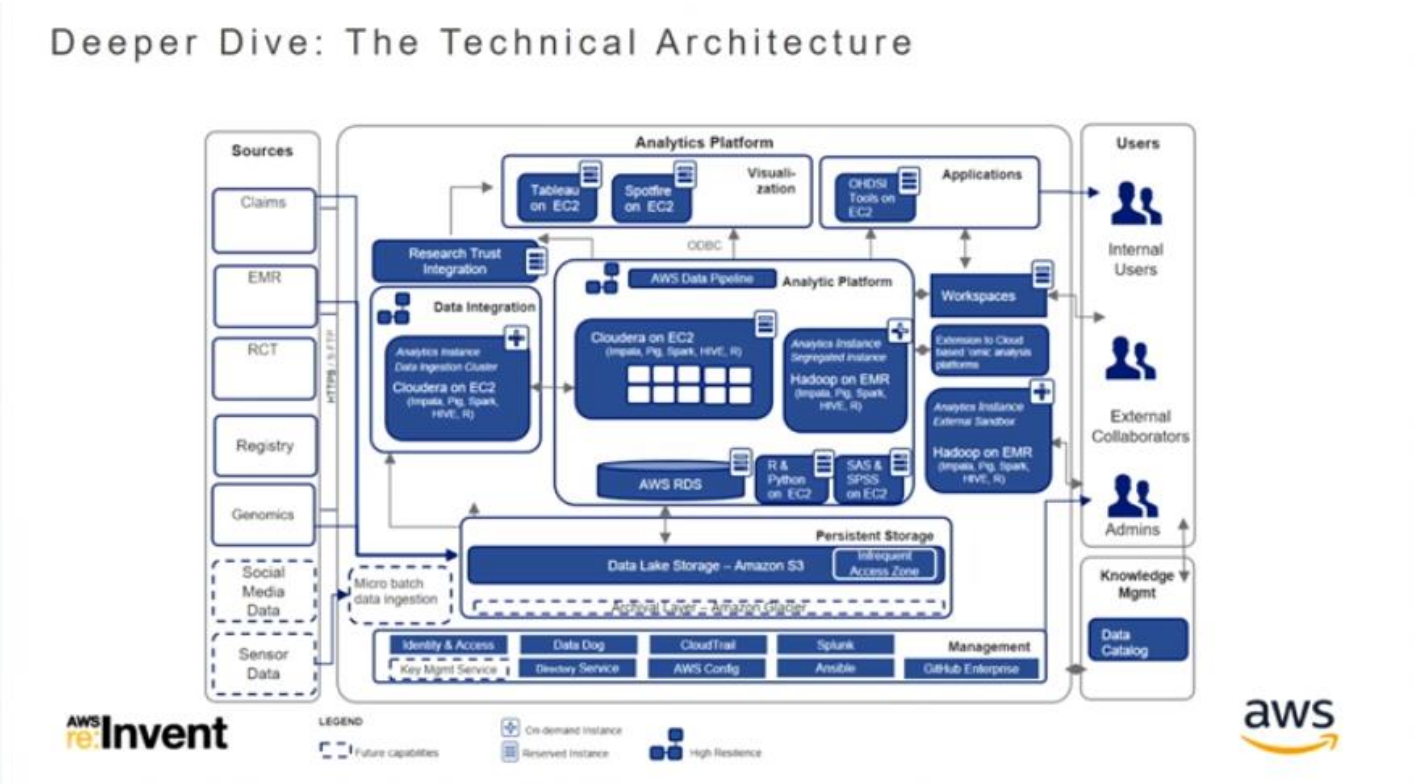
Evidence Lifecycle Management Data Lake implementation to support Real World Evidence RWE platform via data





This is the logical architecture of the RWE analysis platform for de-identified patient data from different sources.





This is a HIPAA eligible backend architecture

iKU: Transforming How We Think, Act, and Lead with Data

iKU

Build Foundation

- Connective Technology (*Synapse platform*)
- Data Harmonization (*Governance & taxonomy*)

iKU

Enable Business

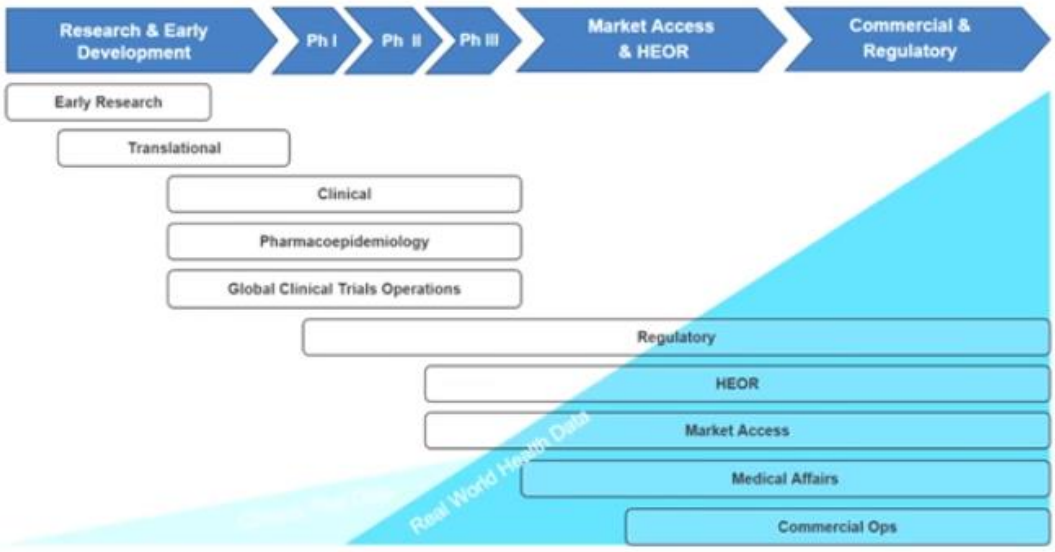
- Network of Strategic Partners
- Organizational Expertise
- Pioneering Mindset

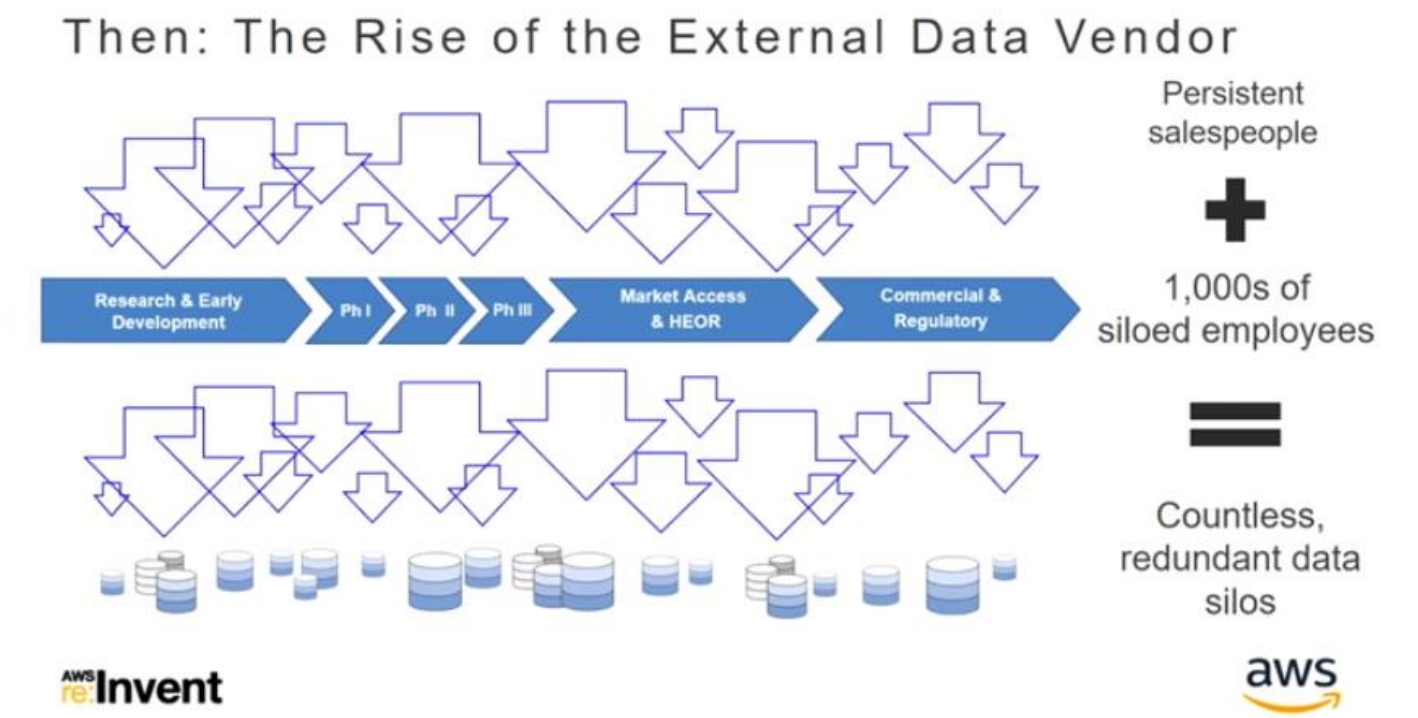
iKU

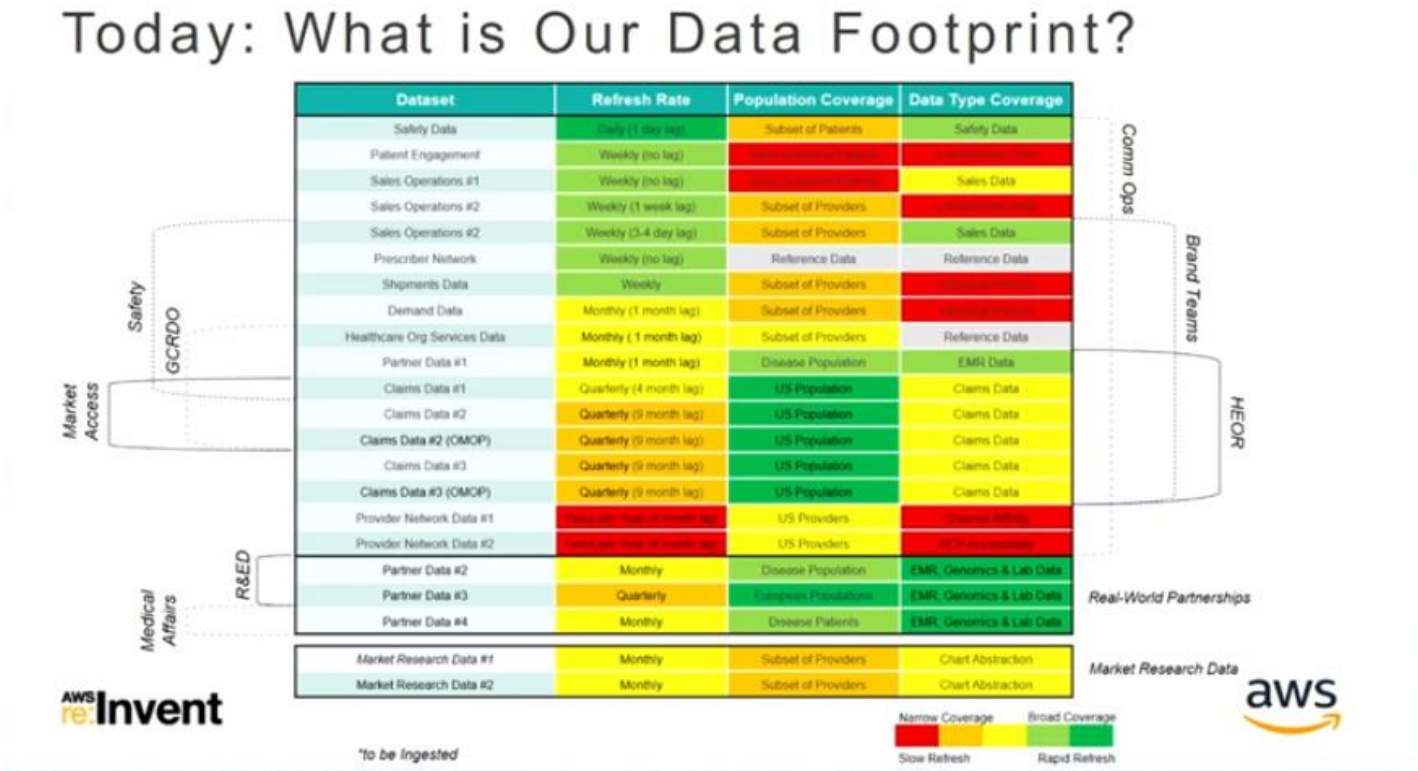
Realize Value

- Learn
- Collaborate
- Pioneer

Patient Data Drives Decisions Across the Pipeline

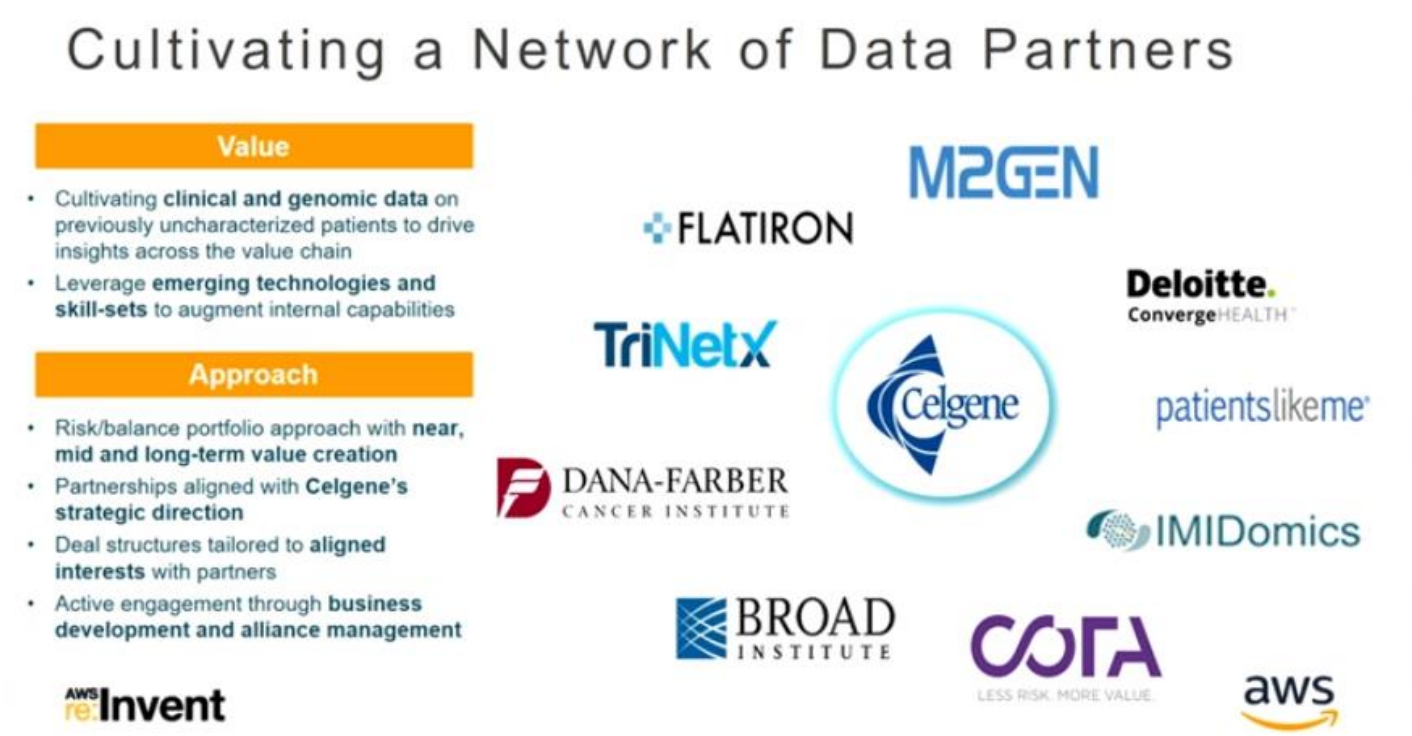


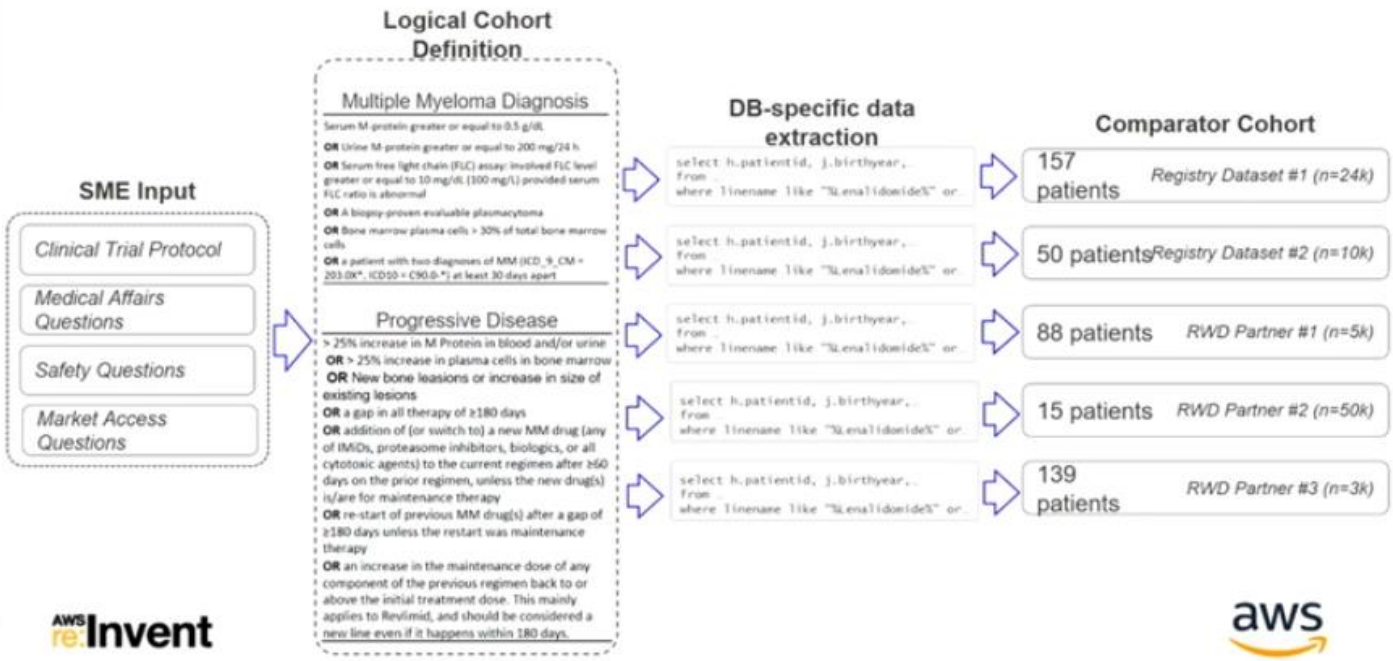




Every row represents data sets that currently sits within the platform, the columns are the variables about the data set. The side labels show the different groups within the company that are accessing and using the datasets. This allows us to see what data is being used by groups within the company.

This view shows the different diseases the company is engaged in and the number of patient datasets available for each disease area.





When you look at the platform from a user perspective, this is essentially what you will see regarding the stacks of functionalities available. There are reusable queries for getting specific data sets out of the data lake.

Ex.: Real-World Treatment Pathways in Crohn's Disease

Introduction

- Treatment for CD has advanced over the past 20 years with the introduction of biologics
- Despite the availability of biologics, patients may not be optimally managed

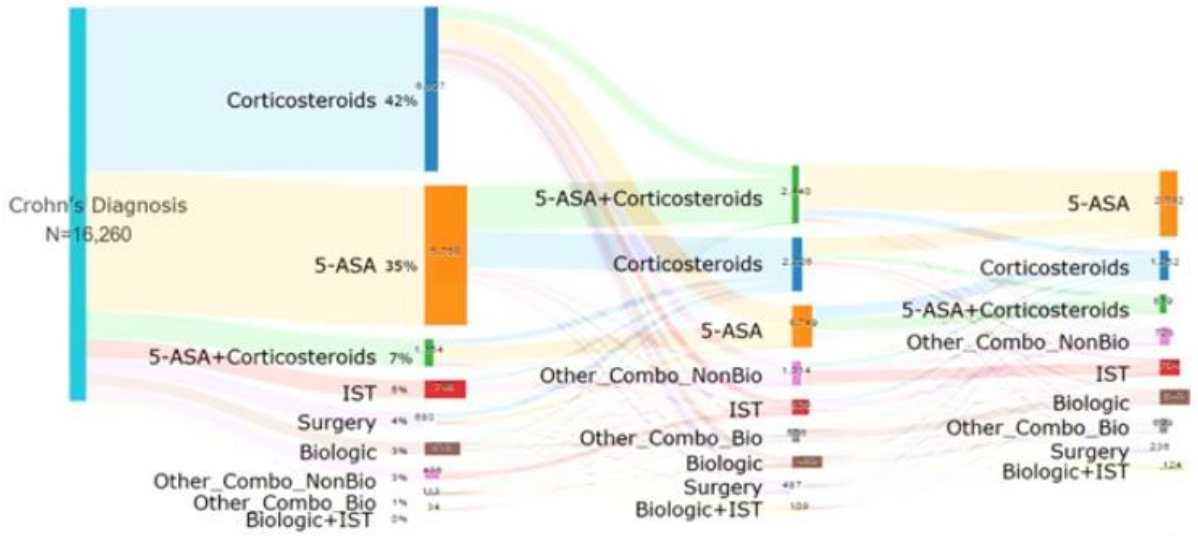
Objective

- The aim of this study is to identify and visualize CD treatment pathways to gain insight into real-world treatment patterns

Methods

- The MarketScan Commercial and Medicare Databases were used to assess treatment pathways in a large US insured population
  - Patients had ≥ 2 consecutive health claims for CD* or UC† ≥ 30 days apart, with ≥ 1 occurrence of NDC/HCPCS codes for CD or UC medications from January 1, 2008, to March 31, 2016
  - Required ≥ 3 (1 pre-diagnosis + 2 post-diagnosis) years of continuous enrollment

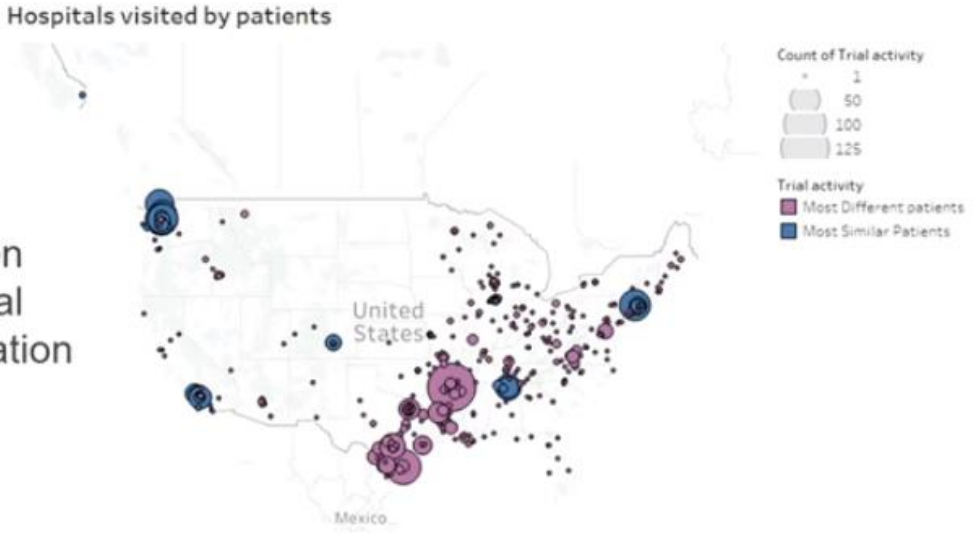
Ex.: Real-World Treatment Pathways in Crohn's Disease



5-ASA=5-aminosalicylic acid; IST=immunosuppressant (i.e., immunomodulator)

Ex.: Real-World Treatment Pathways in Crohn's Disease

Data-driven clinical trial site identification



AWS re:Invent

aws

Achieving agile dev/ops efficiency for evidence development

Success in evidence life cycle management depends on decreasing cycle time to anticipate data supply needs from sources by iterating to find and fill gaps through collaboration with data providers

ConvergeHEALTH™

AWS

aws

Takeaway

- The changing health-care landscape requires pharmaceutical companies to increasingly become data-driven organizations
- Data needs to be proactively cultivated and evolve within the context of current and upcoming medicines in the discovery and development pipeline
- As in other industries, IT and information platforms need to encourage data, knowledge, and code sharing…with the appropriate access controls
- Through working with Deloitte, and leveraging AWS, Celgene has developed an industry-leading, global platform spanning from data ingestion to knowledge sharing