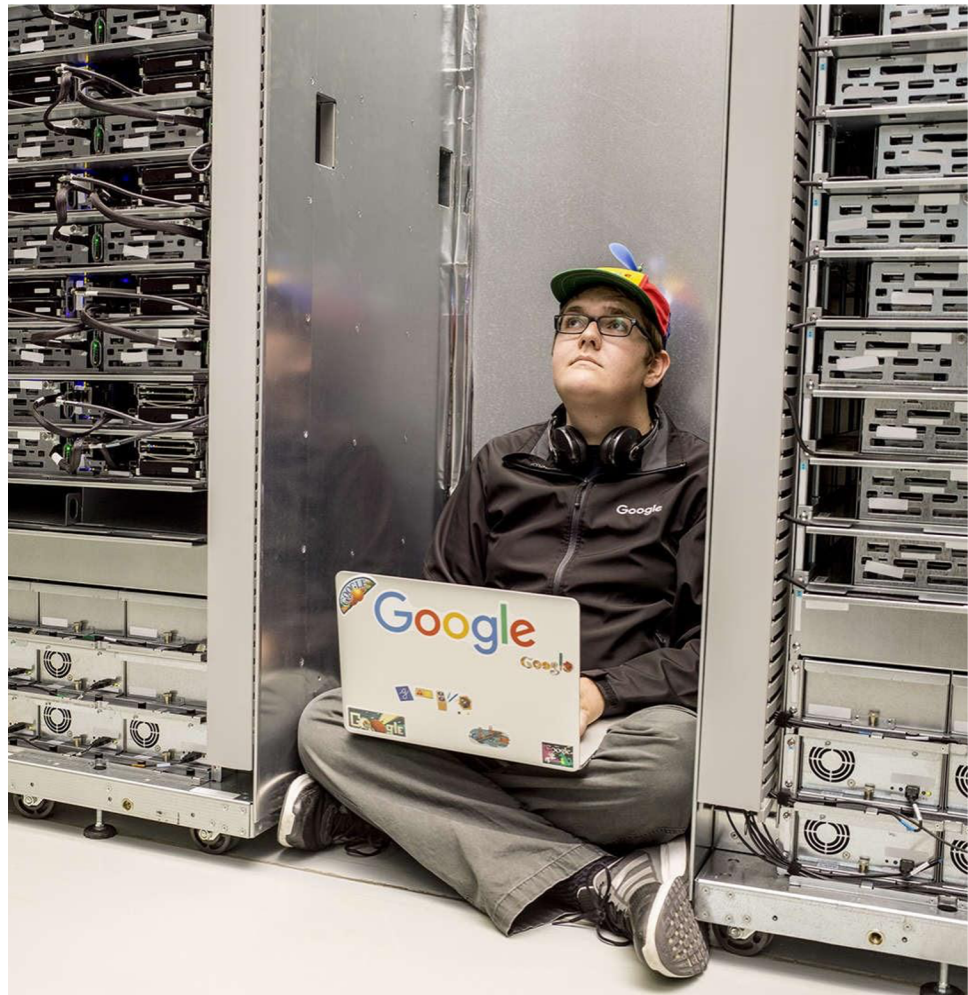


An introduction to the use of **BigQuery** for the life sciences

PHUSE EU Connect 2020
Software Demonstration
Claudio Garutti





Why Google Cloud?

Google Cloud

Alphabet

 **Google Ventures**
Venture & capital
funding

 **Google X**
Innovation Lab
& Research



 **Calico**
Longevity
Research

 **Waymo**
Self Driving
Vehicles

 **Search
Advertising
SEM**

 **Google Cloud**
Healthcare
and Life Sciences

 **Verily**
Improving
Quality of Life

 **SideWalk Labs**
Solving
Big Urban
Problems

 **YouTube**
Internet
Video
Service

 **Google Health**
AI and Consumer
Health Products

 **Maps**
Mapping,
Location Services
& Logistics

 **Google Marketing
Platform**
Data Analytics
Suite of Tools

 **Android**
Mobile Operating
System

Bringing best of Google to Life Sciences Customers

Reinvent life sciences with Google

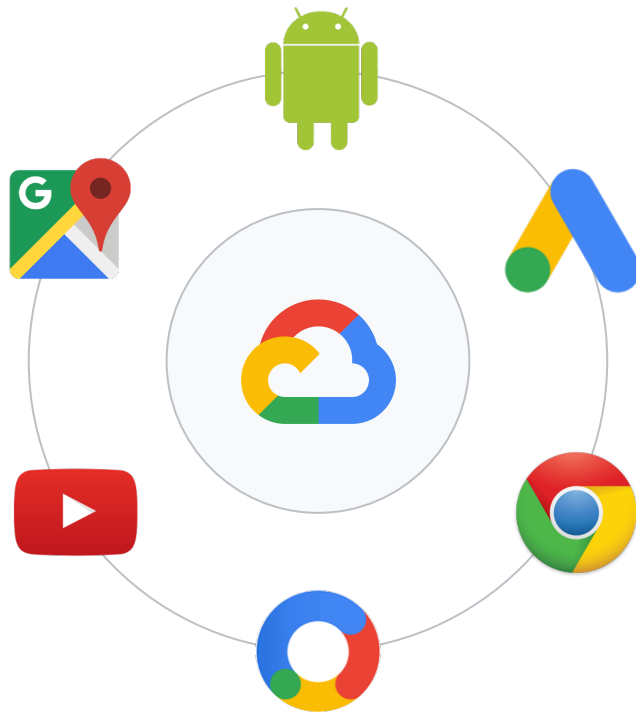
From G Suite to Cloud Healthcare API, apply technology from across Google to **transform your organization**

Accelerate R&D and commercialization

Enable integration across **research, discovery, manufacturing and marketing** while supporting regulatory compliance

Create culture of innovation & agility

Our products enhance **productivity** and **collaboration**, enabling everyone from scientists to sales teams to **drive innovation**





Google Cloud & **privacy**

You own your data,
not Google

Google **never sells**
customer data to
third-parties

Google Cloud **does**
not
use customer data
for advertising

All your data is
encrypted at rest and
in transit by default

<https://cloud.google.com/security/compliance>

We **guard against**
insider access to your
data

We **never** give any
government entity
“backdoor” access

Our privacy practices
are **audited against**
international
standards

What makes Google Cloud different

Best-in-class Security

- Protect IP and sensitive patient and research data

Hybrid & Multi-Cloud

- Operate across legacy systems and multiple clouds

Fully Managed No Ops

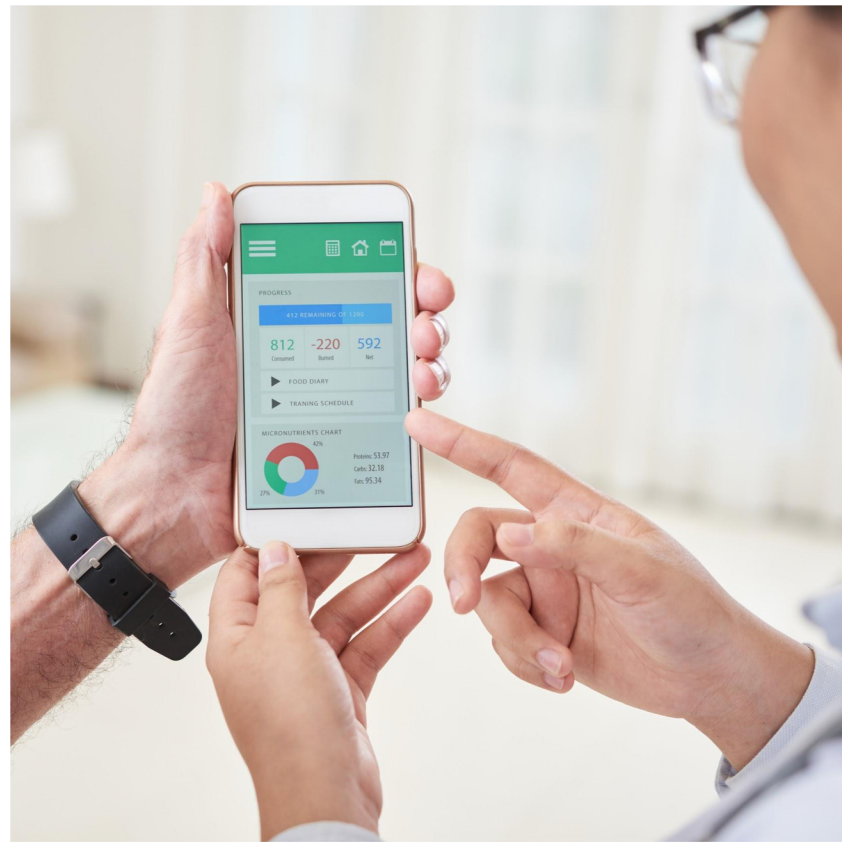
- Scale automatically to process large genomes and data sets

Embedded AI & ML

- Accelerate research and commercialization of therapies

Best of Google

- Foster a culture of innovation through collaboration





Why BigQuery for the life sciences?

Google Cloud

The life science data landscape is exploding



48% annual growth in pharmaceutical data



Ineffective Analysis

Analysts are **unable to quickly analyze large amounts of data** to proactively identify risk triggers and operational bottlenecks



Manual Processes

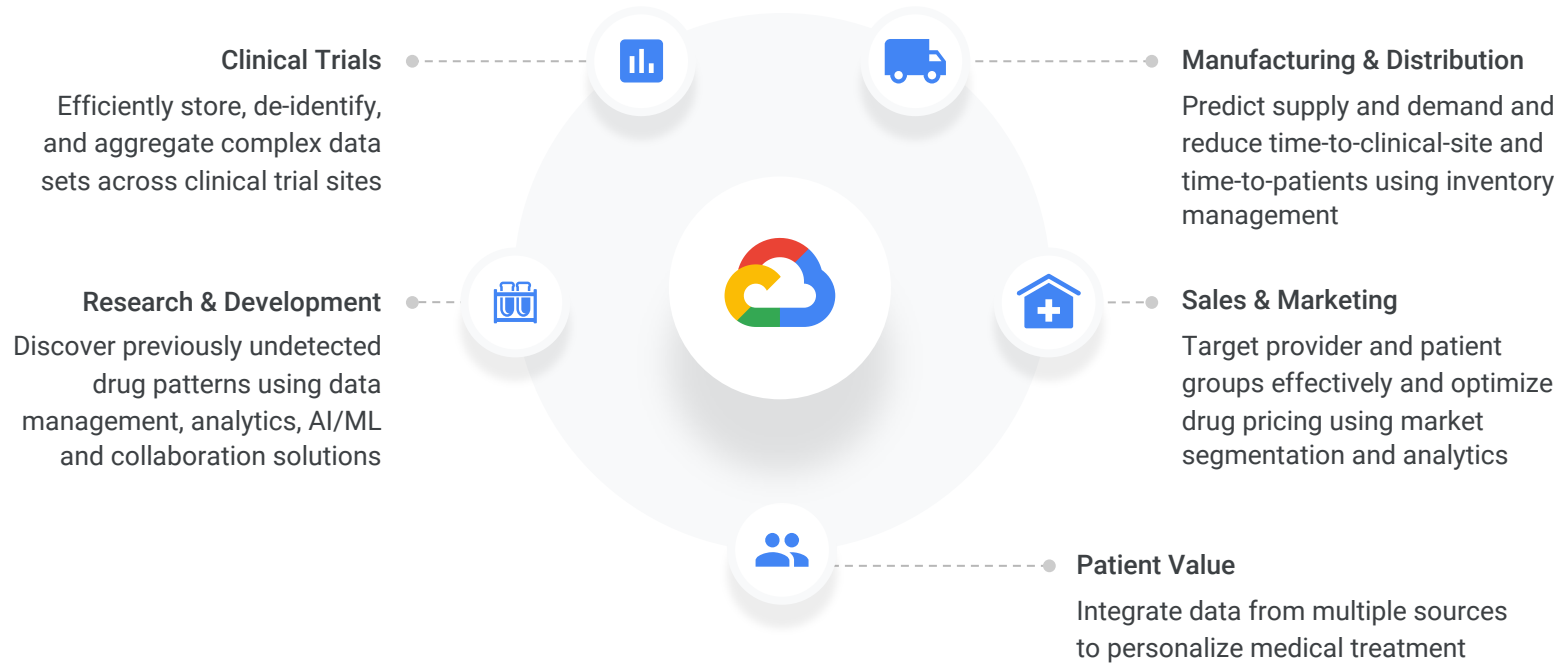
More than **90%** of study managers **manually roll data into central spreadsheets** with data from other systems.



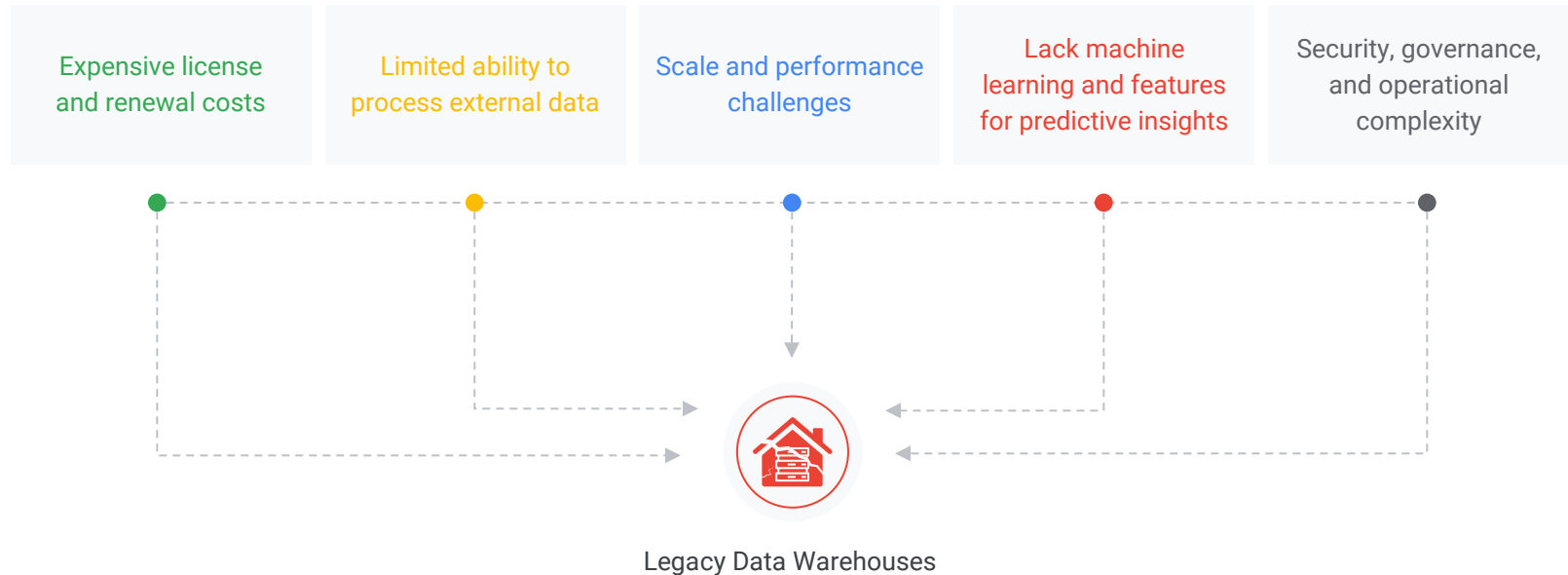
Siloed Infrastructure

A typical pharma company has up to 30–50 tech platforms with isolated data, resulting in **data bottlenecks and delayed analysis**.

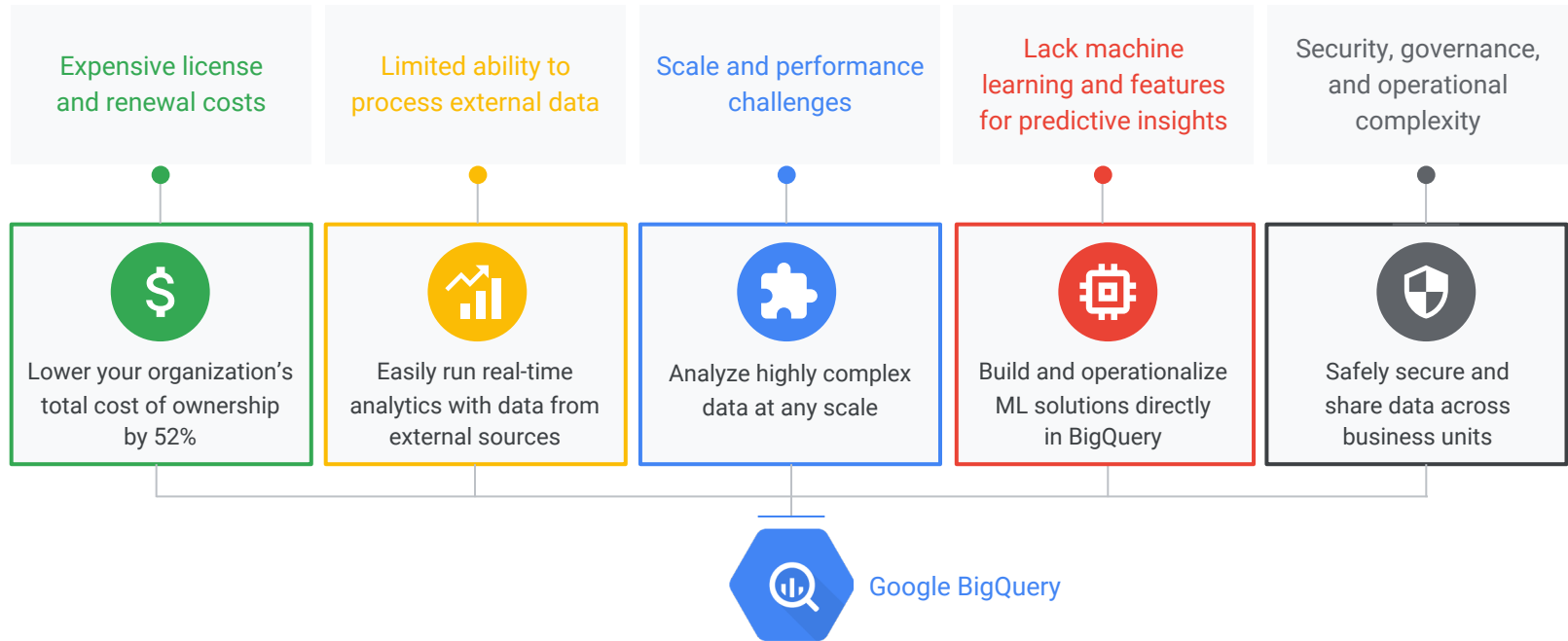
Data challenges impact all areas of life science organizations



Legacy data warehouses struggle to answer difficult analytical questions



BigQuery solves complex analytics challenges with a modern data warehouse



A highly scalable enterprise data warehouse solution

Google Cloud Platform's
enterprise data warehouse
for analytics

Gigabyte- to **petabyte-scale**
storage and SQL queries

Encrypted, durable,
And highly available



BigQuery

Fully managed and **serverless**
for maximum agility and scale

Real-time insights from
streaming data

Built-in **ML** for out-of-the-box
predictive insights

High-speed, in-memory **BI Engine**
for faster reporting and analysis



Let's see a demo!

Google Cloud

Questions?

Try it: <https://cloud.google.com/free>
<https://cloud.google.com/public-datasets>

Ask me: claudiogarutti@google.com