Design Considerations for an Analytics Platform to Serve Diverse Stakeholders

Names and Faces
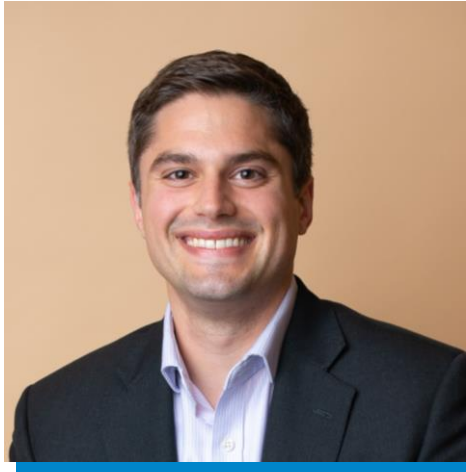
Mark Van Name
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Manager - Technology

October 18-20, 2022
San Diego, CA

UA Week

About Con Edison

- Founded in 1823 as New York Gas Light Company

- Provide electric, gas, and steam to NYC and Westchester
  - 160k miles electric cable
  - 4.2k miles steam gas mains
  - 105 miles steam mains & pipes

- 4M+ accounts serving 10M residents
  - 3.5M electric accounts
  - 1.1M gas accounts
  - 2k steam accounts

Gas and Electric Service Areas

Electric Service Areas
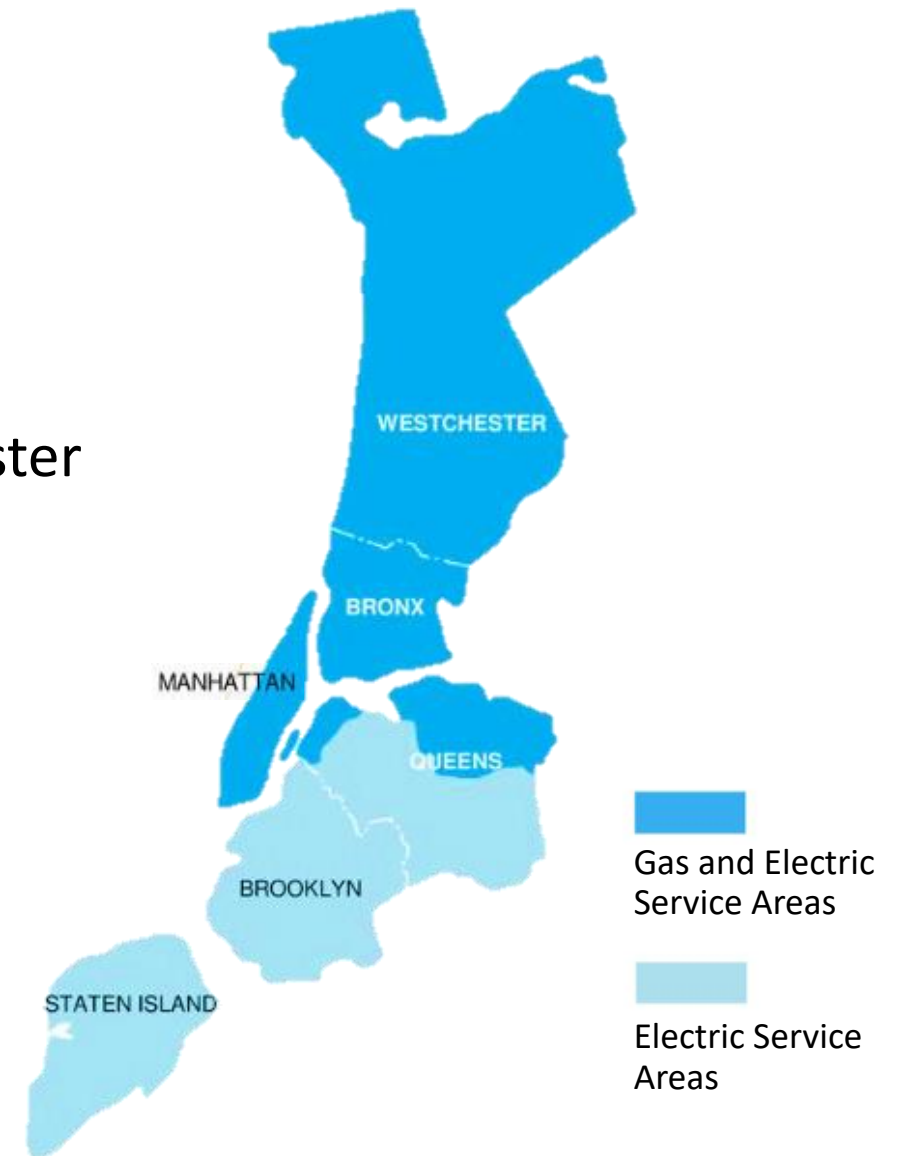
About West Monroe

West Monroe is a digital services firm that works in diverse, multidisciplinary teams of industry, operations, and technology experts to deliver quantifiable financial value.

We help clients be digital.

2,300 employees connected by **13 values**
9 offices across the globe

Industry Expertise

- Healthcare & Life Sciences
- Consumer & Industrial Products
- *Energy & Utilities*
- Financial Services
- High-Tech & Software
- Private Equity

Functional & Technical Expertise

- Mergers & Acquisitions
- Corporate & IT Transformation
- Marketing, Sales & Service
- Operations
- People & Org
- *Analytics & AI*
- *Cybersecurity*
- *Digital Strategy & Product/Experience Design*
- *Product Engineering*
- *Cloud, Systems, & Platforms*

Our clients

| **79.8** Net Promoter Score | **97%** of clients consider us a trusted advisor | **23** of the Fortune 100 **40** of the Top 100 Private Equity firms |

Our company at a glance

| **2002** Year founded | **94%** of employees say its a great place to work | **7,000** Pro bono hours annually |

Where We Started

The Digital Customer can interact with multiple channels and teams in a single day

Con Edison has developed a variety of ways to ensure that each customer can get what they need, how they want it

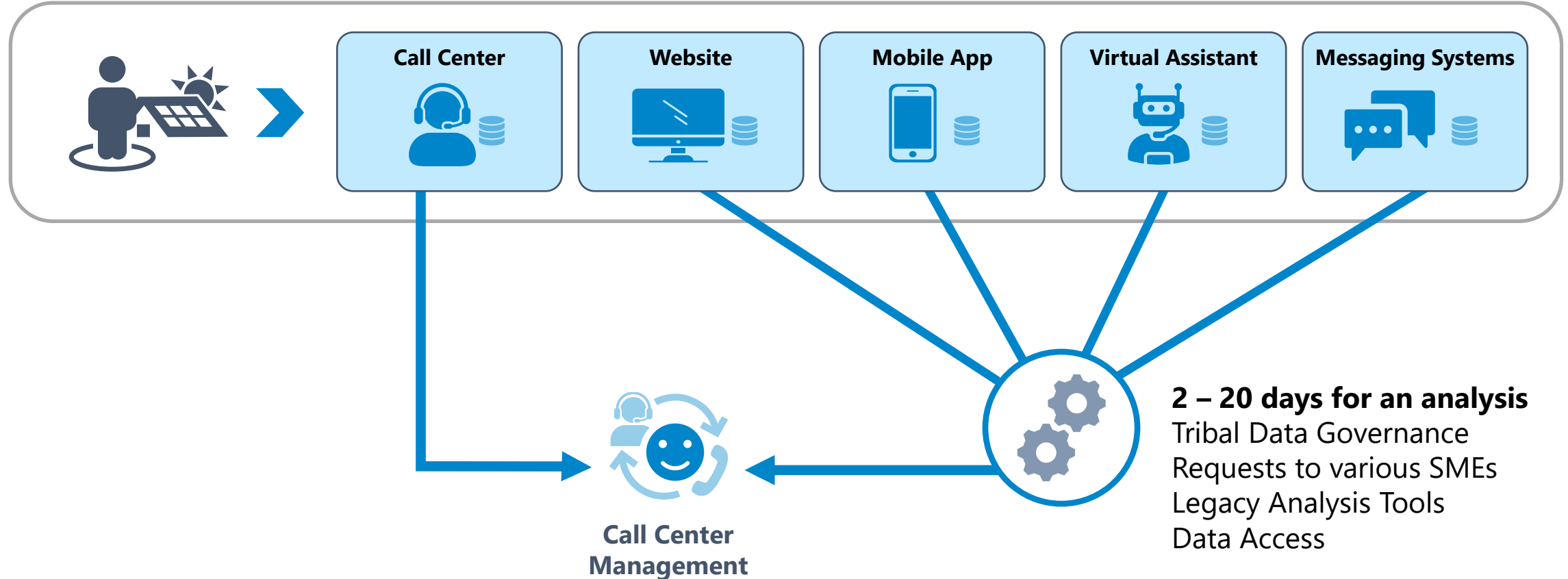| Call Center | Website | Mobile App | Virtual Assistant | Messaging Systems |
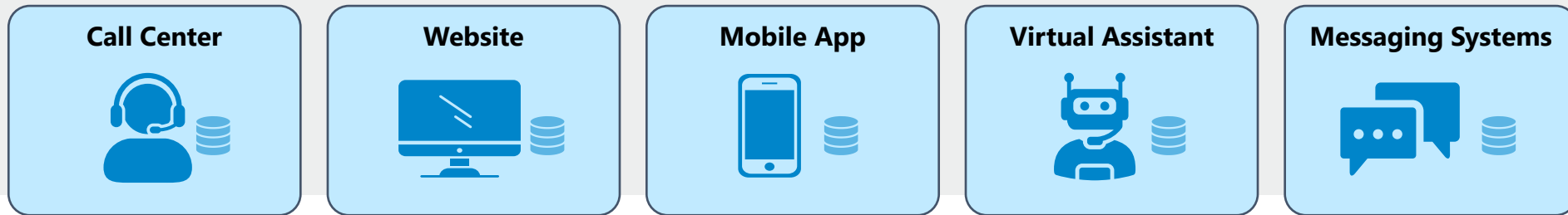
Con Edison teams are focused on serving customers and constantly improving the customer experience

Call Center Management

Digital Customer Experience

Customer Outreach

Generating insights on customer interactions requires intense collaboration and data availability

2 – 20 days for an analysis
Tribal Data Governance
Requests to various SMEs
Legacy Analysis Tools
Data Access

Call Center

Website

Mobile App

Virtual Assistant

Messaging Systems

Call Center Management

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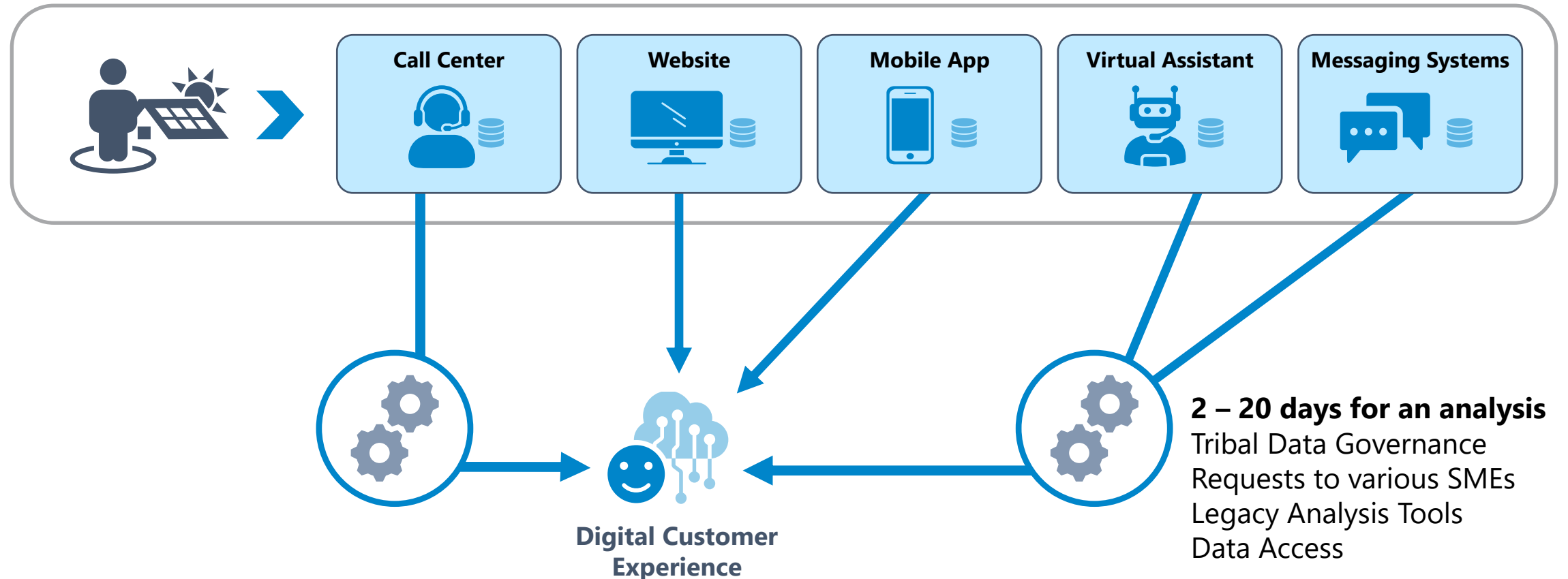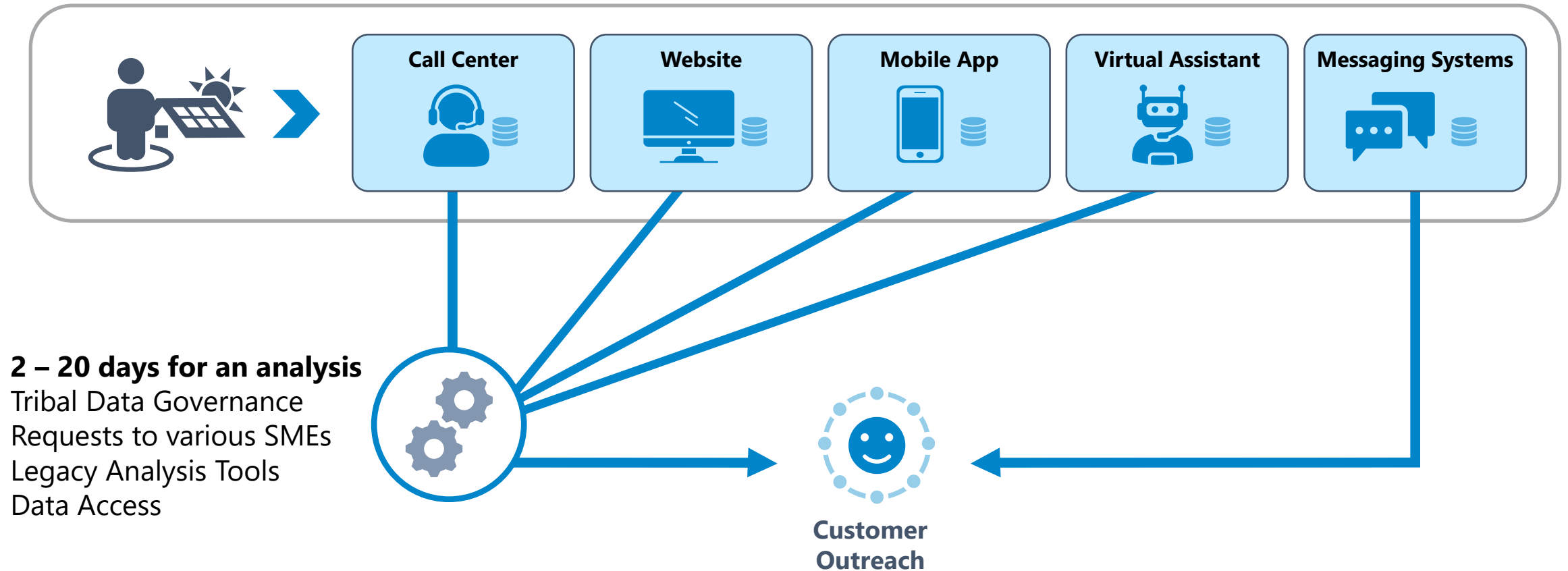
An analytics solution was needed to unify data and empower users with varying skillsets
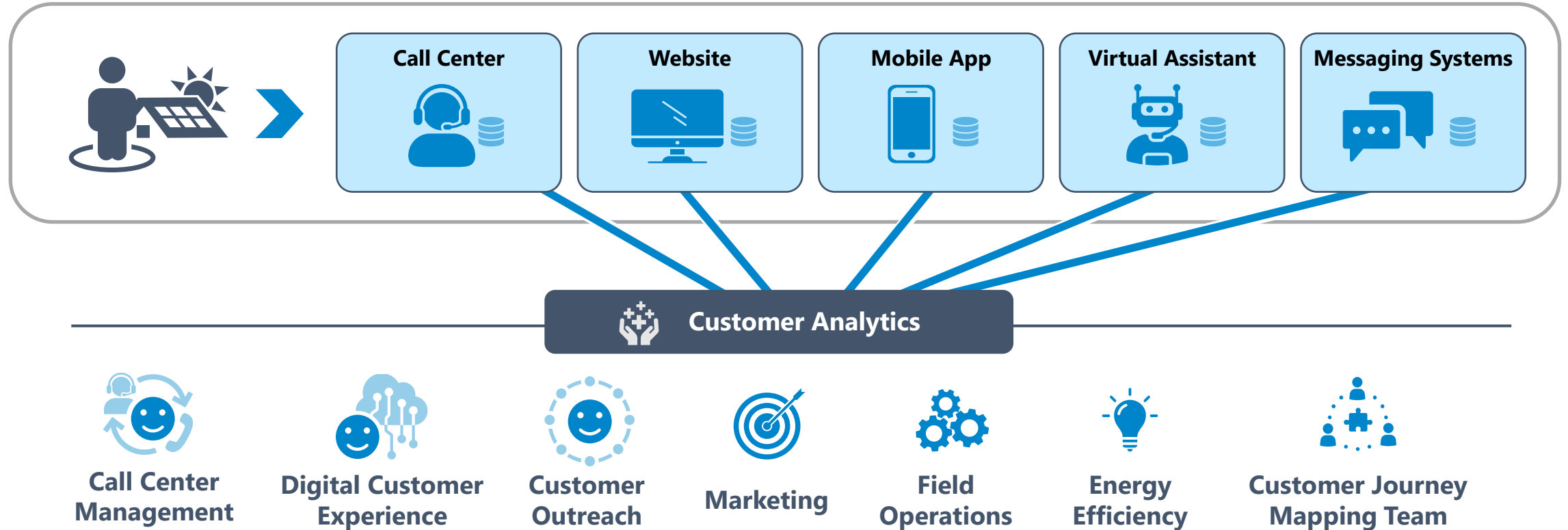
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Stakeholders and Their Challenges

@weareUAI | #UAWeek #UtilityAnalytics

Hosted by SDGE

Our stakeholders represent a wide range of needs spanning business and technical teams

Data Analyst
Address Bespoke Needs

Business Analyst
Drawing Insights and Enabling Teams

BI Consumer
Accomplishing Business Objectives

Business

Technical

Data Scientist
Generates Advanced Insights

Data Engineer
Extends and Maintains Infrastructure

Business stakeholders have a range of capabilities and responsibilities

	RESPONSIBILITIES	PAIN POINTS
Data Analyst 5% of users	• Strategic ad-hoc analysis • High priority requests • Generate new analysis patterns	1. Disparate datasets 2. Supporting new asks with old capabilities
Business Analyst 20% users	• Generate recurring reporting • Answer questions related to their business unit	1. Manual reporting processes 2. Infrequent glimpses of data 3. Limited ability to explore
BI Consumer 75% of users	• Execution of business functions aided by data assets	1. Aging capabilities 2. Limited exposure and training

Technical Stakeholders serve different business initiatives across a fragmented environment

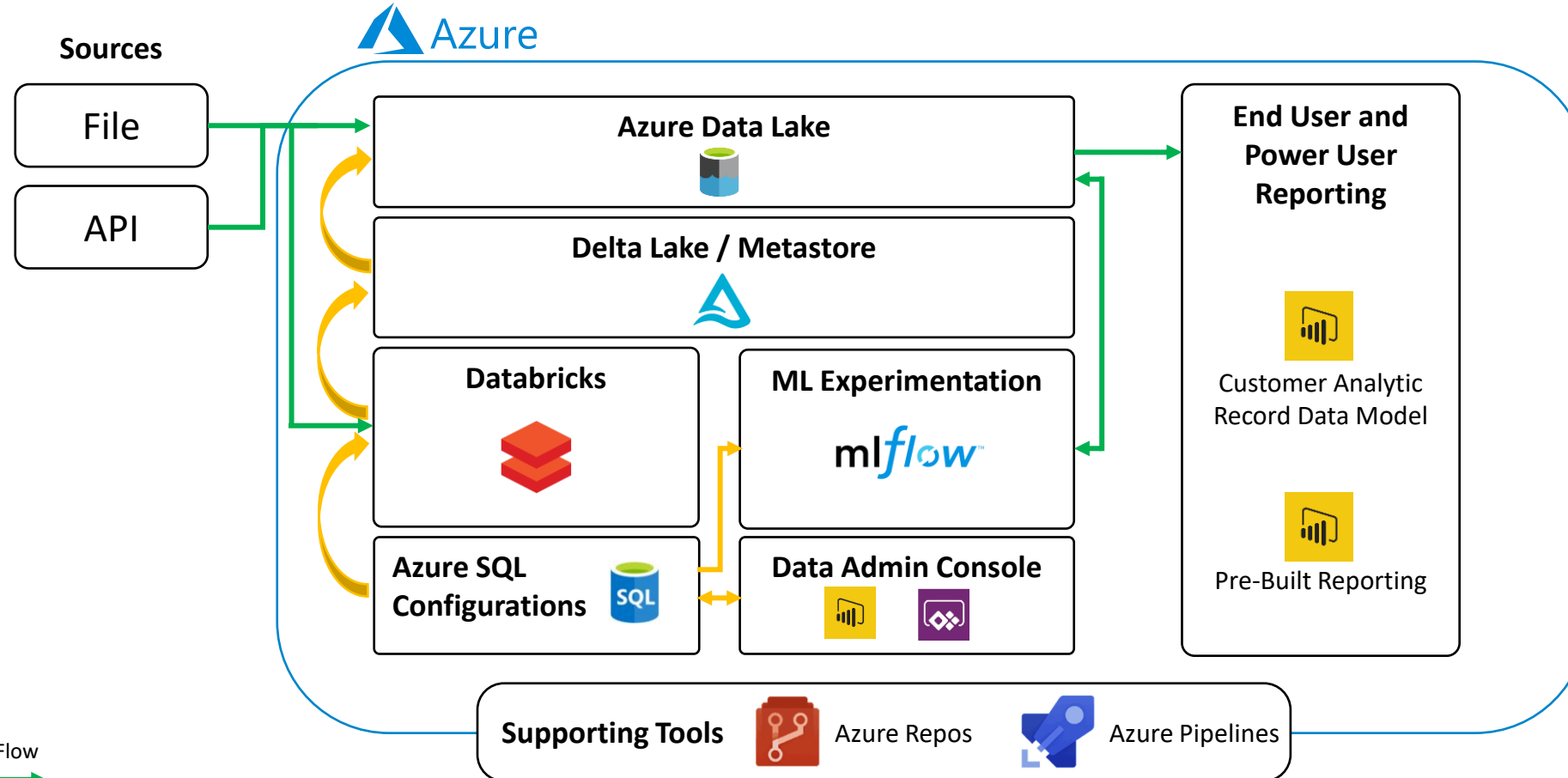|	RESPONSIBILITIES	PAIN POINTS
Data Scientist	• Support complex business asks • Evaluate ML solutions • Develop and productionalize analytics capabilities	1. Unavailable or low-quality data for experimentation 2. Varied tools for experiments and deployment
Data Engineer	• Develop ETL and Data solutions to support business initiatives	1. Learning curve between systems 2. Capabilities and data are siloed in different systems

The Solution

Con Edison has implemented a cloud-based metadata driven platform that combines best-in-class technologies

Sources

Azure

| File |
| API |

Azure Data Lake

Delta Lake / Metastore

Databricks

ML Experimentation
mlflow

Azure SQL Configurations

Data Admin Console

End User and Power User Reporting

Customer Analytic Record Data Model

Pre-Built Reporting

Supporting Tools   Azure Repos   Azure Pipelines

Legend

Control Flow   Data Flow

Business Stakeholders benefit from the integration of disconnected sources and workflows through modern tools

Azure

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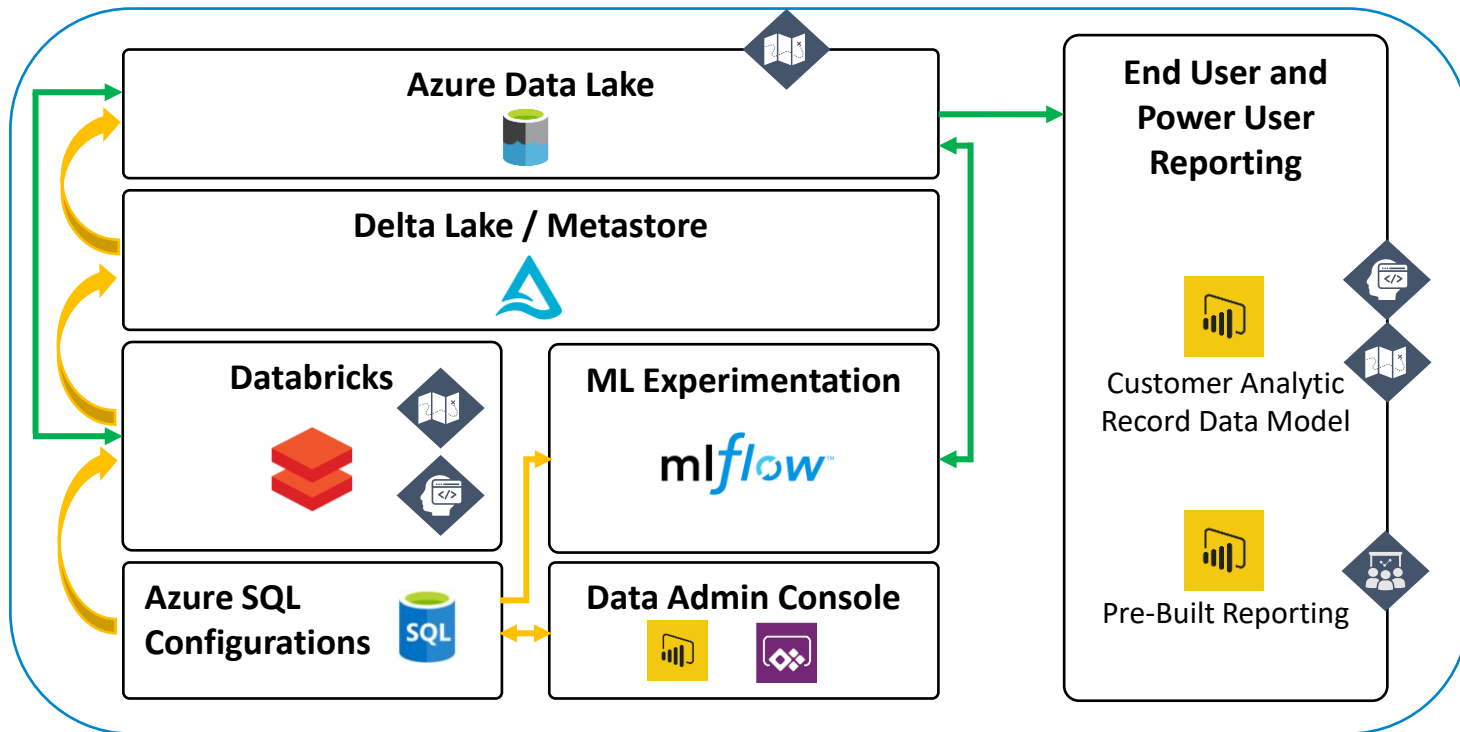
Data Analyst
- Integration of disparate systems
- Highly performant querying in Databricks and visuals in Power BI

Business Analyst
- Reporting without manual intervention
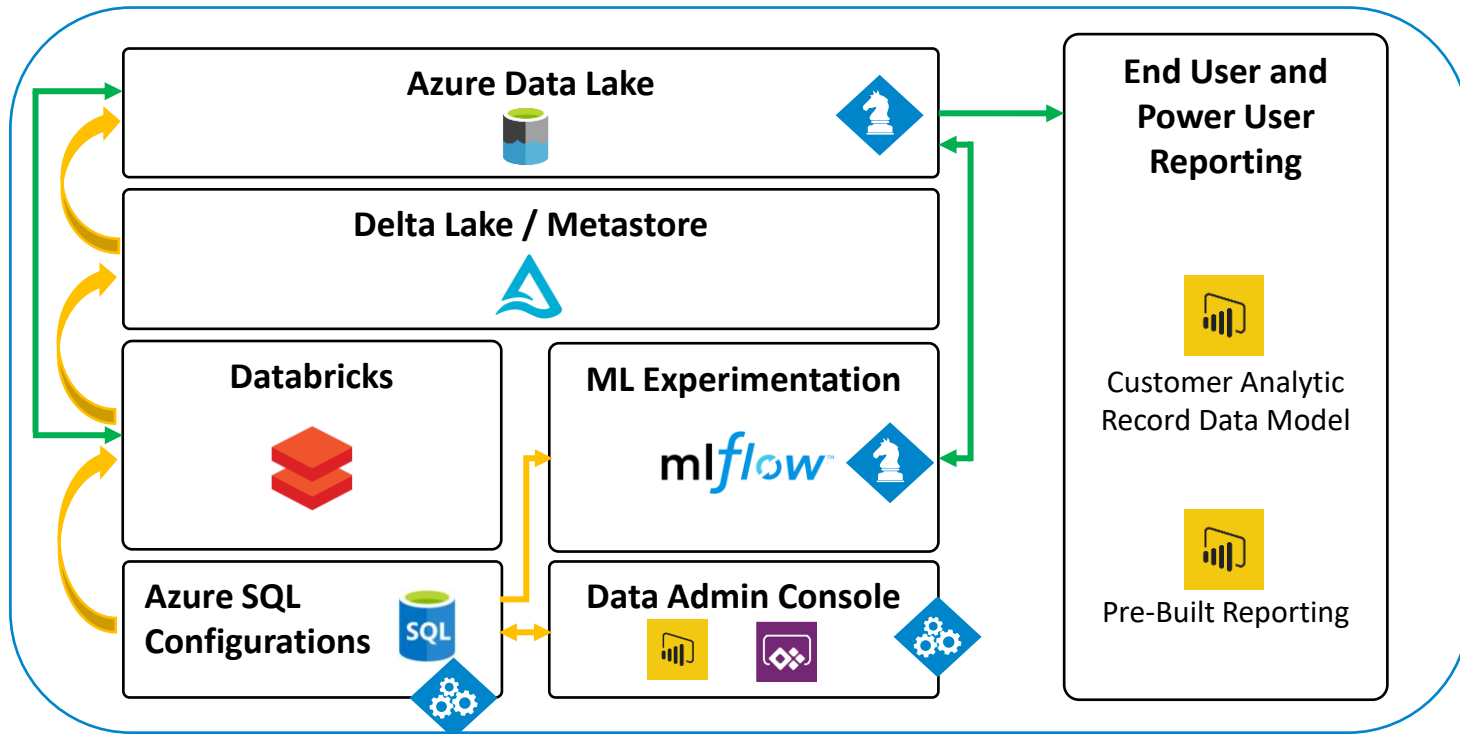- Investigative capabilities in Power BI and Databricks

BI Consumer
- Self-Service reporting with most recent data

Legend

Control Flow   Data Flow

Technical stakeholders have access to a platform that provides capabilities abstracted to simple configurations

Azure

- Azure Data Lake
- Delta Lake / Metastore
- Databricks
- ML Experimentation — mlflow
- Azure SQL Configurations
- Data Admin Console
- End User and Power User Reporting
  - Customer Analytic Record Data Model
  - Pre-Built Reporting

Legend

Control Flow   Data Flow

Data Scientist
- Raw, semi-processed and processed data expands options for analysis
- Integration of ETL and Mlflow allows for tight management of experiments and easy integration into data structures

Data Engineer
- GUI capabilities democratize best-in-class cloud capabilities
- Integrated monitoring and management capabilities using the Power Platform

Next Steps

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Candidates for upcoming initiatives may range from merging existing infrastructure to fine tuning the results of this effort

Connecting this Azure-based solution with existing technologies to streamline business users' path to insights

Integrating Energy Efficiency and Grid Asset Management systems to combine asset management, grid ops and customer analysis

Considerations for a 4th business user who needs to self-serve with low-code/no-code solutions