

AI-Powered Drug Development: Accelerating Trials with AI & ML



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Enabling digital and data-driven clinical trials

Foundations to power the modern clinical trial value chain
requires modern technology and infrastructure, data and analytics

MODERN CLINICAL TRIALS DATA LIFECYCLE

Technology infrastructure for data collection from wearables, validated instruments, genomics, sensors, etc.

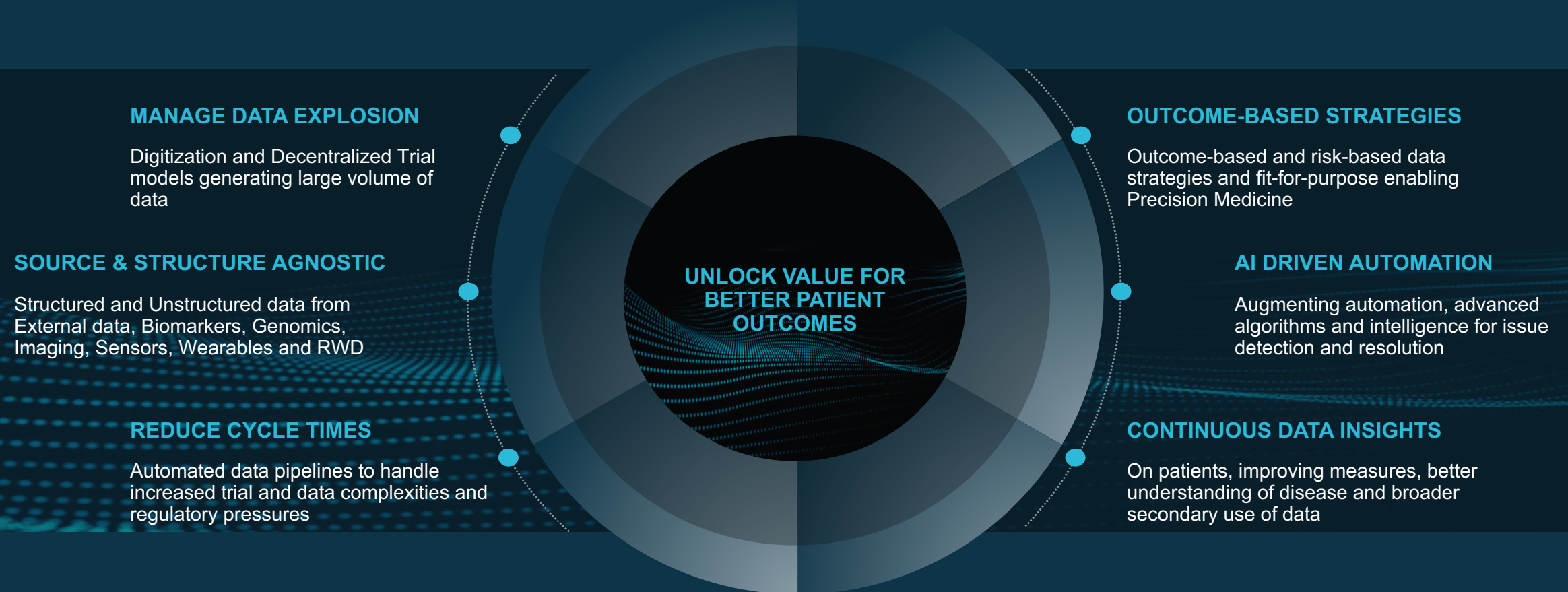
Data pipeline and modern technology infrastructure, data intelligence and automation

Enabling data-driven decision-making through data mining, modeling, analytics and data science

INTELLIGENT DECISIONS, REDUCING CYCLE TIMES, FASTER TIME TO VALUE

Modernizing data management

Keeping up with the complexities of modern trials and the revolutionary science and technology breakthroughs



Exploring advanced use cases

Developing integrated automation & AI tools to transform data review, centralized and risk-based monitoring

ROBOTIC PROCESS AUTOMATION



OPERATIONAL ANALYTICS AUTOMATION

Automate download of streaming reports from EDC and upload to a clinical data platform, publish analytics and metrics for Data Management oversight

MEDICAL CODING AUTOMATION

Auto-generate verbatim terms and synonyms files and load into Coder to reduce manual coding and increase coding consistencies

AI & MACHINE LEARNING



RISK-BASED QUALITY MANAGEMENT (RBQM)

Exploring AI technology that enhances risk evaluations through intelligent use of KRIs and measure the likelihood of site performance in the future

ACTIONABLE DATA REVIEW

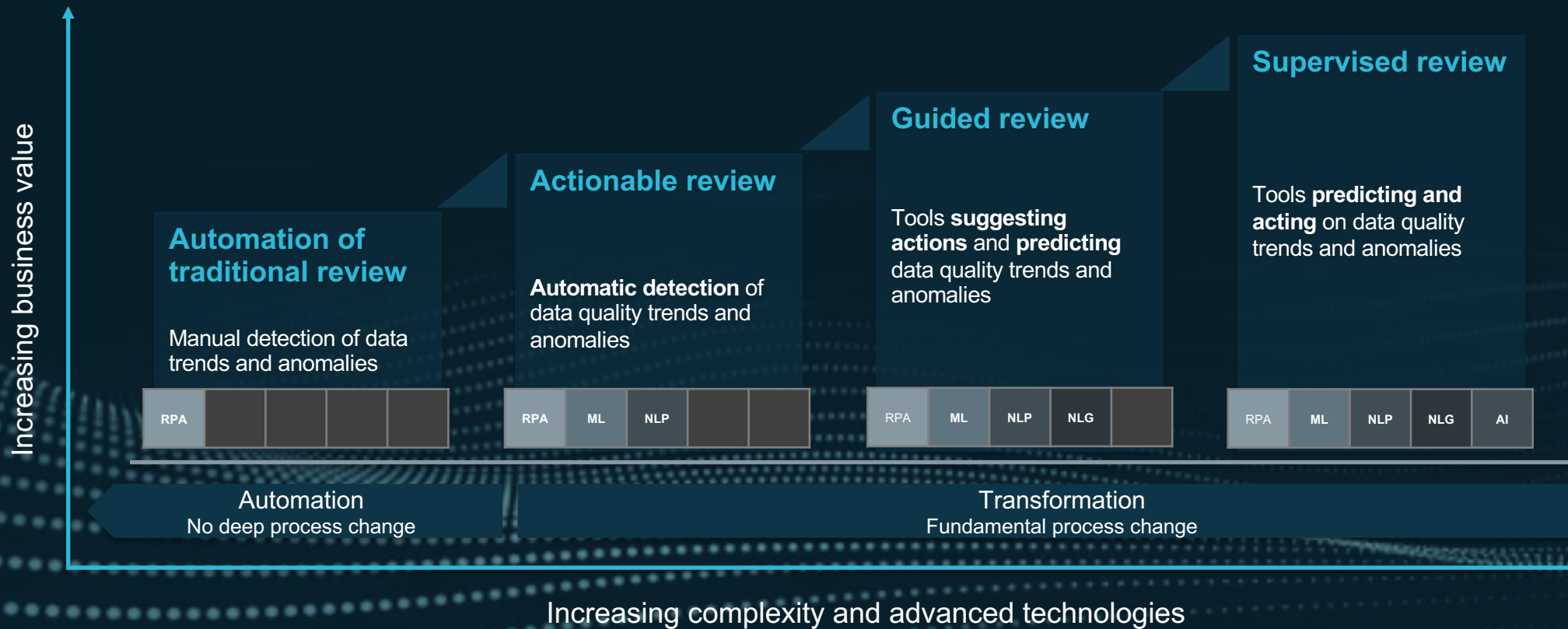
Help data reviewers and data managers automate review actions, evaluate outliers and errors, flag risk in real-time that may affect data quality and integrity

PATIENT CLUSTERING & STRATIFICATION

Cluster and view subjects using AI-powered tools to identify subgroups based on correlated clinical attributes for enhanced insights

The case for data review

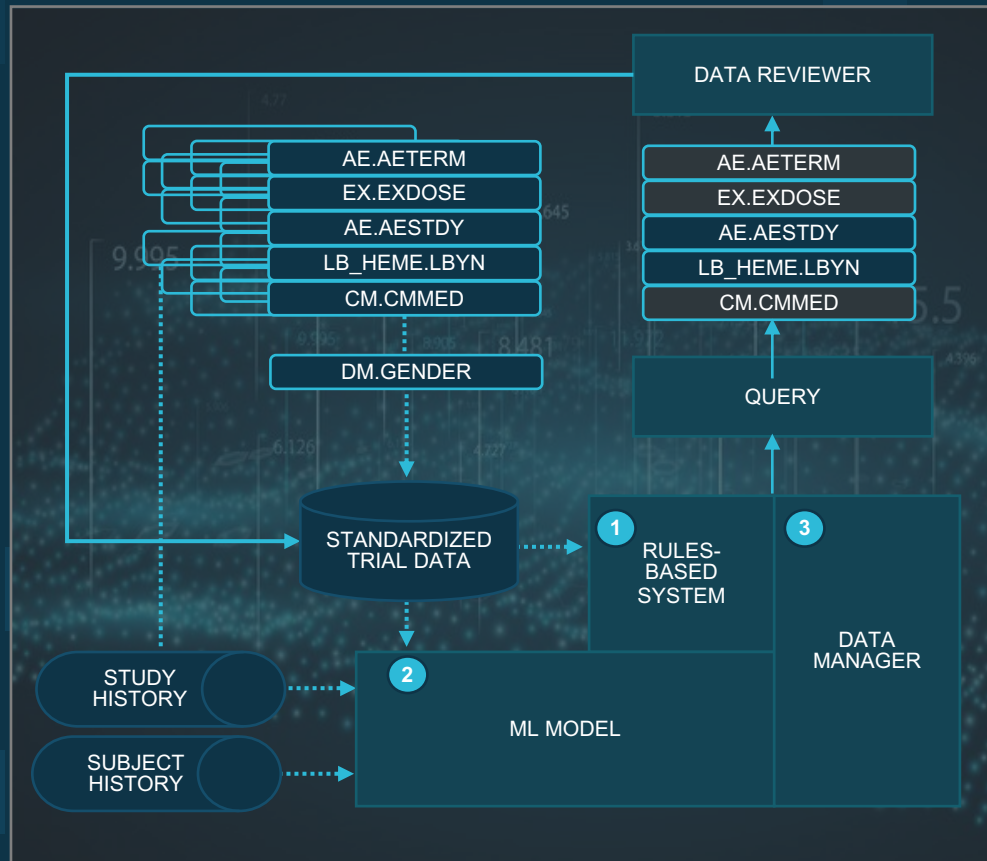
Modern infrastructure and advanced technologies is an imperative for sophisticated data management and review



Reference: <https://scdm.org/wp-content/uploads/2020/03/SCDM-Reflection-Paper-Evolution-to-Clinical-to-Data-Science-Part-2.pdf>

Case Study: Applying advanced algorithms for data review

Enabling Data Managers and Data Reviewers to work more efficiently

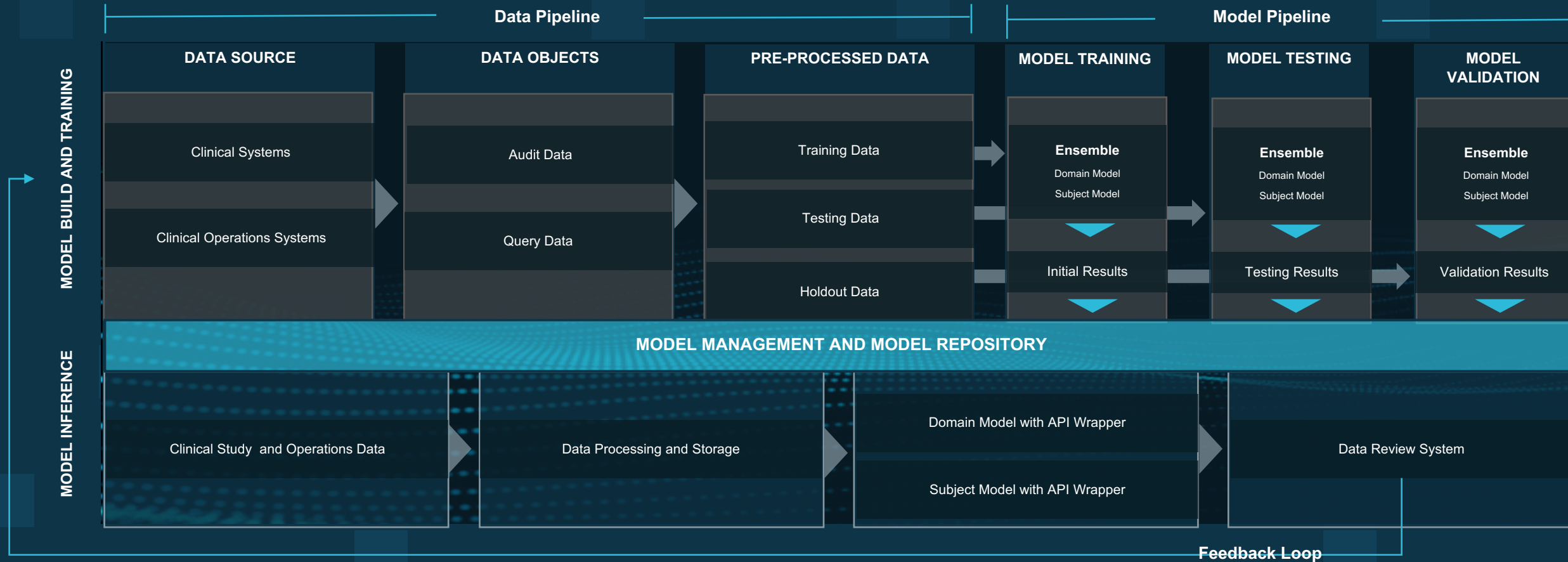


AI-DRIVEN QUERY AND DATA REVIEW SYSTEM

- Identify data discrepancies and data issues faster
- Augmenting human-driven query generation process
- Data managers focus on reviewing more complex discrepancies
- Automatically learn common data errors and issue queries
- Data reviewers retained as a human-in-the-loop check
- As data becomes better, automating more parts of the process

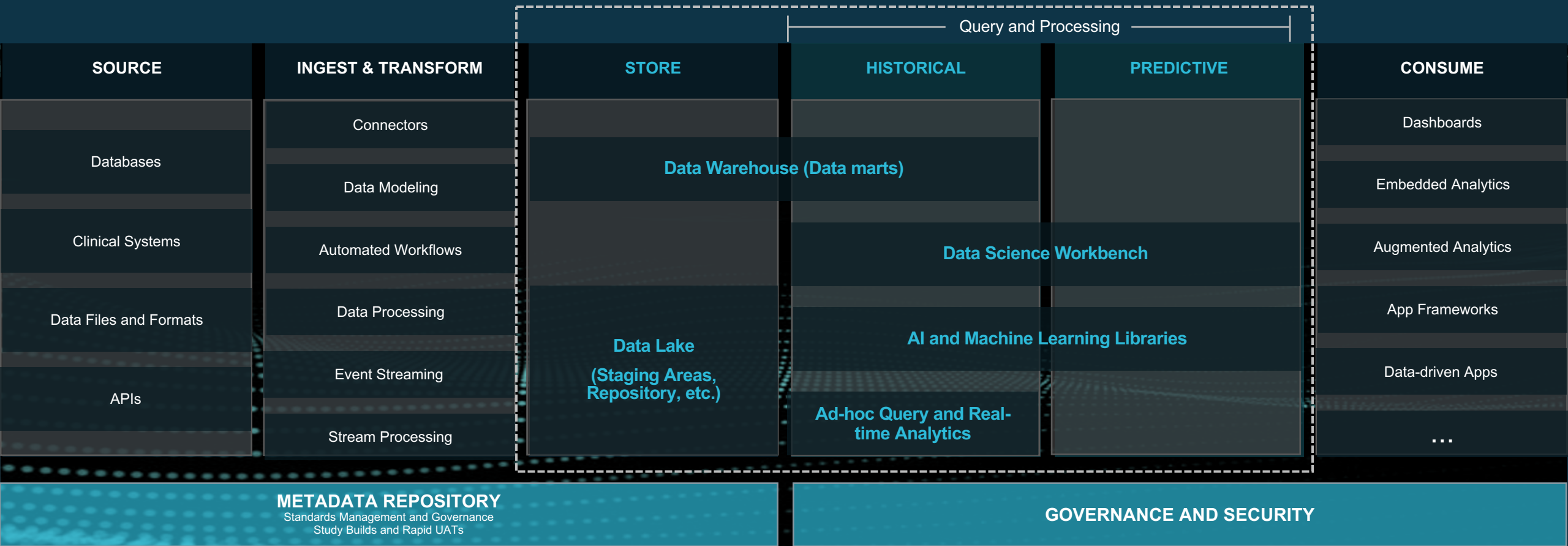
To build a powerful AI system

Requires modern and scalable infrastructure for workloads requiring heavy compute and data storage



Fast-evolving Infrastructure Blueprint

Unified architecture for modern data infrastructure to enable robust data pipelines and AI/ML model pipelines



Reference: <https://a16z.com/2020/10/27/blueprints-for-data-infrastructure-lakehouse-storage-data-is-not-the-new-oil-more/>



Future-proof for emerging and new digitization trends

For advanced data review, centralized and risk-based monitoring systems to reduce cycle times, it requires:

Modern data infrastructure

- Managing exorbitant amount of increasingly complex data
- Robust data pipeline from clinical and operational data systems
- AI/ML-powered capabilities to transform data into insights for actionable intelligence

Transferring and combining the human factor to train models to adapt, learn and improve over time, especially when the data is a small data problem



Thank you

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