iSG Provider Lens™

How Tredence is Securing Data Foundation and Enabling AI Chassis for Healthcare

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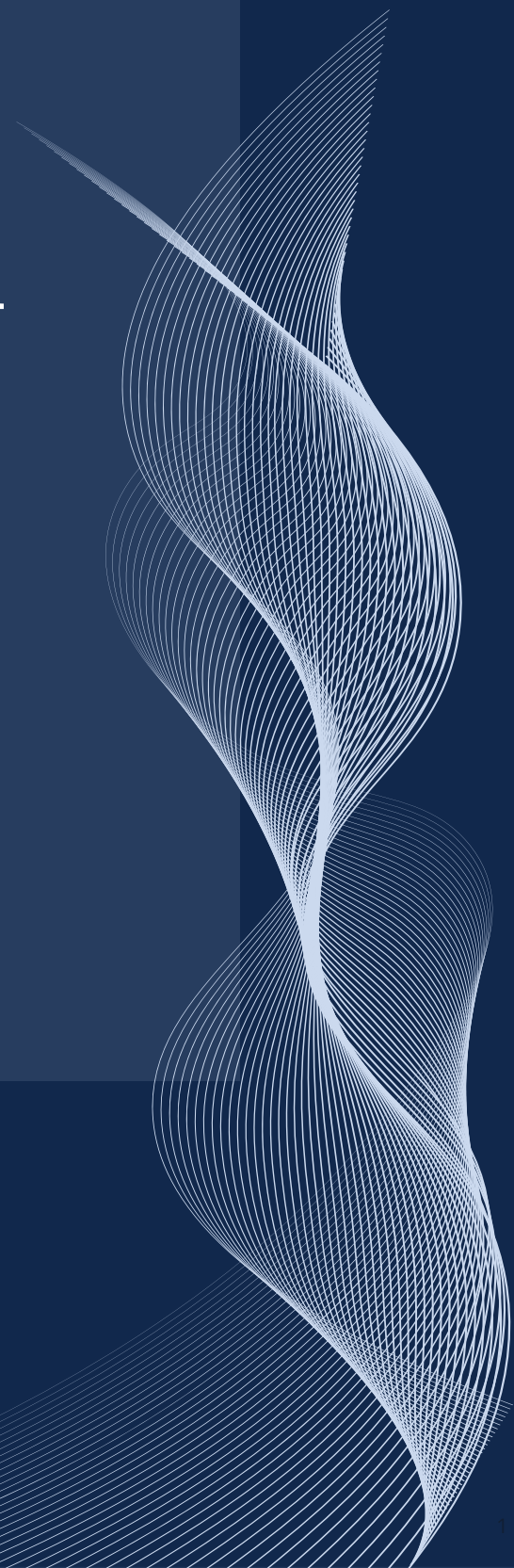## About ISG Research™

ISG Research™ provides proprietary research, advisory consulting and executive event services focused on market trends and disruptive technologies driving change in business computing. ISG Research™ gives business and technology leaders the insight and guidance they need to accelerate growth and create more value.

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call +1.203.454.3900, or visit **research.isg-one.com**

Summary

Tredence has been aligning its analytics and AI capabilities with its deep industry expertise to resolve challenges and pain points for healthcare enterprises. The company leverages data, analytics and AI to make informed decisions and address the critical needs of the industry to improve patient and healthcare outcomes. Continuing its investments and partnerships with hyperscalers and cloud data platform providers, Tredence has developed a set of IP assets to deliver value to healthcare payers and providers. The company's solution on care management and interoperability presents significant scope and aims to improve healthcare outcomes. The note details Tredence's healthcare analytics practice, which offers holistic solutions to healthcare enterprises. It reflects ISG's point of view, highlighting impressions and recommendations.

Briefing Notes

The company has invested in IP assets spanning data engineering, advanced analytics, generative AI (GenAI) and healthcare functions. On average, Tredence invests more than 10 percent of its annual revenue in portfolio development and R&D. Multiple interactions with the company provided a holistic perspective on the intent, capabilities and uniqueness of its healthcare offerings. The insights shared by Tredence emphasized the thought process behind analyzing patient journeys and segmenting them into different sub-parts to accelerate value realizations utilizing data, analytics and AI. The company also briefed ISG on the key analytics implementations that utilizes its robust data and AI accelerator ecosystem, showcasing its ability to handle complexity and help healthcare enterprises grow.

Obstacles in Attaining Desired Healthcare Outcomes

Business and technology leaders across healthcare enterprises increasingly understand and realize the importance of building resilience across operations, patient care, and organizational performance. However, healthcare enterprises face several challenges aligning with business objectives, including patient experience and care management, operational metrics such as cost optimization, process enhancements, and responsible patient data management.

Figure 1. Challenges Faced by Healthcare Organizations

	Challenges Faced	Causes
1	Demand for remote patient monitoring and virtual healthcare	Decentralized healthcare and telehealth platforms are gaining popularity, enabling remote patient care. These tools empower healthcare providers to monitor vital signs and assist patients in self-management and adhering to care plans.
2	Re-admission prediction and hospital capacity planning	Modeling hospital readmissions is increasingly complex due to disease intricacies and healthcare systems. This requires AI- and ML-driven risk stratification models that leverage advanced algorithms and computing power for accurate predictions.
3	Need for hyperpersonalized healthcare	The rise of data applications, connected devices and advanced analytics drives the need for personalized patient journeys to enhance care and accelerate outcomes. These solutions enable providers to reduce complexities and deliver customized care tailored to individual needs.
4	Demand for patient assistants	Conversational AI greatly assists patients and healthcare providers in appointment scheduling, customer care, and health tracking. Its increasing demand is fueled by early disease detection and online consultations with healthcare professionals.
5	Healthcare data integration and data silos	Fragmented patient data, varying quality and inconsistent standards hinder data reliability and integration. Data consistency while meeting security and privacy requirements demands stringent policies and practices.
6	Need for real-time surveillance and early detection systems	Utilization of data across the provider, payer and Med Tech ecosystem demands advanced early detection systems to timely diagnose and care. Real-time data will assist patients in monitoring chronic and post-acute care with streamlined patient experiences.

Source: ISG Research

Tredence's Micro-journey Approach

Tredence is dedicated to reshaping healthcare delivery through data and analytics, employing a unique micro journey approach to deconstruct CX. By harnessing advanced technologies such as AI and ML, Tredence crafts tailored insights for patients, clinicians and healthcare staff, enriching the entire healthcare landscape with personalized information. The micro-journey methodology drives value-centric strategies, enhances CX and stimulates innovation within the healthcare sector. Finally, it empowers healthcare enterprises to provide more personalized, efficient and sustainable care models.

Healthcare Analytics and AI Portfolio of Tredence

Tredence's advanced analytics capabilities collectively unlock the power of data and AI, improve self-service analytics and develop personalized experiences. The company's core technological capabilities lie in designing and identifying insights that create a pathway to action for consumer-centric decisions. Tredence formulates strategies that enable healthcare enterprises to drive impact across the healthcare value chain through effortless implementation.

Figure 2. Core Expertise and Capabilities

Data Modernization: Foundation for Analytics and AI	**Accelerating Data Lifecycle with Interoperable Healthcare Solutions**
AI-enabled Population Health Management	**Transforming Healthcare Outcomes Through AI and ML Pathways**
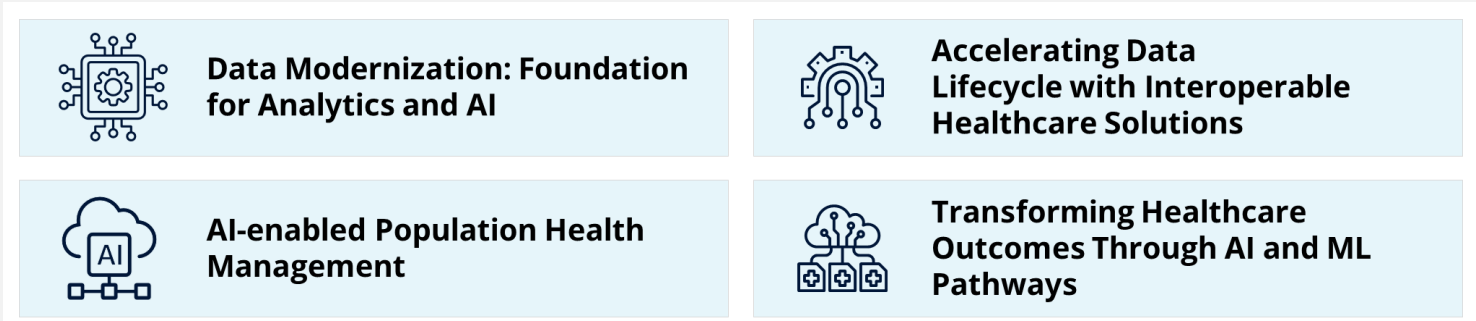
Source: ISG Research

Tredence's expertise in data, analytics and AI encompasses various aspects such as data strategy and infrastructure, data science, data engineering and modernization, and data management. This proficiency aims to transform experiences and redefine the landscape of healthcare companies. Tredence's key differentiators are its in-depth cloud expertise and functional healthcare assets, focusing on value unlocking. Here are Tredence's core expertise and capabilities.

1. Data Modernization: Foundation for Analytics and AI

Tredence adopts cloud-native technology to drive agility and business expansion by rearchitecting, hyper automating and modernizing interoperable core systems. It integrates technology, analytics and experience to activate the health ecosystem by implementing and maintaining scaled data modernization programs that utilize pre-built accelerators and frameworks.

Tredence's recent developments in the GenAI space help optimize operations, improve processes and enable hyper personalization. These developments align well with enterprise objectives to accelerate development and unlock real-time insights for driving growth and ROI.

Tredence has developed advanced data modernization capabilities to address the rising interest in utilizing large language models (LLMs) to develop proprietary GenAI models that require robust data infrastructure and engineering. It has developed capabilities to consolidate consumer data at scale from various sources such as health plans, providers, labs and pharmacies.

The company's accelerator-led migration approach covers end-to-end modernization and offers a co-innovation platform to develop and scale new processes. Tredence's extensive functional expertise and partnership with hyperscalers and data cloud platforms provide substantial operational impact, reducing OpEx and spurring innovation.

2. Accelerating Data Lifecycle with Interoperable Healthcare Solutions

Tredence harnesses standardized processes to migrate data, utilizes accelerators to enrich data with AI, automates migration, and monitors and manages data models. The company leverages next-generation cloud platforms to create a single data source to modernize advanced analytics, ensuring security and compliance throughout the data lifecycle. It provides the right data at the right time to make patient-centric intelligent decisions. This is performed using advanced AI & ML models, algorithms, and organizing, integrating & decoding health data for value-driven patient insights.

Interoperability in patient care mitigates data isolation challenges and improves data sharing within the healthcare ecosystem. Tredence's proprietary predictive analytics and ML models evaluate historical and current data to find meaningful patterns and insights and provide an edge on preventive care through early warnings and personalized treatments.

3. AI-enabled Population Health Management

Tredence embraces a data-driven approach to catalyze interoperability through advanced integration hubs, fast healthcare interoperability resources (FHIRs), data mesh and AI, seamlessly connecting disparate data sources to enable actionable insights at the point of care and service delivery. Decision support systems recommend the most effective actions for each situation utilizing a suite of established solution accelerators designed to ingest clinical and operational data and create key performance indicators (KPIs) using a unified data model.

Tredence's proactive and closed-loop in-house predictive models and AI-powered care management solutions enable healthcare enterprises to customize care, improve clinical outcomes, optimize costs and expedite action. The care management solution empowers care management teams to lower costs, improve productivity and identify risks.

4. Transforming Healthcare Outcomes Through AI and ML Pathways

Tredence has developed multiple AI and ML led clinical pathways to advance the healthcare ecosystem through its solutions, which include

Figure 3. IP Assets for Transforming Healthcare Outcomes

01 HOSPITAL RE-ADMISSION & ER EVENT PREDICTION MODEL

DELIVERABLE: Identify the riskiest set of patients from the population likely to be admitted with a reliable probability score & identify set of patients with high probability of ER events

Identify and predict which patients have high risk of re-admission. Case managers can focus on the high-risk patients & help stratify these set of patients in a high-risk pool for monitoring and timely intervention.

02 POPULATION LEVEL INSIGHTS

DELIVERABLE: Broad population health dashboards to slice key KPIs by population parameters

Monitor utilization patterns, disease prevalence, social factors etc by race, ethnicity, gender, age and so on

03 SDOH RISK PROFILER FOR PATIENTS

DELIVERABLE: Acquisition of SDOH data and leveraging it to identify high risk patients for targeted interventions

Pre-built frameworks to acquire social data points and stratifying patients with likely poor health outcomes for better management

04 PATIENT CHURN PREDICTION

DELIVERABLE: Estimated probability of patients likely to churn and visit other competing facilities

ML models leveraging engagement & transaction data to identify patients likely to churn, design strategic marketing activities to retain patients

05 DISEASE ONSET MODELS & CHRONIC DISEASE MANAGEMENT

DELIVERABLE: Prediction models to classify patients who can contract chronic disease in next 12M to 24M & suite of care coordination workflows, care plans, data-driven recommendations with EHR integrations

Built in models to help identify patients who are on the border to contract chronic diseases so that they can be counselled for healthy lifestyle, web and mobile friendly workflows integrated with EHR data and embedded with analytics to aid in managing caseloads

06 COST PREDICTION MODELS

DELIVERABLE: ML model to predict the PMPM cost of each patient in upcoming period

Identify the pool of likely high-flyer patients for the next period to intervene appropriately to manage them

Source: ISG & Tredence

transitional care management, emergency rooms, social determinants of health (SDOH) and chronic condition management.

- **Health@Home:** With the increased usage of wearables and other Internet of Medical Things (IoMT), the emphasis on Medicare Advantage is shifting toward in-home healthcare solutions for a personalized experience. Tredence offers an integrated solution that caters to the rising need for virtual visits and care at home.

- **Value-based Care:** Tredence's value-based care analytics and care management platform uses over 20 AI models to predict the risk and cost of care. It deploys critical data science and GenAI use cases using LLMs such as BioGPT and PubMedBERT to improve Key Opinion Leader (KOL) engagement and patient insights. The company has also developed models that predict patients' likelihood of hospital and emergency room re-admissions.

- **Real-time Data Platforms for Insights Generation:** Tredence data platforms enable healthcare enterprises to generate insights through integrated dashboards. These AI and ML powered insights dashboards help enterprises monitor performance and manage revenue cycles, patient appointments and patient care.

Healthcare AI Studio – Unified Data Hub

Tredence has adopted intelligent solutions to deliver value-based care, addressing challenges arising from inaccurate data management practices and inadequate actionable healthcare data analytics solutions. It aims to reinvent care delivery by simplifying data across all points of care, leveraging predictive analytics for improved outcomes across the care continuum.
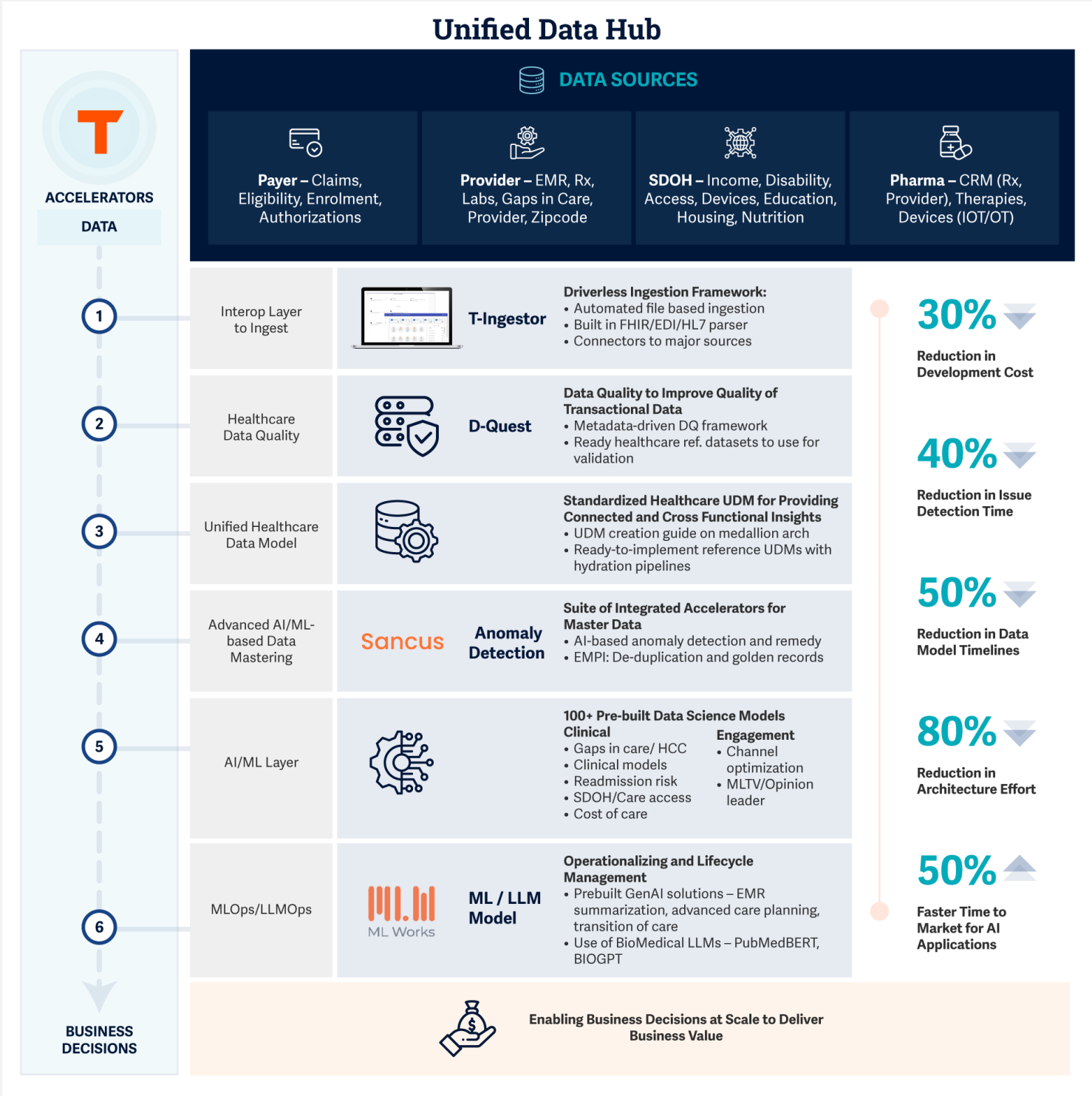
Tredence's Accelerator Suite, an AI-enabled Framework for Enabling Value-based Care, features a suite of HITRUST-certified accelerators and AI and ML powered predictive models to enable business decisions for healthcare firms adhering to concepts of responsible AI. The Accelerator suite ingests patient data from all touchpoints of care and applies predictive analytics to provide actionable healthcare insights and improve the quality of care. Tredence leverages healthcare-specific AI and LLMs such as BioGPT and integrates real-time, 360-degree AI-driven consumer views for clinicians. It generates AI-assisted precision care plans to empower patients and clinicians to navigate the healthcare journey collaboratively.

Unified Data Hub accommodates data from multiple sources such as payers, providers, SDOH and pharmacies. It features six layers, namely, the ingestion, data quality, unified data model, master data layer, AI, ML and LLM Ops, to deliver business decisions. Automated frameworks, metadata-driven frameworks, AI-based accelerators, pre-built data science models and GenAI solutions support each layer. These support engines help in a substantial reduction in development costs, issue detection time, modeling timelines and architecture efforts, and accelerate the time-to-market for AI applications.

The healthcare AI studio comprises multiple AI-based models built on scalable and adaptable cloud computing infrastructure to deliver value to various lines of businesses across accountable care organizations, integrated delivery networks, insurers, medicare and medicaid enterprises and dental organizations.

Figure 4. Tredence's Unified Data Hub for Enabling Business Decisions

Unified Data Hub

🗄 DATA SOURCES

Payer – Claims, Eligibility, Enrolment, Authorizations	**Provider –** EMR, Rx, Labs, Gaps in Care, Provider, Zipcode	**SDOH –** Income, Disability, Access, Devices, Education, Housing, Nutrition	**Pharma –** CRM (Rx, Provider), Therapies, Devices (IOT/OT)

ACCELERATORS
DATA

1 | Interop Layer to Ingest | **T-Ingestor** | **Driverless Ingestion Framework:**
• Automated file based ingestion
• Built in FHIR/EDI/HL7 parser
• Connectors to major sources

30% ▽
Reduction in Development Cost

2 | Healthcare Data Quality | **D-Quest** | **Data Quality to Improve Quality of Transactional Data**
• Metadata-driven DQ framework
• Ready healthcare ref. datasets to use for validation

40% ▽
Reduction in Issue Detection Time

3 | Unified Healthcare Data Model | | **Standardized Healthcare UDM for Providing Connected and Cross Functional Insights**
• UDM creation guide on medallion arch
• Ready-to-implement reference UDMs with hydration pipelines

50% ▽
Reduction in Data Model Timelines

4 | Advanced AI/ML-based Data Mastering | **Sancus** **Anomaly Detection** | **Suite of Integrated Accelerators for Master Data**
• AI-based anomaly detection and remedy
• EMPI: De-duplication and golden records

5 | AI/ML Layer | | **100+ Pre-built Data Science Models**
Clinical
• Gaps in care/ HCC
• Clinical models
• Readmission risk
• SDOH/Care access
• Cost of care
Engagement
• Channel optimization
• MLTV/Opinion leader

80% ▽
Reduction in Architecture Effort

6 | MLOps/LLMOps | **ML Works** **ML / LLM Model** | **Operationalizing and Lifecycle Management**
• Prebuilt GenAI solutions – EMR summarization, advanced care planning, transition of care
• Use of BioMedical LLMs – PubMedBERT, BIOGPT

50% △
Faster Time to Market for AI Applications

BUSINESS DECISIONS

💰 **Enabling Business Decisions at Scale to Deliver Business Value**

Source: ISG & Tredence

What Sets Tredence Healthcare Analytics and AI Offerings Apart

Expert Care Management Leveraging Accelerators: Tredence's expertise in care management helps providers gain insights to develop impactful strategies to enhance future performance and identify opportunities to elevate the quality of care and mitigate risk, resulting in improved patient outcomes.

Maximizing by Operationalizing Workflows: The company incorporates and operationalizes ML operations (MLOps) and LLM operations (LLMOps) into workflows to provide healthcare organizations with the ability to deliver enhanced business value.

100+ Pre-built Accelerators and Frameworks: Tredence modernizes data infrastructure and integration across IoMT devices with pre-built accelerators and frameworks to optimize costs and enable faster implementation.

Metrics-based Predictive Analytics: In-house ML algorithms and models predict KPI metrics of patient analytics accurately and help healthcare organizations make informed decisions.

Business Impact

Tredence comprehensively delineates its strategy for establishing and evolving into a distinctive system integrator for healthcare analytics. Its healthcare analytics solutions are strategically designed to accomplish the following goals:

Future-ready and Modern Data Infrastructure: Tredence's data modernization and automation capabilities effectively address the need for a robust data foundation and infrastructure required for advanced computing and real-time analytics. This serves as a foundation to leverage clinical pathways for care management and also enables healthcare enterprises to adhere to standards and practice responsible AI.

Value-centric Care Management: Tredence's differentiated approach accelerates value-based delivery across the healthcare ecosystem. Its platform optimizes all three levers of value-based care, namely, care quality, cost, and patient and clinician experience, through the effective use of data and embedded AI in workflows.
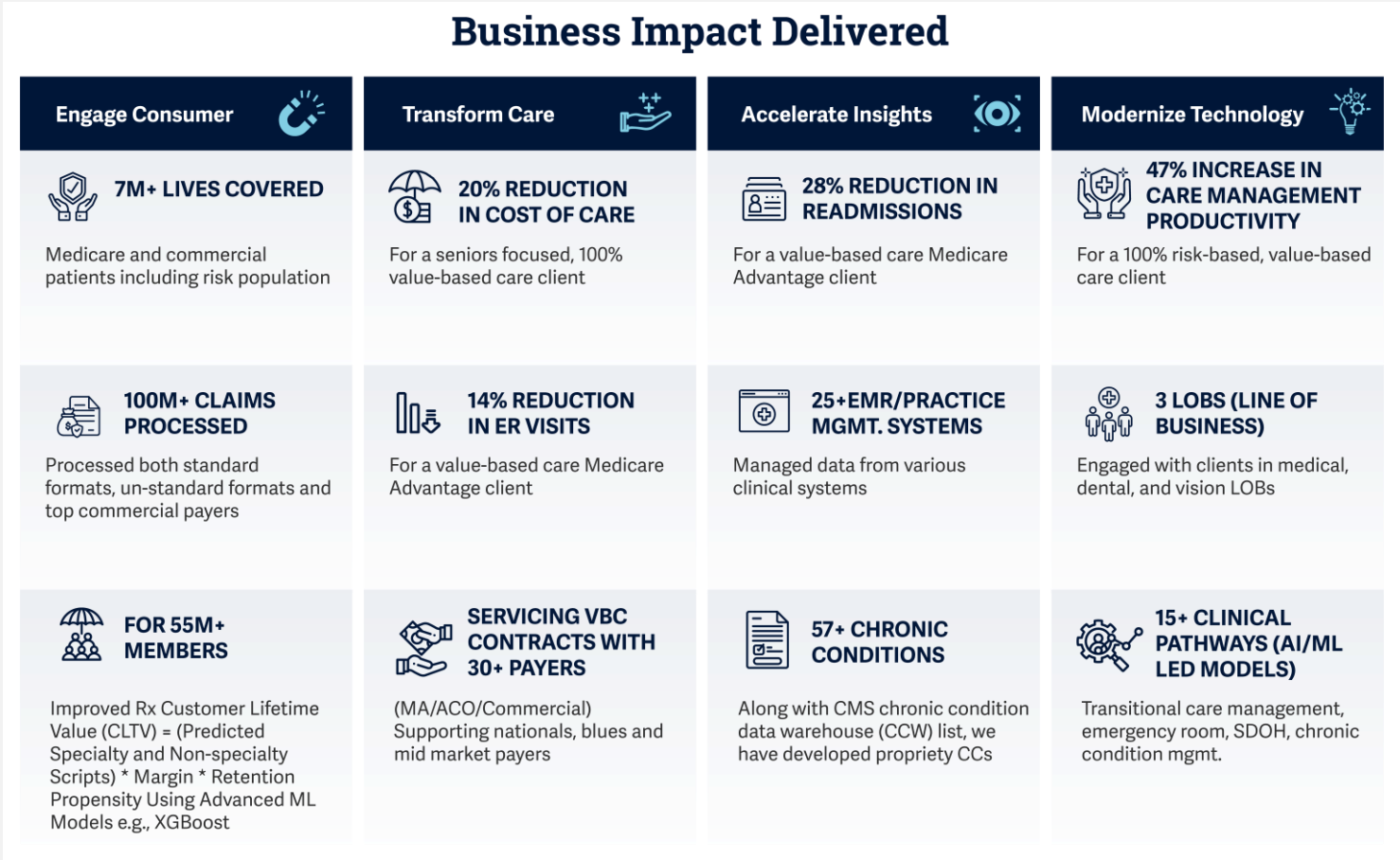
Advanced AI-based Risk Stratification: Tredence's algorithms help providers predict, prioritize and prevent disease progression for improved health outcomes. These algorithms also help providers allocate resources more effectively to identify high-risk patients and address their needs at the earliest.

Figure 5. Healthcare Analytics Solutions: Driving Measurable Outcomes

Business Impact Delivered

Engage Consumer

7M+ LIVES COVERED
Medicare and commercial patients including risk population

100M+ CLAIMS PROCESSED
Processed both standard formats, un-standard formats and top commercial payers

FOR 55M+ MEMBERS
Improved Rx Customer Lifetime Value (CLTV) = (Predicted Specialty and Non-specialty Scripts) * Margin * Retention Propensity Using Advanced ML Models e.g., XGBoost

Transform Care

20% REDUCTION IN COST OF CARE
For a seniors focused, 100% value-based care client

14% REDUCTION IN ER VISITS
For a value-based care Medicare Advantage client

SERVICING VBC CONTRACTS WITH 30+ PAYERS
(MA/ACO/Commercial) Supporting nationals, blues and mid market payers

Accelerate Insights

28% REDUCTION IN READMISSIONS
For a value-based care Medicare Advantage client

25+EMR/PRACTICE MGMT. SYSTEMS
Managed data from various clinical systems

57+ CHRONIC CONDITIONS
Along with CMS chronic condition data warehouse (CCW) list, we have developed propriety CCs

Modernize Technology

47% INCREASE IN CARE MANAGEMENT PRODUCTIVITY
For a 100% risk-based, value-based care client

3 LOBS (LINE OF BUSINESS)
Engaged with clients in medical, dental, and vision LOBs

15+ CLINICAL PATHWAYS (AI/ML LED MODELS)
Transitional care management, emergency room, SDOH, chronic condition mgmt.

Source: ISG and Tredence

Success Stories

1. Integrated Case Management Solution for U.S.-based Independent Physician Group

Problem Statement: The company wanted to build an AI-based platform to manage patients under different critical conditions and provide a connected healthcare experience by providing a comprehensive and coordinated approach. This includes identifying high-risk patients, updating patient documentation in the electronic medical records (EMR) system and managing patients across care teams.

Solution: Tredence built an AI-based advanced case management platform that identified high-risk patients with diseases and conditions such as hyperlipidemia, hypertension, neoplasm, arthritis and cancer. The platform enables customized care plans and critical programs and supports onboarding and care by coordinating with multiple team members across patients.

Key Outcomes:

- Coordinated 400,000 unique patient touch points
- 28+% reduction in readmission risk and 20+% reduction in cost of care
- 50% increase in nurse/care manager productivity

2. Integrate Healthcare Data for Health@Home Major to Transform Patient Outcomes

Problem Statement: Home-based medical care company for older patients facilitates outcomes between patients and providers through its care automation platform. It wanted to integrate claims and EHR data in multiple formats and normalize data, as well as bring fragmented and siloed patient data together. It also needed a 360-degree view of patient information.
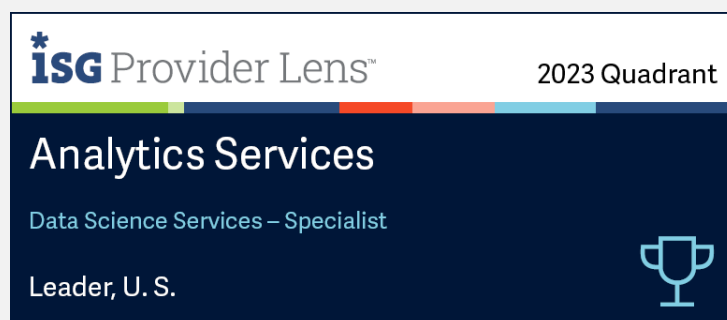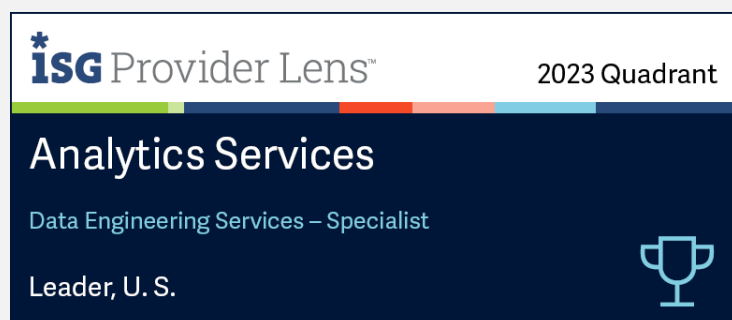
Solution: Tredence employed advanced AI and ML risk models that integrate SDOH with clinical data to reimagine workflow. It leveraged risk-scoring tools and workflows to predict patients' disease progression.

Key Outcomes:

- Enabled Patient360 and advanced analytics to predict patient' disease progression and readmission risk leveraging AI algorithms
- Reduced customer on boarding from 10 weeks to <1 week

ISG Placements and Recognitions

ISG Provider Lens™ positioning: Tredence is recognized as a Leader in the following reports for 2023:

iSG Provider Lens™	2023 Quadrant
Analytics Services	
Data Engineering Services – Specialist	
Leader, U. S.	🏆

iSG Provider Lens™	2023 Quadrant
Analytics Services	
Data Science Services – Specialist	
Leader, U. S.	🏆

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Aman Munglani is a director and Principal analysts at ISG. A recognized thought leader and industry advisor with over 24 years of experience in emerging technologies, Emerging vendors and infrastructure, Aman Munglani has spent much of his professional life advising the C-suite of Global 2000 companies on digital strategies, start-up engagement, innovation, technology roadmaps and vendor management. Prior to ISG, Aman spent twelve plus years at Gartner guiding CIOs and IT managers across Asia Pacific and Europe on emerging technologies, their use cases and maturity, infrastructure trends and technologies, vendor comparisons, and RFP reviews.

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Gowtham Sampath is an Assistant Director and Principal Analyst with ISG Research, responsible for authoring ISG Provider Lens™ quadrant reports for Banking Technology/Platforms, Digital Banking Services, Cybersecurity and Analytics Solutions & Services market. With 15 years of market research experience, Gowtham works on analyzing and bridging the gap between data analytics providers and businesses, addressing market opportunities and best practices. In his role, he also works with advisors in addressing enterprise clients' requests for ad-hoc research requirements within the IT services sector, across industries. He is also authoring thought leadership research, whitepapers, articles on emerging technologies within the banking sector in the areas of automation, DX and UX experience as well as the impact of data analytics across different industry verticals.

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Rohan Sinha is a seasoned professional with over a decade of experience as an analyst in the healthcare and life sciences industries. He has been at the forefront in offering strategic guidance to industry CIOS, leveraging a wealth of published research and extensive interactions with industry stalwarts.

His work has been instrumental in shaping the strategies and decisions of organizations in these critical industries. Rohan also possesses a keen interest in the world of AI and GenAI, where he continually explores the significant impact of these cutting-edge technologies on the said industries.

Rohan currently is a Principal Analyst at ISG, where his role includes handling IPL reports related to the healthcare and life sciences domains.

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Saravanan M S is a Research Specialist at ISG and is responsible for supporting and co-authoring ISG Provider Lens™ studies on Analytics Services and Platforms. In this role, he aids the lead analysts in the research process and is the author of the global summary report. He also develops content from an enterprise perspective and collaborates with advisors and enterprise clients on ad-hoc research assignments.

Saravanan has six years of experience and expertise in technology, business and market research and has been associated with technology research firms specializing in sales and talent strategies across industries. He has also spearheaded end-to-end research and consulting projects for global system integrators and enterprise clients.

TREDENCE
Beyond Possible

Summary Facts

Headquarters

California, U.S.A. with operations Globally

Total Employees

2500+

Service portfolio

Tredence provides strategy, implementation, governance, compliance, change management and managed services across data, analytics and AI. It offers advisory services and custom solutions.

Customers

75+ global customers

Competitors

Fractal, Tiger Analytics, Accenture, Deloitte and EY, among others

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