

Accelerating Population Health Insights through Cloud-Based Analytics

Overview

A leading healthcare provider sought to enhance its Population Health (PH) analytics capabilities to support Primary Care teams in improving patient experience, population health outcomes, and cost efficiency. The existing on-premise solution faced performance bottlenecks and delayed data availability, impacting timely decision-making across departments.

Business Challenge:

Performance Bottlenecks in On-Premise PH Analytics

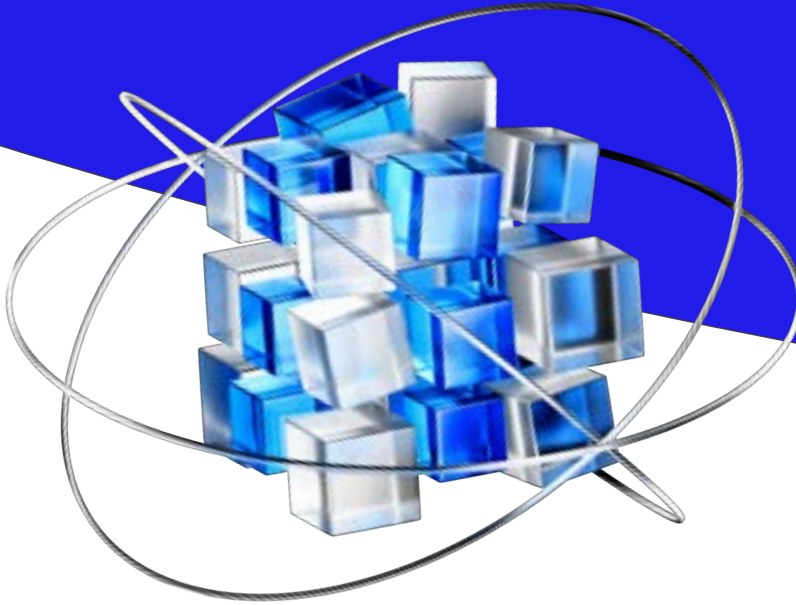
- The PH dashboard was used by Primary Care managers, executive committees, Nurse Line administration, and Employee & Community Health (ECH).
- The on-premise system processed large datasets across multiple domains (Care Teams, Finance, EPSI, NVC encounters, etc.), but suffered from:
 - Long runtimes (~10 hours for data processing).
 - Delays in releasing monthly snapshots.
 - Limited scalability and responsiveness for growing user needs.

Solution:

Cloud Migration and Semantic Modeling for Scalable Insights

CitiusTech implemented a modern cloud-based analytics solution by migrating the PH platform to Google Cloud Platform (GCP), enabling faster, scalable, and more efficient reporting.





Technology Stack

- **Source Systems** : DB2, SQL Server, CSV files.
- **Target Platform** : Google BigQuery.
- **ETL Tool** : Data Fusion.
- **Reporting Tools** : Power BI.

Migration Highlights

- Data sourced from Epic Clarity was integrated into the Unified Data Platform (UDP), then loaded into SSAS cubes for reporting.
- Migration to BigQuery bringing efficiencies & reduced runtimes through the following:
 - Seamless cross-project data sharing.
 - Elimination of data duplication .
 - Refactored and optimized ETL queries.
 - Cleanup of redundant objects and refined business logic reduced job count.

Semantic Layer Architecture

- Developed consumer views, DIM & FACT tables, and semantic models.
- Enabled seamless data ingestion, processing, and reporting through Power BI service.
- Integrated multiple data sources including patient satisfaction, financials, nurse triage, portal activity, and care team files.

Log Analytics

Additionally, designed a custom log analytics engine on this data platform using Cloud Logging, Cloud Run, and Looker automated pipeline monitoring, delivering real-time visibility, centralized error tracking, and actionable performance metrics.

Benefits:

Faster Insights, Improved Access, and Scalable Performance

800+ Users

actively accessing the tool for insights across various data domains.

8-Day Gain

in releasing monthly snapshots.

~80% Performance Improvement

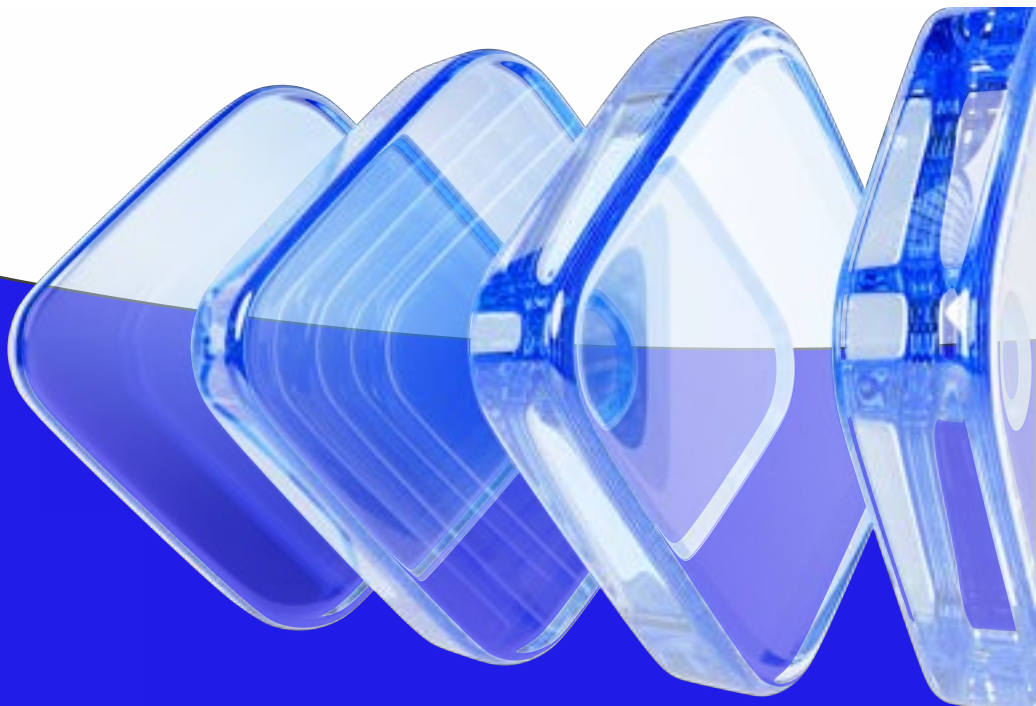
in data processing and reporting.

~250M Records Processed

enabling robust analytics and operational excellence.

Enhanced productivity

(via real-time issue detection & reduced troubleshooting time), reduced bottlenecks, and improved access to critical information for care teams and administrators.





Shaping Healthcare Possibilities

About CitiusTech

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