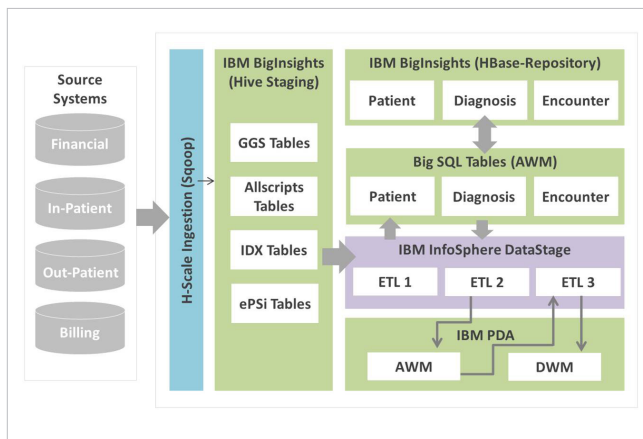


# Case Study: Big Data Implementation for a Large Health System

## Client Requirements

Client is a leading health system that provides services across acute care and other specialties. Client required a big data analytics platform that supports data acquisition, aggregation, transformation and cleansing to create an enterprise data trust that will serve as a 'single source of truth'. The roadmap for this data trust includes complete data integration of clinical and financial systems into the data trust. This would facilitate creation of use case-specific datamarts, allowing the analytics team to carry out advanced reporting and visualizations. Using the big data platform as storage for raw data would also enable advanced exploratory and predictive analytics.

CitiusTech was selected to design and build the ETL framework. CitiusTech leveraged H-Scale, its healthcare big data platform, and IBM technologies to bring in the data from billing, ambulatory, in-patient, and financial systems into IBM BigInsights and IBM PureData using IBM UDMH model.



## CitiusTech Solution

### Requirement Analysis

CitiusTech conducted detailed assessment of the operational systems during the initial scope, which included in-patient, ambulatory and financial systems. Working

along with the business analysts from client side, CitiusTech defined key use cases that were initially targeted in order to scope out data integration. Subject areas such as Patients, Providers, Encounters, Orders, Observations etc. were identified, and required to be mapped to IBM UDMH. A detailed mapping exercise was carried out along with the customer's data architects in order to define the appropriate level of details, historical data and data types to be stored in the UDMH model. Appropriate customizations were made to the UDMH model wherever applicable.

### Solution Design

CitiusTech designed an end-to-end solution and built an enterprise data warehouse. The solution included:

- Hadoop-based data lake on IBM BigInsights platform which served as the staging area for raw data, coming from source systems and that enables ad-hoc exploratory analytics for the business team
- Cleansing and data quality checks using IBM InfoSphere QualityStage
- Standardization of terminologies as per pre-defined rules
- Patient reconciliation using IBM Initiate MPI feeds
- Transformation of data into IBM UDMH model in Atomic model and Dimensional model
- Loading of all historical data into the warehouse and setup incremental loads using scheduling systems in BigInsights and PureData

### Value Delivered

By partnering with CitiusTech, the client was able to:

- Leverage CitiusTech's expertise with IBM UDMH and PureData to build a robust, configurable data model that could process high volumes of data
- Demonstrate significant improvement over current ad-hoc analytics capability
- Leverage H-Scale components to reduce cost and timeline for Hadoop implementation
- Define a roadmap for the big data solution and implementation for structured/ unstructured data

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## About CitiusTech

CitiusTech is a specialist provider of healthcare technology services and solutions to medical technology companies, providers, payers and life sciences organizations, with over 2,700 professionals worldwide. CitiusTech's services and solutions include healthcare software development, healthcare interoperability, regulatory compliance, BI/analytics, consumer engagement, care coordination and population health management. CitiusTech helps customers accelerate innovation in healthcare through a number of solutions and accelerators for clinical quality reporting, healthcare big data, cloud computing, mobile health and predictive analytics. With cutting-edge technology expertise, world-class service quality and a global resource base, CitiusTech consistently delivers best-in-class solutions and an unmatched cost advantage to healthcare clients worldwide.

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