Triple Aim is Achievable Using Analytics
Analytics for Data-Driven Decision Making in Healthcare

Achieving better care, a healthier population, and reducing costs is the holy grail for public health organizations. Every day, patients seek care, doctors provide services, and claims are submitted. Yet while we live in a health data revolution where businesses are data rich, organizations remain insight poor. Revealing and sharing insights from huge volumes of data is essential to the success of public health.

What would you do if you knew which details to focus on to reveal insights, patterns, and connections within your data? Identifying and understanding business opportunities from all your data requires analytics on a scale never before seen.

Teradata helps you unlock critical insights from your data with unique and powerful analytics, enabling you to strengthen your business—and improve the lives of those touched by it. We take the complexity out of big data so you see opportunities instead of obstacles, quickly and easily.

Data As An Asset

If your healthcare organization is like most, you're facing a constant obstacle: finding meaningful insights while managing data from numerous disparate sources, including multiple legacy transactional environments. Add to that new and emerging technologies such as Hadoop and Cloud, and getting value from your data can seem overwhelmingly difficult.

This situation limits most health organizations to running only simple reports and some ad-hoc reporting (see Figure 1). Capabilities such as dashboards, advanced forecasting, predictive modeling, and optimization are typically beyond the scope of most public health organizations.

Teradata uses a "business led, technology enabled" approach to problem solving—facilitating growth to organizations with the data insights, tools, and solutions they need to improve business outcomes. Along with our extensive portfolio and experienced consultants, we empower health agencies to achieve high-impact business outcomes by leveraging data, analytics, and advanced technology solutions. For decades,

private sector organizations have relied on Teradata to integrate and analyze data, then make that information quickly and easily accessible for making critical day-to-day decisions.

The true value of data and analytics comes from capturing and integrating information from sources across the organization. This creates an enterprise, integrated view of the entire organization that provides all users a single, consistent view of current and historical facts.

This capability is a powerful, secure decision support solution that lets users across the organization quickly analyze huge quantities of data for tactical and strategic decision making. Enterprise analytics has become the key to consolidating operational data—and turning it into shared knowledge.

> Analytics and data have become the number one assets in organizations.

The Teradata Advantage

At Teradata, we believe that analytics and data unleash the potential of great companies. We embrace a more agile approach to integrating the data that matters most. We help companies drive high-impact business outcomes from operational excellence to asset optimization and even finance transformation. We focus on turning the most complex and challenging data sets into high-value assets that produce high-impact insights and tangible value for the business.

TERADATA®

We have a track record of helping organizations across a broad range of industries—including retail; manufacturing; transportation, logistics, and distribution; financial services, telecommunications; travel; healthcare; insurance; and government—build better solutions to solve unique business problems.

> We empower companies to achieve high-impact business outcomes through analytics at scale on an agile data foundation.

Companies like Blue Cross Blue Shield, Highmark, Harvard Pilgrim, Apple, eBay, FedEx, Ford, Netflix, and Wal-Mart rely on Teradata to link disparate information systems and stove-piped environments into actionable information. Like most organizations, they already had huge repositories of data. But they recognize the value that integrated data can bring across an enterprise—data that can be used for business decisioning and strategy planning that enables them take immediate actions.

Teradata in Action

Current Teradata healthcare projects include:

- State of Utah—Medicaid EDW
- State of California—California Department of Health Care Services (DHCS)
- State of Illinois—Illinois HFS
- State of Michigan—Statewide EDW
- State of Indiana—Medicaid EDW
- State of Minnesota—multi-agency EDW (including Medicaid)
- Center for Medicare & Medicaid Services— Integrated Data Repository
- Defense Health Agency—EDW and Analytic platform
- National Intrepid Center of Excellence (a directorate of Walter Reed Medical Center)

Here are some examples of how public health agencies are already taking advantage of Teradata decision support capabilities:

CMS
Teradata delivered the Integrated Data Repository (IDR), a unified technology platform that allows CMS to aggregate, view, analyze, and report large

volumes of data at a granular, transaction level—while providing greater visibility into the claims lifecycle. The IDR is a centralized, scalable, 1-petabyte, enterprise-wide data warehouse that enables comprehensive reporting, investigation, and analysis by CMS and the research community.

A centerpiece of the CMS Enterprise Data Warehouse strategy, the IDR includes Medicare Parts A, B, C and D entitlement, DME, enrollment and utilization data from January 1, 2006, as well as supporting reference data. It is designed to establish an enterprise resource that provides one integrated view of all CMS data for administering the Medicare and Medicaid programs The Teradata IDR allowed CMS to transition from stove-piped, disparate databases to a single, integrated data environment for the enterprise.

The result means CMS analysts can now understand beneficiaries from more than a single claim type perspective, expanding their insights across multiple claim types and other related claims data—drug, institutional, clinical, shared systems, and encounters— as well as plan payment, beneficiary, provider, drug reference, contract/health plan, and reference data (e.g., procedure and diagnosis coding, geography). The ability to analyze all the data provides powerful new insight into CMS customers.
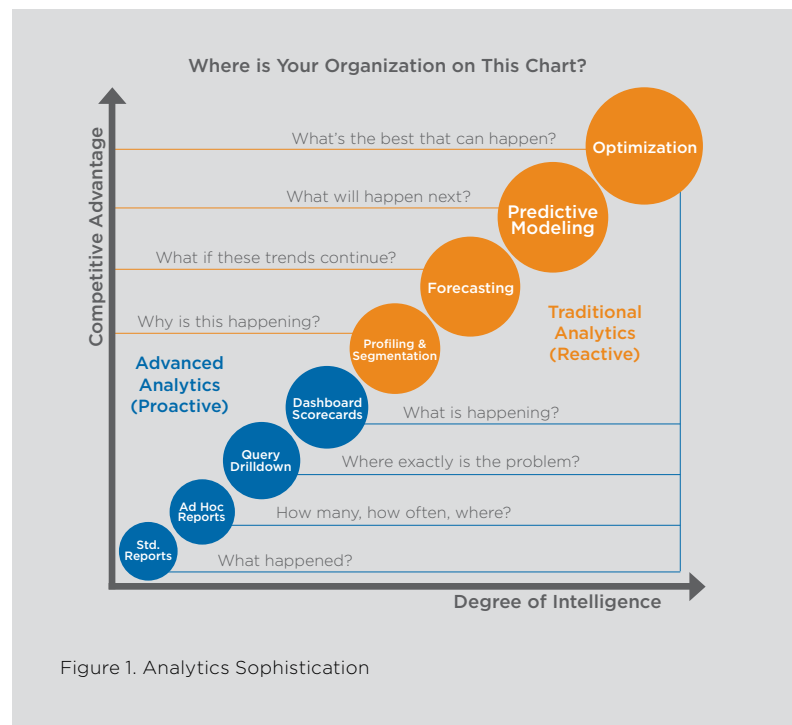

Figure 1. Analytics Sophistication

Longitudinal Clinical Trajectories

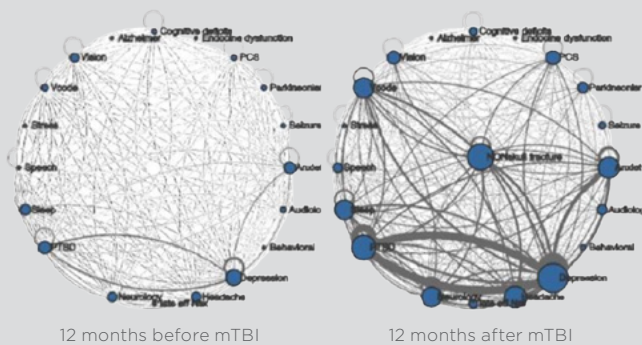12 months before mTBI   12 months after mTBI

Figure 2. Example of a NICoE's Use of Aster to discover new information on mTBI

National Intrepid Center of Excellence (Walter Reed)

NICoE is a facility in Bethesda, MD dedicated to advancing the clinical care, diagnosis, research, and education of service members experiencing combat related traumatic brain injury (TBI) and psychological health conditions. The center also conducts extensive research, serves as an educational resource, and explores new therapy methods to guide the development of new best practices for military medicine. NICoE is an ongoing user of Teradata Aster. Successes to date include:

- Clarified understanding of how the symptoms of mTBI affect individuals.

- Helped describe the difference in symptom configuration within patients before and after their TBI.

- Showed healthcare utilization trends after mTBI, and analyzed the impact that multiple concussions have on the healthcare system.

- Offered dashboards that provide a single analytical framework where administrators, clinicians, and researchers can analyze and explore clinical data to better understand the effects of TBI, mTBI, Post-Traumatic Stress Disorder, and comorbid PH.

Agency Analytic Solutions

Teradata can bring our analytic solutions to your organization as well, specifically in areas such as:

- Fraud, waste, and abuse

- Opioid overutilization prediction

- Coordination of care analytics

- Facilities management

- Finance/performance management

- Eligibility verification analytics for Home Health and transport services

- Longitudinal patient outcome research

- Network service utilization

- Care gaps

Teradata Analytics Solutions Capabilities

Business Analytic Solutions

Health organizations can achieve results and reach their goals no matter which infrastructure they choose. Teradata's datacentric approach, which is unique in the industry, enables us to examine how data will be used and presented. We then leverage our deep industry experience to ensure solutions deliver the value business executives expect and require. Our business consultants use a methodology to engage and rapidly understand the details of customer challenges to provide the fastest possible results.

Integrated Data Warehouse

Teradata Active Enterprise Data Warehouse is an ANSI standard SQL RDBMS that combines data from multiple sources—such as ERP and legacy transactional systems—into a single, scalable enterprise class warehouse. This offers our customers one authoritative data source of cross-functional information capable of answering questions never before considered.

Integrated Discovery Platform

Teradata Aster Discovery Platform brings the world of advanced analytics to the business user with more than 150 SQL-based, pre-packaged analytics functions. Functions include path, text, graph, machine learning, and various other algorithms. Users may create their own customer analytics as well.

Capable of supporting the iterative nature of discovery processes, this platform offers a business-friendly SQL interface that can be used with data in databases as well as multi-structured data stored in Apache Hadoop, eliminating the requirement for specialized programming to unlock big data insights through iterative exploration.

Data Platform

The Teradata Portfolio for Hadoop is a flexible suite of hardware, software, and services for organizations to integrate enterprise Hadoop into a Teradata environment

TERADATA

FLEXIBILITY

IntelliCloud™
(IntelliFlex™/IntelliBase™/AWS)

Public Cloud
(AWS/Azure Marketplace)

Private Cloud
(VMware)

On-Premises
(IntelliFlex/IntelliBase)

Analytical Ecosystem

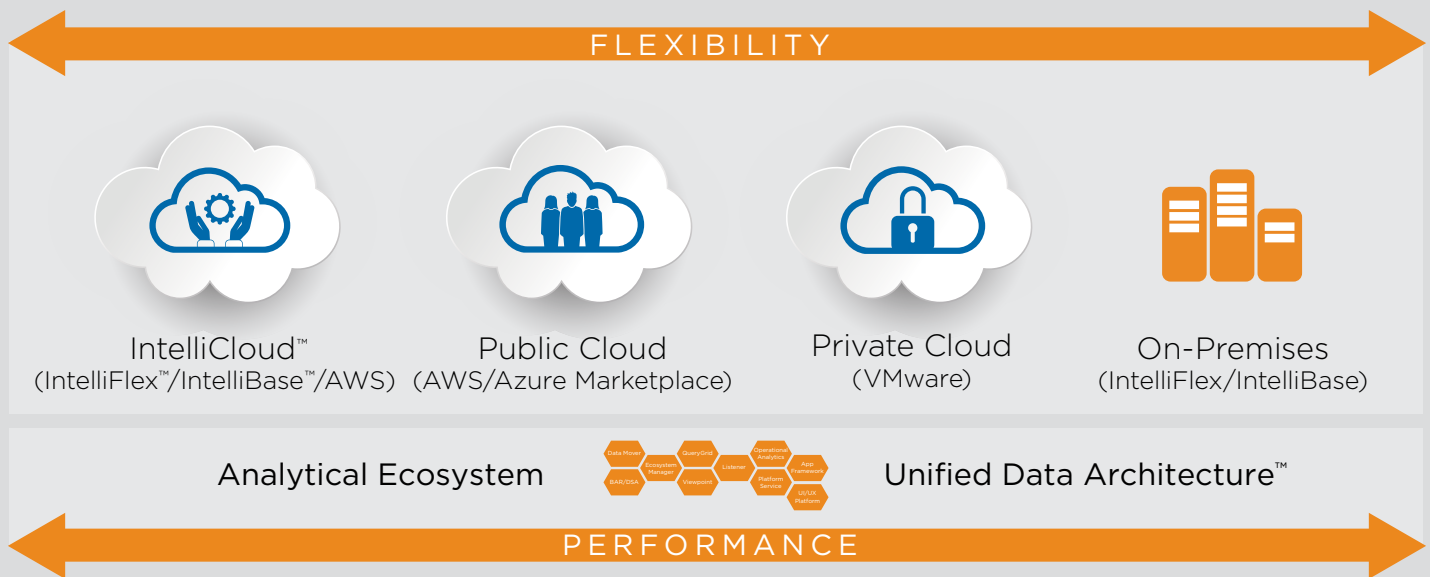Unified Data Architecture™

PERFORMANCE

Figure 3. Analytical Ecosystem & Unified Data Architecture

and across a broader enterprise architecture. We have deep engineering partnerships with Hortonworks, Cloudera, and MapR, offering customers the ability to choose which Hadoop distribution best meets their needs, while ensuring enterprise integration capabilities and the advantage of world-class Teradata service and support.

Services

Teradata offers a broad spectrum of big data analytics consulting and managed services to help unleash the potential of great companies. Teradata Global Services consists of three organizations—Think Big Analytics, Enterprise Data Consulting, and Customer Support Services—integrated through the Teradata Velocity portfolio of services.

Through our Velocity portfolio of services, we help companies accelerate time to value across the full lifecycle of data and analytics initiatives, from strategy and architecture, to design and implementation, to ongoing management and optimization of diverse analytic environments. Think Big Analytics, a Teradata Company, is a premiere provider of business analytics consulting and solutions. Within Teradata, Think Big Analytics serves as the center for all advanced analytics capabilities, including data science, visualization, deep learning, and artificial intelligence.

Teradata provides seamless data movement throughout the UDA and transparent access for users and administrators. Just as tables can be joined

within a database, Teradata allows data to be joined across platforms both within and outside of the UDA. Additionally, our Viewpoint management system delivers anytime, anywhere access to all your systems from one common management console.

Teradata Cloud Offerings

Teradata's research shows that 90 percent of enterprises will deploy both on-premises and in the cloud by 2020. As such, our strategy enables customers to implement a hybrid environment where both can be combined, which extends your ecosystem while leveraging previous investments and minimizing risk.

Teradata by the Numbers

35+ years of innovation and leadership

~1,400 customers in **77** countries

~10K employees in **43** countries

100K+ employee volunteer hours

100+ technology partners

$2.3B in revenues in 2016

TERADATA

	Top 10	Top 20
Telecommunications	10 of 10	17 of 17*
Banks	9 of 10	17 of 20
Retail	7 of 10	15 of 20
Travel & Transportation	9 of 10	16 of 20
Manufacturing	8 of 10	12 of 20
Healthcare	6 of 10	13 of 20
Energy & Utilities	3 of 10	6 of 20
Insurance	3 of 10	5 of 20

Note: There are now only 17 Telecommunications Companies in the Fortune 500.

Figure 4: Global Fortune 500—Top 10 and Top 20 by industry only, Q4 2016

We call this approach Teradata Everywhere™. Customers can choose on-premises, public cloud, private cloud, and/or managed cloud options, all of which use the same database software. Data models, analytical applications, and queries can run unchanged across platforms.

The options are diverse. IntelliCloud™ is our highly secure "as a service" solution for analytics at scale; it is designed so that you can focus on driving business outcomes. IntelliCloud includes on-boarding, system administration, monitoring, security, encryption, and daily backups.

For companies that prefer to manage the software and cloud resources themselves, we offer AWS and Azure public cloud subscription options—as well as private cloud deployment using VMware. Regardless of your cloud choice, Teradata Everywhere brings you consistency, portability, and value for the data and analytic software that you trust.

Industry Analyst Reviews

Teradata is acknowledged as a leader in six 2017 analyst reports:

Gartner®
- 2017 Magic Quadrant for Data Management Solutions for Analytics
- 2017 Critical Capabilities for Data Management Solutions for Analytics

Forrester®
- The Forrester Wave™: In-Memory Databases, Q1 2017
- The Forrester Wave™: Real-Time Interaction Management, Q2 2017
- The Forrester Wave™: Big Data Warehouse, Q2 2017

The Information Difference
- Big Data Warehouse Landscape, Q4 2016

Learn More

To learn more about Teradata and the role of analytics for driving better healthcare outcomes, contact your Teradata representative or visit Teradata.com/government.

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