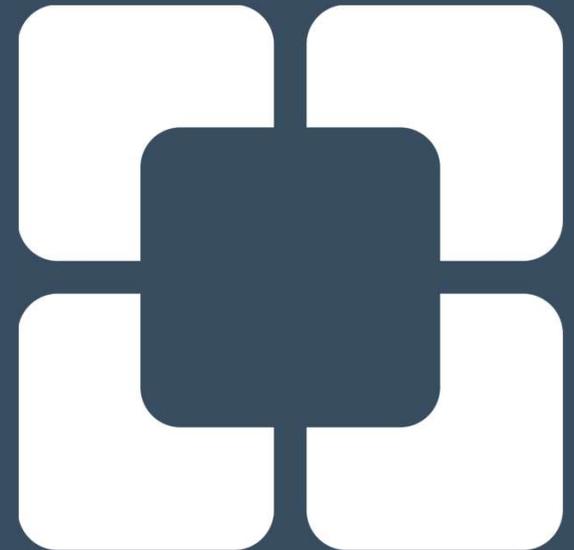


Transforming Analytics at Cleveland Clinic through Enablement

September 30th, 2022



Mark Ruffing



- Assistant Director at Cleveland Clinic
- Caregiver since 2001
- MBA in Health Care Administration
- Bachelor in MIS & Economics
- Product Owner of Power BI, Tableau, and several data assets
- Enablement for the Data360 platform
- Passionate about the organizations mission to “further educate those who serve”



Ranked No. 2 hospital in the world on Newsweek's World's Best Hospitals 2022

Cleveland Clinic is a global leader and model of healthcare for the future. As a truly integrated healthcare delivery system, we take on the most complex cases and provide collaborative, multidisciplinary care supported with cutting-edge research, analytics and technology.



CLEVELAND CLINIC HEALTH SYSTEM

- > 22 hospitals
- > 226 outpatient locations
- > 6,680 beds
- > 20 patient-centered institutes

CARE FOR THE ORGANIZATION

\$12.4B

operating revenue

\$746M

income from operations

\$1.3B

community benefit (2020)

PATIENT CARE

10.2M

outpatient visits

304K

admissions and observations

259K

surgeries and procedures

RESEARCH

3,234

active research projects

\$326M

research funding

72,662 CAREGIVERS WORLDWIDE (AS OF MARCH 15, 2022)





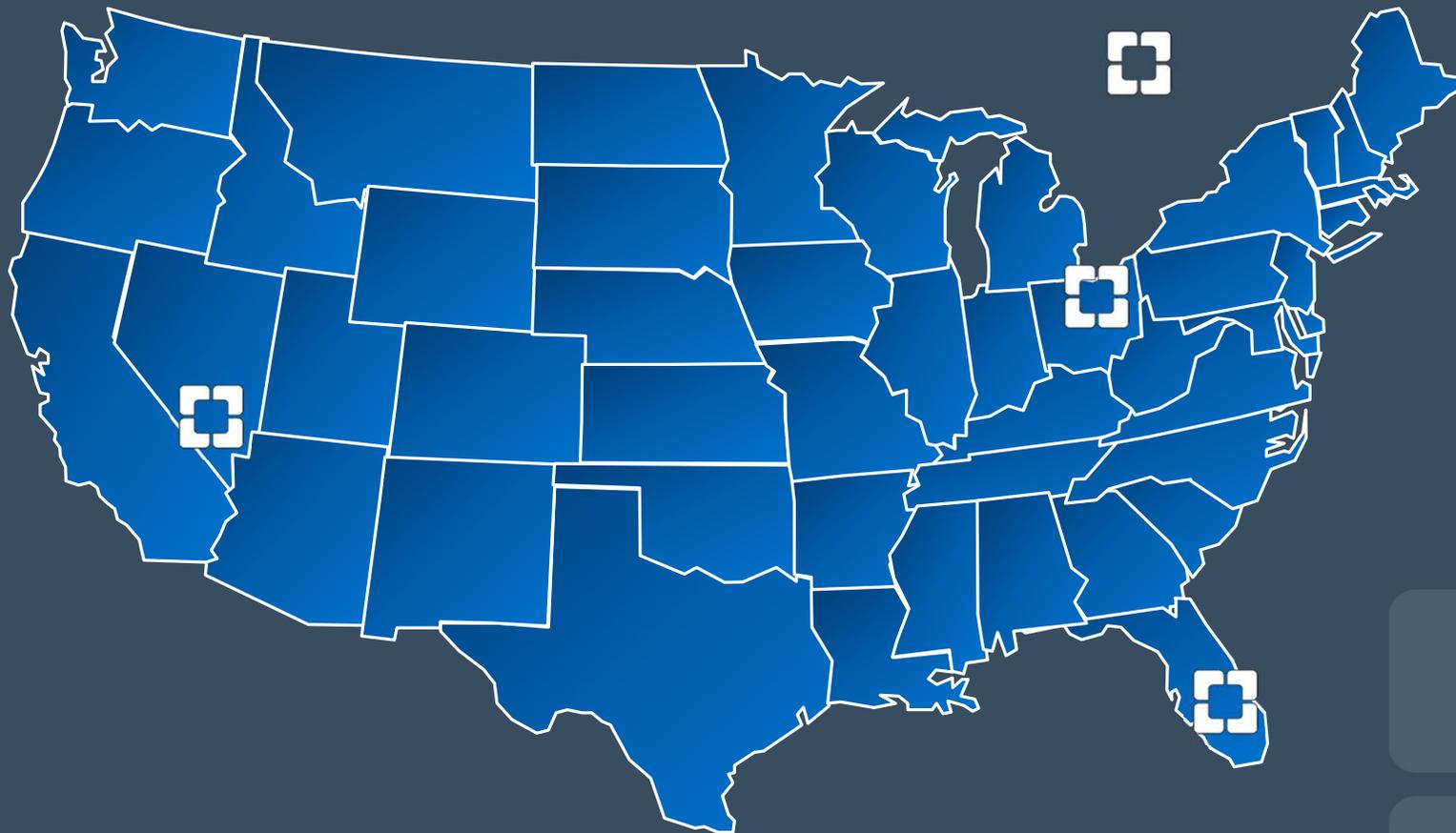
Nationally ranked in 13 Adult & 9 Children's Specialties

- #1 in Ohio
- #1 in heart care for 28 years
- Hillcrest #4 in Ohio
- Fairview #5 in Ohio
- Akron General #7 in Ohio



U.S. News & World Report's Best Hospital Rankings 2022-23

Honor Roll	4
Cancer:	6
Cardiology & Heart Surgery:	1
Diabetes & Endocrinology:	11
Ear, Nose & Throat:	23
Gastroenterology & GI Surgery:	4
Geriatrics:	2
Neurology & Neurosurgery:	8
Obstetrics & Gynecology	4
Ophthalmology:	11
Orthopedics:	14
Pulmonology & Lung Surgery:	6
Rheumatology:	2
Urology:	2





**Cleveland Clinic
National & International
Locations**

**Cleveland Clinic
London**

**Cleveland Clinic
Abu Dhabi**

Data Governance & Enablement

Data Governance Office

Delivering Data as a Service

Data Governance Program Office

- Programs and Policies
- Councils and Remediation
- Business Process Coordination

EMPOWER

Technical Data Governance

- Data360 Platform
- Business Glossary
- Metadata Catalog
- Data Quality
- Master Data Management

EXTEND

Data and Analytics Enablement

- PBI & Tableau COE & Admin
- PBI & Tableau Enablement
- Axon Community of Practice
- EDC Community of Practice
- Technical Business Analytics

ENABLE

Governance/Cyber Interlock

- Privacy Manager
- Classification Program
- Privacy Remediation
- Access Controls Support

PROTECT

Data and Analytics Enablement

The enablement components of the operating model that are required to maximize distributed analytic development & data literacy



Responsibilities

Analytics Enablement: Power BI & Tableau

- Center of Excellence
- Governance
- Vendor relationship
- Best practices
- Design thinking resources
- Enablement resources
- Automation
- Personalized support

Data Enablement: Informatica Data360

- Extend the Community of Practice
- Enablement resources
- Improve data literacy
- Increase discovery
- Inform of platform standards
- Communication
- Contribute to content
- User experience



Team Roles

- Assistant Director
- Program Manager
- Enablement Analysts
- Systems Admin/BI Architect support



Capabilities

Analytical

Communication

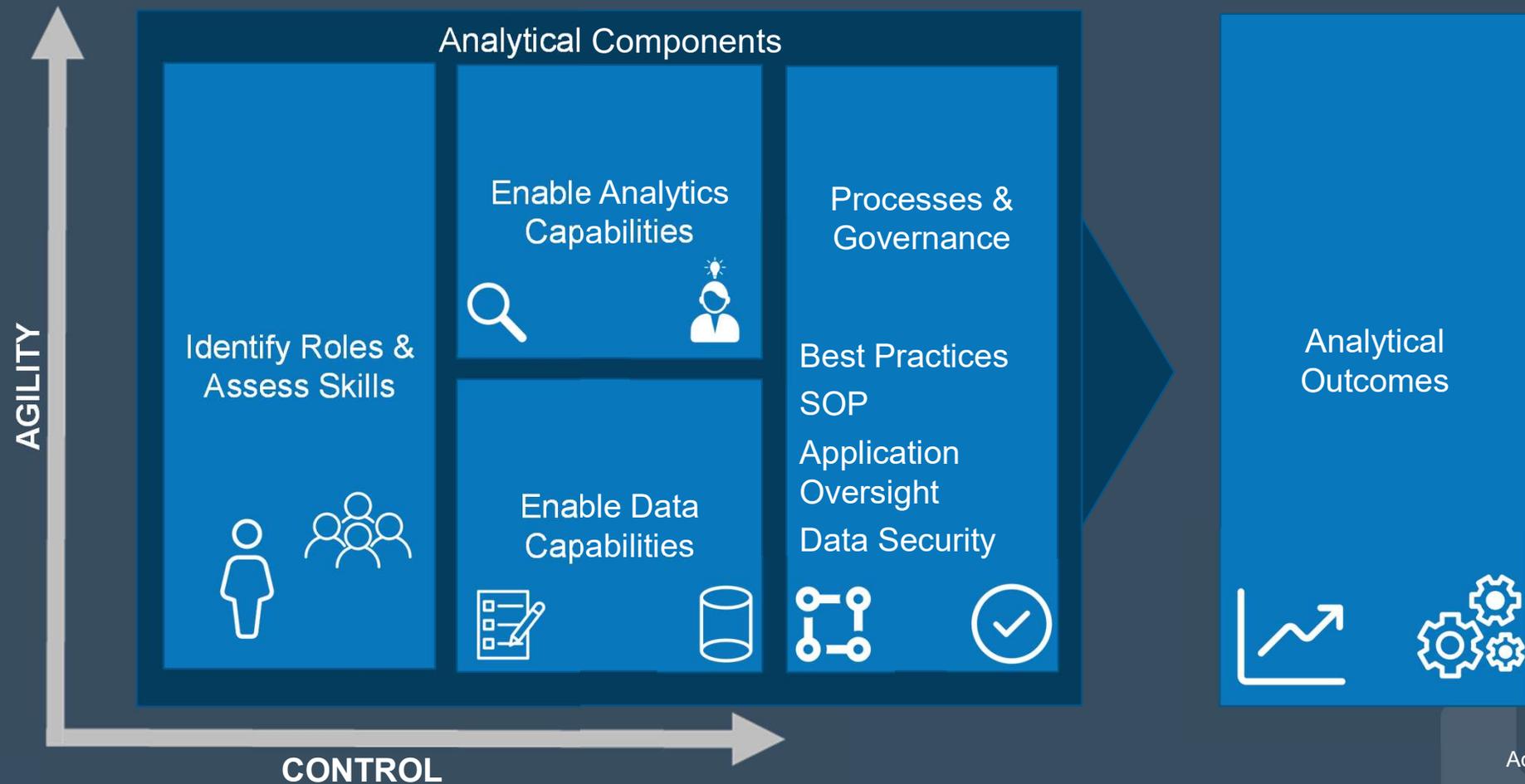
Technical
Writing

Design

Self-motivated
& Enthusiastic

Supplement technical business analytics for prioritized initiatives & PO data assets

Self-Service Adoption Framework



Adapted From Gartner

User Enablement Workflow

EA Portal Intake

Service Request

Submitter Information:
 Name: Submitter Name
 Email: Submitter Email

Request Details:
 Type: [Dropdown]
 Subject: Subject (Max limit 200 characters)

Requested For Information:
 Name: Ruffing, Mark
 Email: ruffim@ccfc.org
 Facility: [Dropdown]
 Institute: [Dropdown]

Projects & Maintenance

Create Issue

Project*: Enterprise Analytics Administ...
 Issue Type*: Task

Summary: [Text Area]

Component/s: [List]

Description: [Text Area]

Priority: Minor

View Goal Star Gonzalez-Flack (856598)

Goal Objective: Complete enterprise training and enablement programs to improve data literacy and adoption of the data governance platform

Description

- Implement an EDC user enablement class similar to AXON
- Host Data360 user group meetings on at least three occasions
- Develop Data360 Axon MyLearning Training modules for federated on demand consumption

Category Business Goal

Due Date 12/31/2022

Status In Progress

Created by Star Gonzalez-Flack (856598)

Editable Yes

2.4.8 Development of additional Teradata Studio training resources 31-Dec

Objectives

1.8 Partner with IT to develop and recommend an operating model and architecture to support data and visualization projects for external parties

2.4 Complete enterprise training and enablement programs to improve data literacy and adoption of the data governance platform

2.5 Expand analytics capabilities, including both Tableau and Power BI, for distributed use

4. Become a diverse, high performing, continually learning, highly engaged team.

6. Enable targeted, high profile EA OKRs and Strategic Partnership Priorities throughout 2022.

BI Analytics Enablement

	Q4-21			Q1-22			Q2-22			Q3-22			Q4-22			Q1-23		
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Power BI Discovery (Greenfield Use Cases)																		
Power BI Operationalize (Greenfield Use Cases)																		
Power BI Launch (Greenfield Use Cases)																		
Power BI EA Enablement & Governance																		
Power BI Federated Strategy & Enablement																		
Power BI - TBD																		
PBI Greenfield User Group Meeting																		
PBI Sponsor Update																		
Tableau 2021.2 Upgrade and User Group Meeting																		
Tableau Desktop Intermediate Workshop																		
Tableau 2022.2 Upgrade and User Group Meeting																		
Tableau Desktop Intermediate Workshop																		
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Methods of Communication

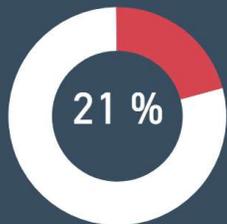
The image displays two overlapping screenshots of the Cleveland Clinic Tableau Community website. The top screenshot shows the main navigation bar with 'Home' and 'Training' options, and a 'My Dashboards' section listing various reports like 'EDV Power User Documentation' and 'Advance Directives'. The middle section features a 'Get Involved' area with buttons for 'ASK A QUESTION', 'START A DISCUSSION', and 'SHARE AN IDEA', along with a search bar for Tableau content. Below this are 'HELPFUL LINKS' categorized into 'Quick Links' and 'Visual Analytics & Blogs'. The bottom screenshot is a duplicate of the top one, showing the same interface elements. On the right side, there is a sidebar with 'EA Communities' and a list of items with star icons. At the bottom right, there are buttons for 'Connect Today - EA' and 'PROF', and a link to 'A Compliance Terms and Conditions'.

Why Enable?

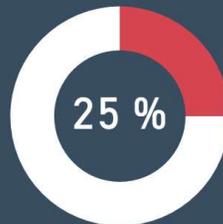


“According to research from the Data Literacy Project, enterprises that have higher corporate data literacy scores can have **\$320-\$534 million** in higher enterprise value.”

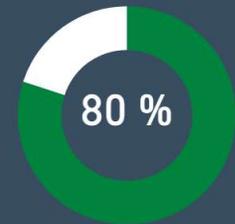
Confident in data literacy skills



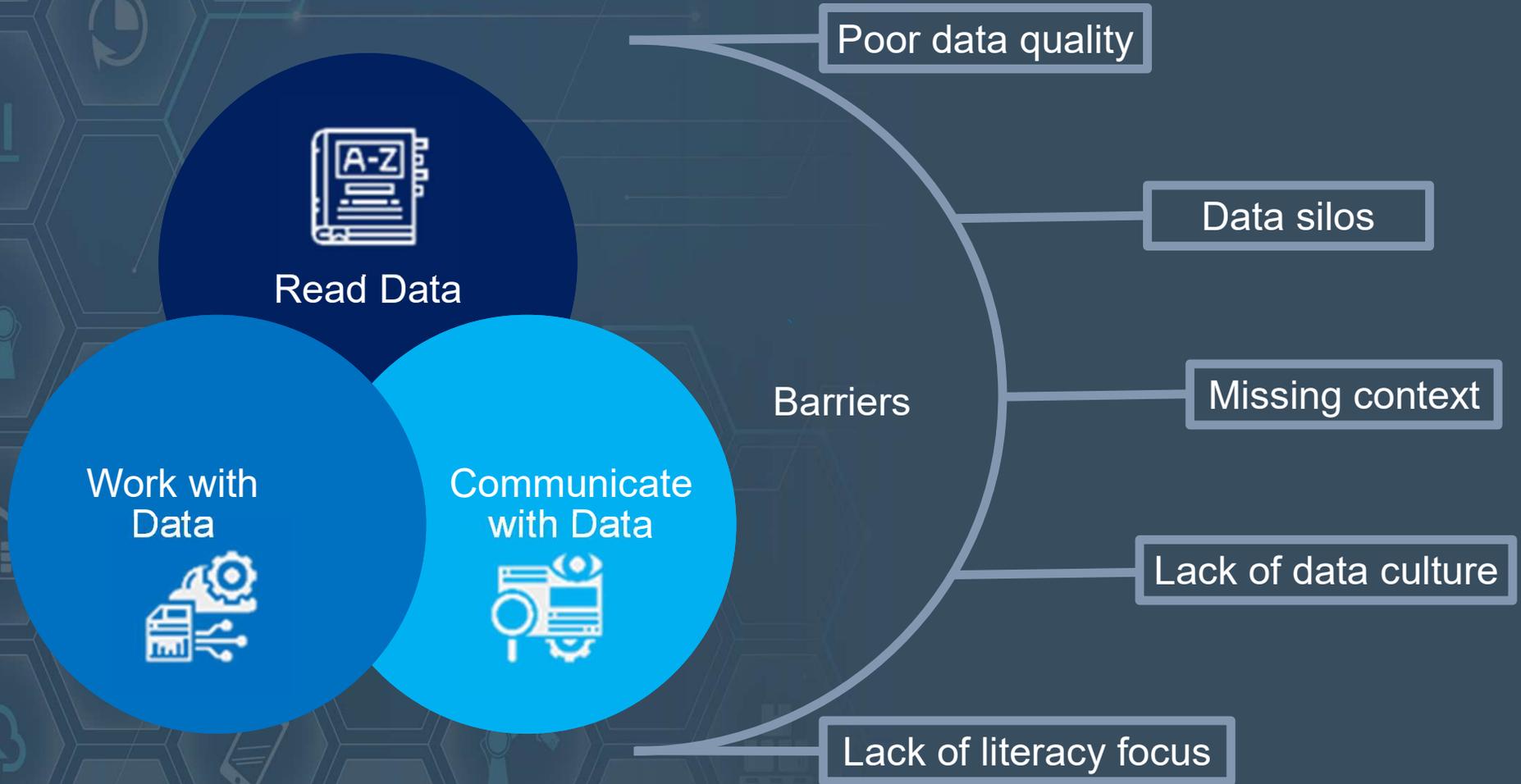
Fully prepared to use data effectively



More likely to stay with data skills training



Data Literacy



Training Delivery Methods

In-Person & Virtual Training

Workshops

Job Shadowing

On the Job Training

Office Hours



E-Learning Modules

Intranet Collaboration

Quiz & Game Based Training

Podcasts

Videos



Tableau Desktop & Web Authoring Features


Desktop
 Learning Path


Web Authoring
 Learning Path


Explorer
 Learning Path

	Desktop	Web Authoring	Explorer
Tableau free training videos	✓	✓	✓ Explorer & Viewer Sections
Tableau resources on Connect Today	✓	✓	✓
CC Introduction to Tableau Server	✓	✓	✗
LinkedIn Learning Modules (how to get access)	✓	✓ Server Data Sources	✗
Intermediate Workshops	✓	✓	✗
Make Over Monday	✓	✗	✗
Reoccurring check-ins w/EA for initial use case(s)	✓	✗	✗
Tableau eLearning : Data Scientist & Designer paths <ul style="list-style-type: none"> Getting Started, Tableau Fundamentals, Intermediate, Advanced, Dashboard Design: Visual Best Practices \$120 per user for one year 	✓	✗	✗
Tableau Certifications: Specialist & Associate	✓	✗	✗

Cloud Transformation

Existing Technology



- TABLEAU**
- INFORMATICA DATA360**
- INFA POWER CENTER**
- CONNECT TODAY**
- UI PATH**
- JIRA**
- TERADATA**
- SAS**



MSFT Technology



- POWER BI**
- PURVIEW**
- AZURE DATA FACTORY**
- MICROSOFT VIVA**
- POWER AUTOMATE**
- AZURE DEVOPS**
- SQL/BLOB/DATA LAKE**
- DATABRICKS**

Power BI Roadmap - Initial Phases

Approved greenfield use cases with future enterprise expansion

Phase I: Discovery

- License procurement workflow
- EA license provision
- Initial EA training
- Platform configurations
- Features
- Relationship with Microsoft
- Pilot approval process
- Infrastructure
- Workspace strategy
- Roles & responsibilities

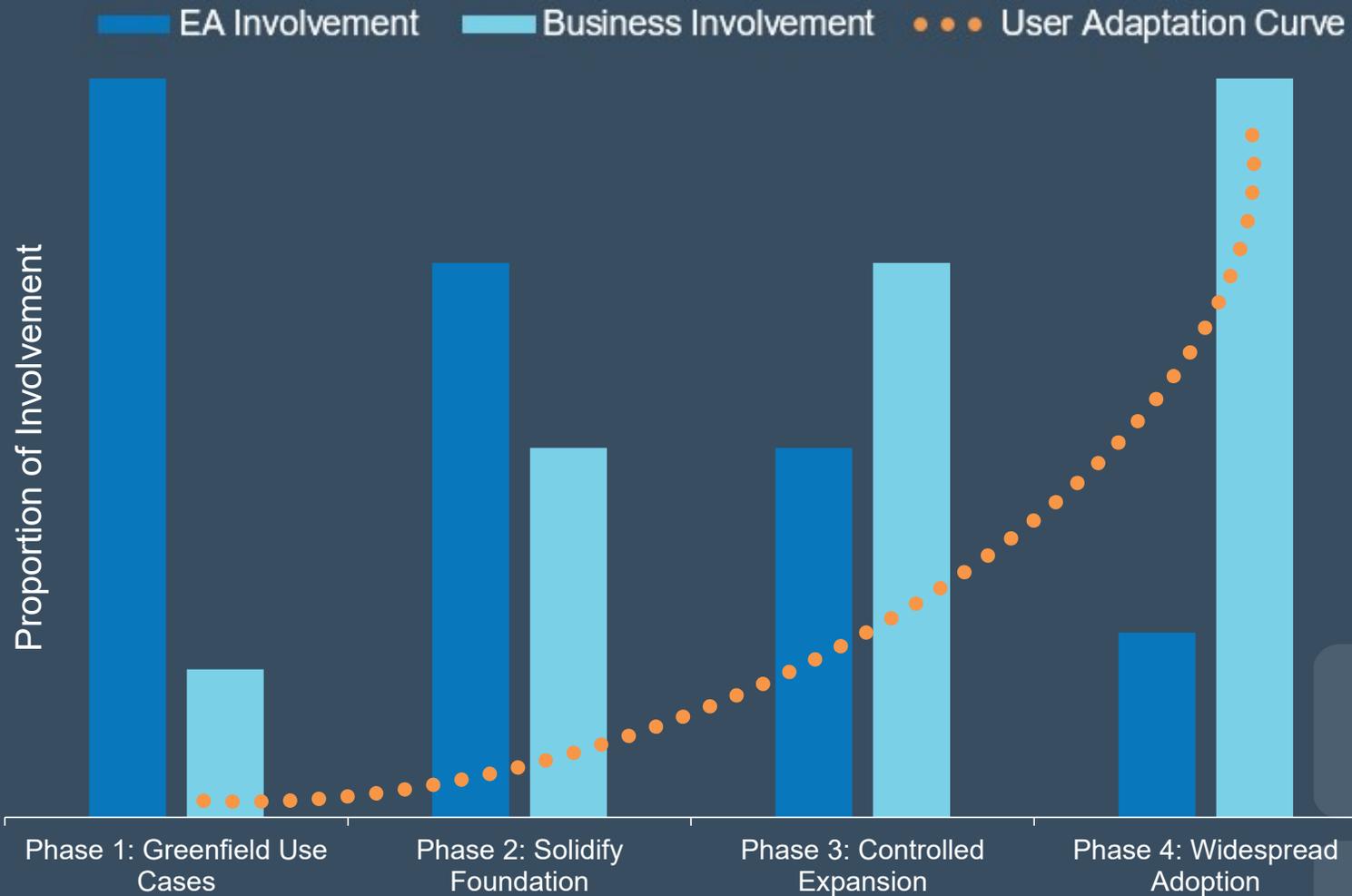
Phase II: Operationalize

- Power BI & Platform COEs
- Premium licensing
- Gateway
- Intranet site
- EA & pilot training
- Best practice documentation
- Identity management
- Use cases
- Governance workflows
- Greenfield user group

Phase III: Launch & Extend

- Extend community of practice
- Capacity configurations
- Initial data sources
- Additional pilots
- Increased enablement
- Integrations
- Rest APIs & cmdlets
- Mobile deployment
- Data expansion

Federated BI Roadmap and Adoption Framework



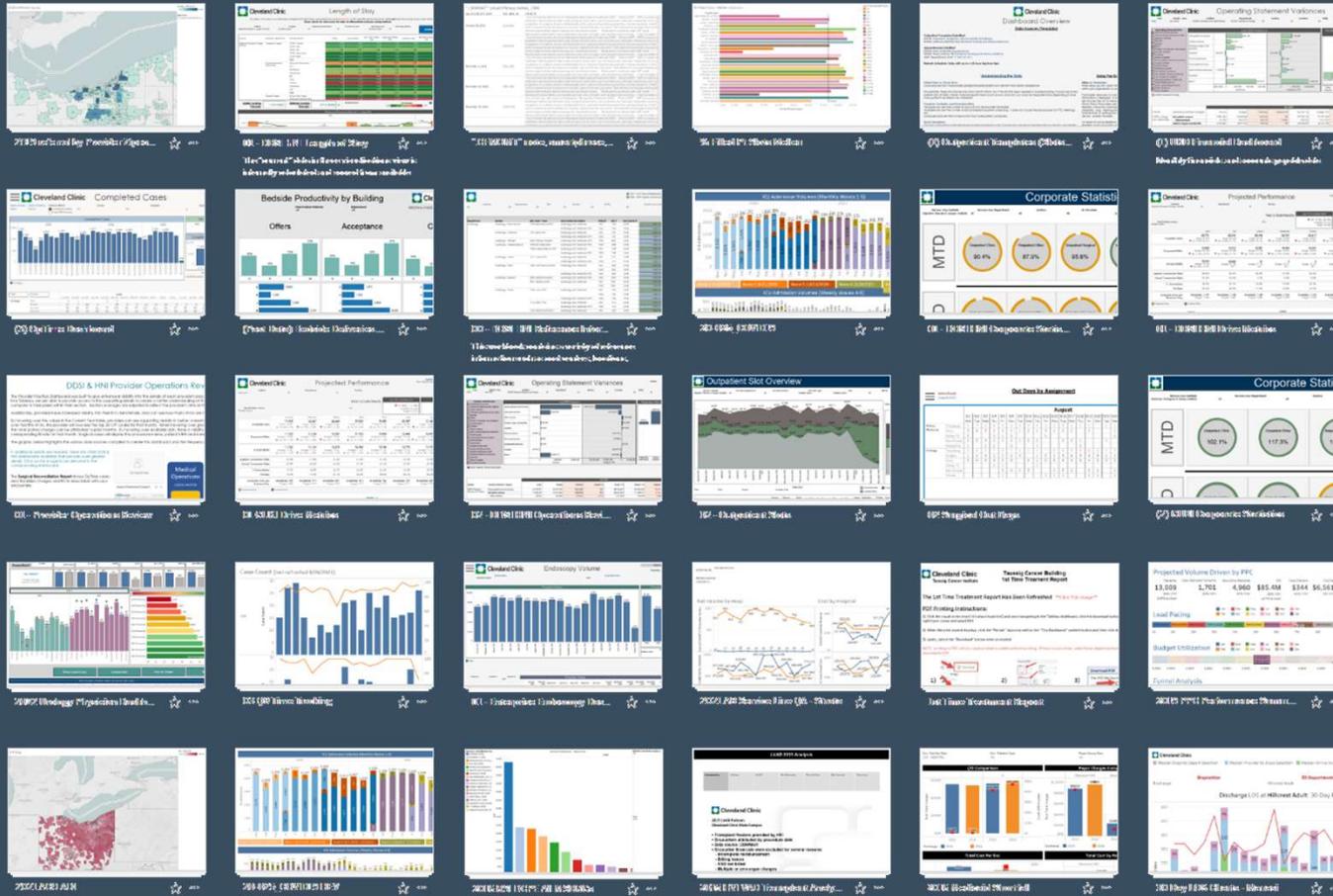
Adapted From Gartner

Philanthropy Analytics

~ 170 Tableau workbooks

~ 182K hits in past four years

\$414M in 2021 commitments



Philanthropy Data Process

Before

After

Locating
Potential
Donors

- Send request
- Criteria determination
- Coding report in database
- Data sent to user

2 - 4 days

Calculating
Fundraiser
Metrics

- Fundraiser pulls reports
- Fundraiser calculates metrics
- Manager compiles metrics
- Data sent to leadership

2 days

Pulling
Financial
Data

- Systems team pulls data
- Waits for application to retrieve data
- Information sent to requester

2 - 3 days

User logs into
Tableau

User pulls
data they need
(1 minute)

Investment Analytics Partnership



- Previously outsourced to portfolio managers
- CC Investments portfolio incorporated into EA tech ecosystem
- Automation leveraging Teradata, Tableau, PowerCenter, & APIs
- Over 90 dashboards
- **\$13.3B Investment Pool & \$1.4B Pension Plan** are managed using EA Architecture
- **\$1B additional contributions** in five years over an index based portfolio

IIA Excellence in Analytics Award

2020 ANNY Excellence in Analytics Award Winner



**2020 EXCELLENCE IN ANALYTICS
ANNY AWARD**
**Congratulations,
Cleveland Clinic!**

Cleveland Clinic has won the 2020 Excellence in Analytics Award for their Analytic Preparedness initiative, which enabled them to meet the challenges of a global pandemic.

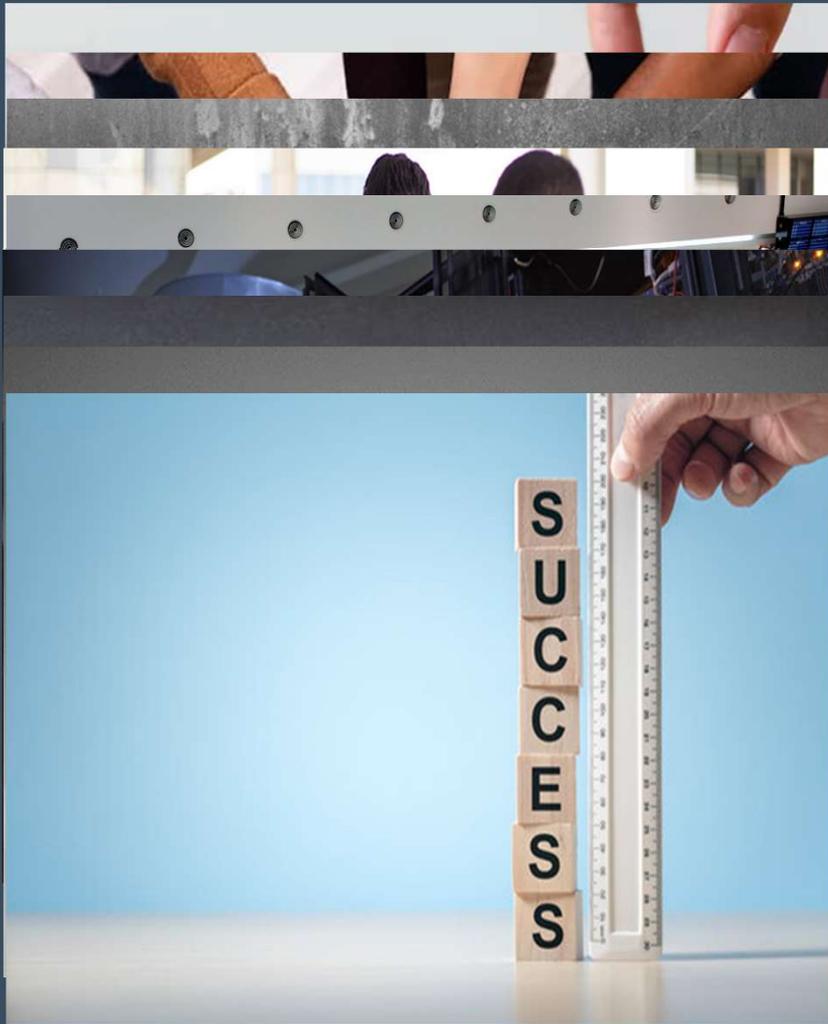


ANNY Award

Founded in 2012, the ANNY has been awarded to teams in many industries who have made profound changes to their organization through analytics projects

Awarded to the organization that best illustrates the use of advanced analytics in innovative ways to drive measurable business results

Enablement Lessons Learned



Start small & scale up

Enablement is a team sport

Align business needs & skills training

Assign business relationship leads

Standardize processes for assistance

Create valuable data assets

Ensure support for federated assets

Balance agility & control

Measure success

Thank you!





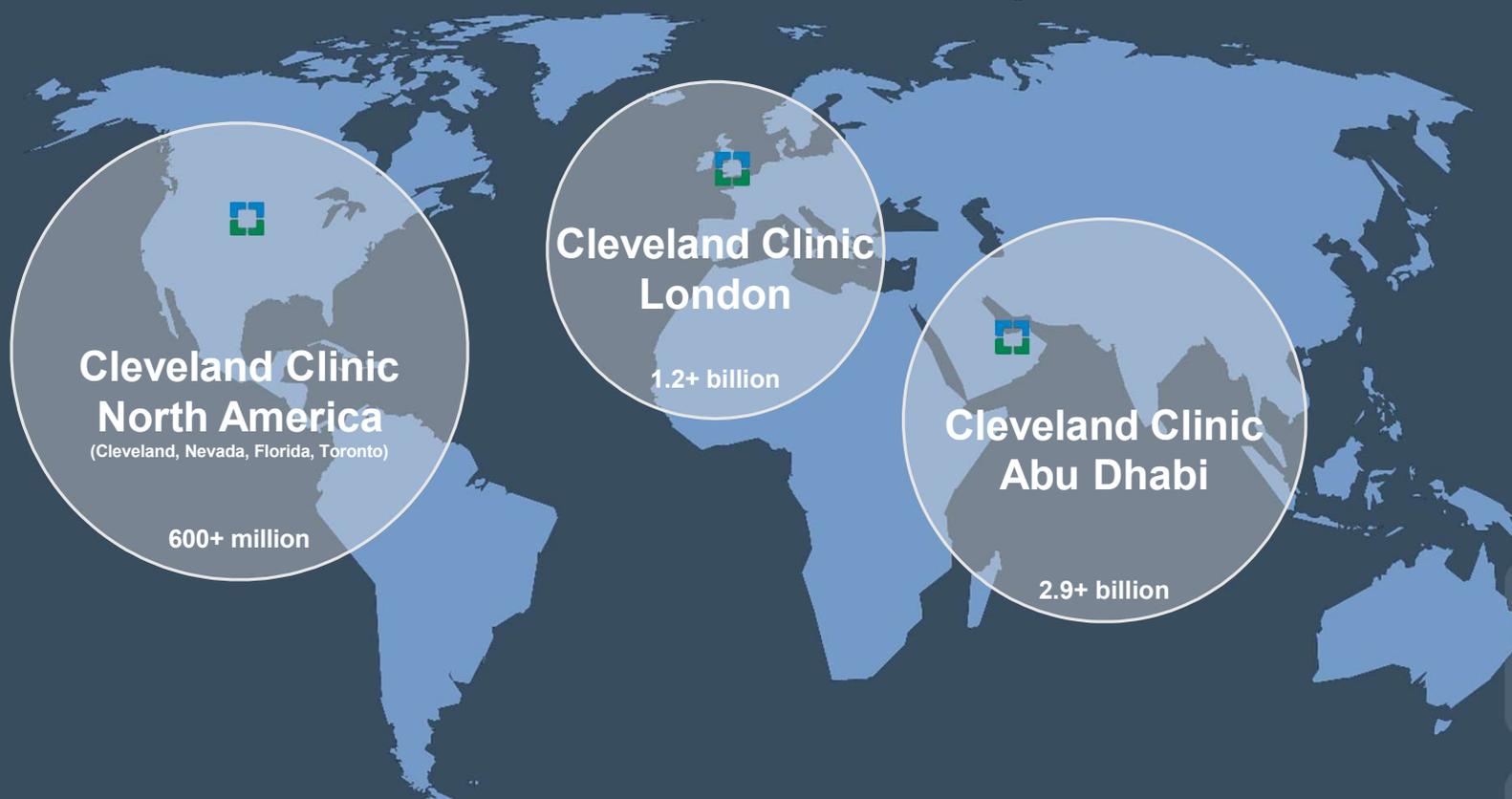


Every life deserves world class care.

Appendix



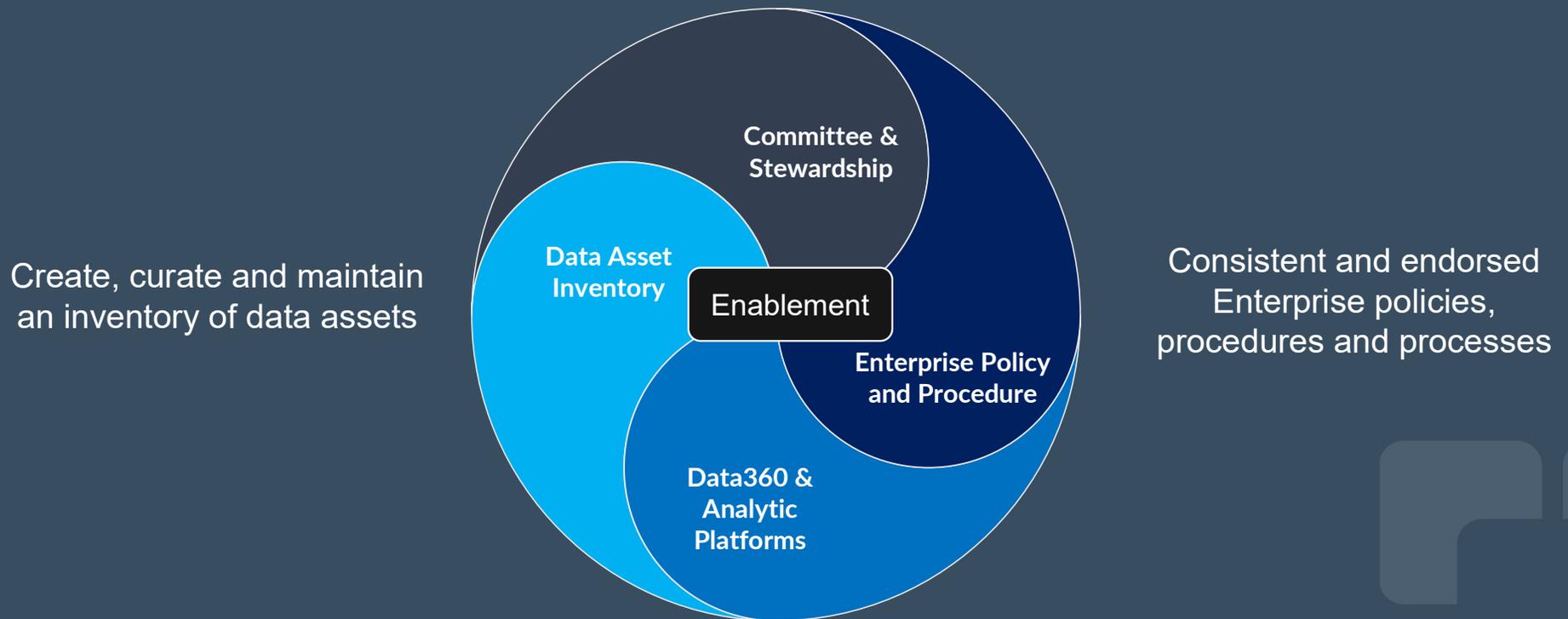
First Globally Integrated Healthcare System



Empowered Enterprise Data Governance

Delivering Data as a Service

Empower an accountable Enterprise



Underpinned by the Enterprise Data360 & Analytics platforms

Self-Service Adoption Pillars



Data

- Expansive
- Relatable
- Accurate
- Standardize
- Curate
- Certify

People

- Culture
- Invest in development
- Encourage innovation
- Value feedback

Process

- Standardize
- Document
- Endorsement
- Socialize
- Optimize

Technology

- Address needs
- Intuitive
- Interwoven platform
- Adaptive to change

Developing a Training Program



Identify core competencies

- By role
- Technical, Quantitative & Domain
- Specific listing without overlap



Inventory in-house skills

- Skill levels
- Surveys
- Employee or manager
- Reassess with changing technology



Match training with gaps in skills

- Identify proficiency gaps
- Resource training to address the gaps



Design training curriculums

- Define objectives
- Research & artifact discovery
- Tailor to subject matter and audience



Select a delivery method

- Choose the right medium or combination
- Disseminate in a variety of channels



Measure the effectiveness of training

- Determine metrics to assess effectiveness
- Employee utilization
- Ask for feedback
- ROI

Typical Approaches for BI Implementation

Decentralized BI

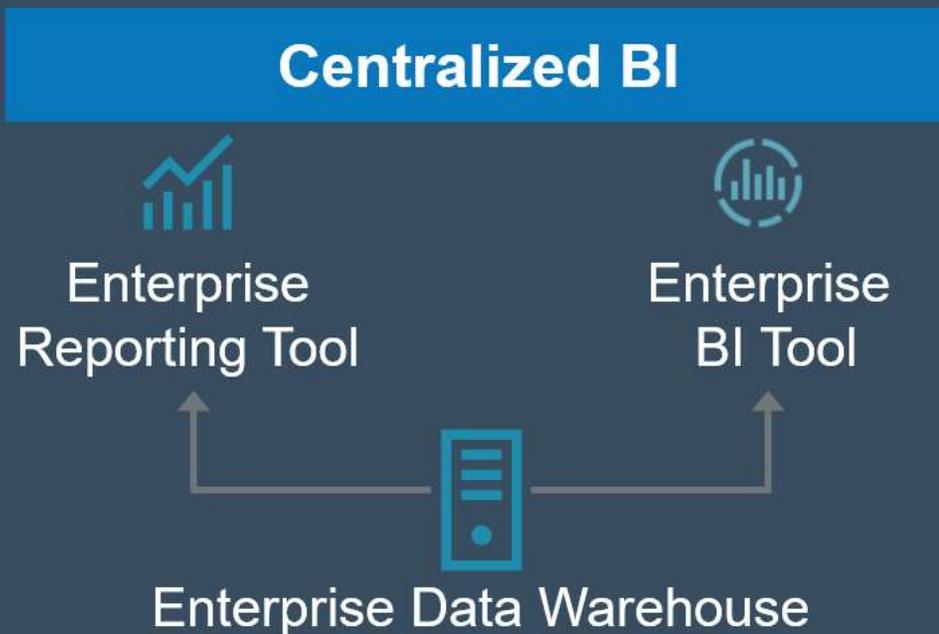
Decentralized BI



- ✓ Agile & flexible delivery
- ✓ Domain specific knowledge
- ✗ Siloed BI solutions
- ✗ Inconsistent BI architecture
- ✗ Inconsistent logic & reporting
- ✗ Higher operational cost
- ✗ Redundant processes
- ✗ Fosters disparate capabilities

Typical Approaches for BI Implementation

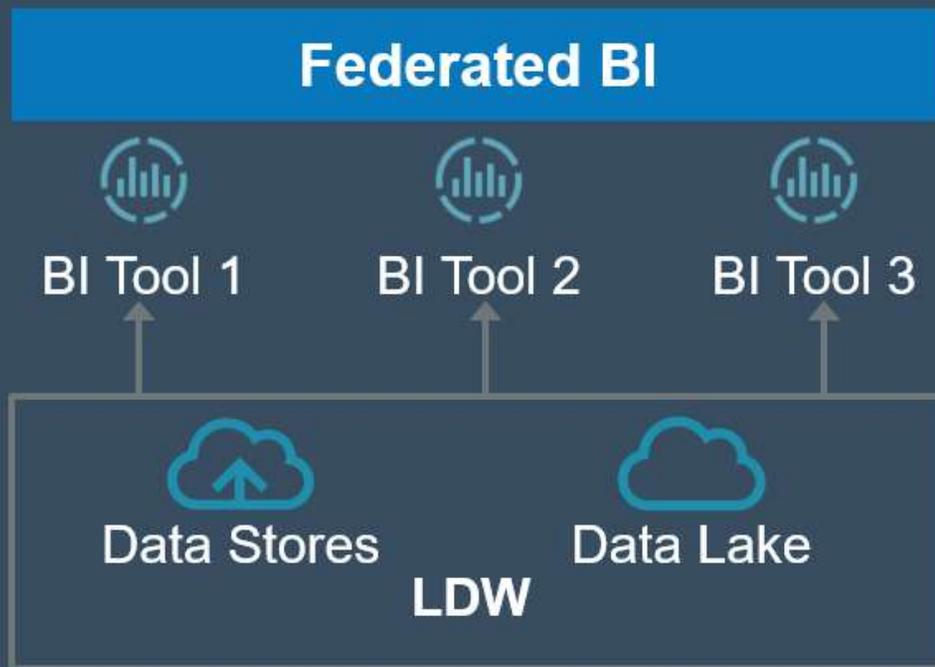
Centralized BI



- ✓ Standardized, scalable architecture
- ✓ Less overhead & eliminates redundant costs
- ✓ Consistent data definitions
- ✗ Introduces bottlenecks
- ✗ Single data model
- ✗ Usually IT-driven
- ✗ Non-agile delivery

Typical Approaches for BI Implementation

Federated BI



- ✓ Federated BI development
- ✓ Standardized, scalable architecture
- ✓ Cost-effective
- ✓ Consistent data definitions
- ✓ Self-service and agile delivery
- ✓ Supports multiple data models
- ✓ Business & IT-Driven
- ✓ Centralized repository w/partitions for LOBs

M&NS - HCC Risk Coding Clinovations Partnership



- Rollout of the HCC Risk Capture Smart Form & reporting
- Significant driver of realizing accurate reimbursement for attributed lives
- Documentation improvement initiative to ensure risk capture & enhance care management
- Over 90% of opportunity presented annually is captured
- **Estimate \$10M additional revenue per year**