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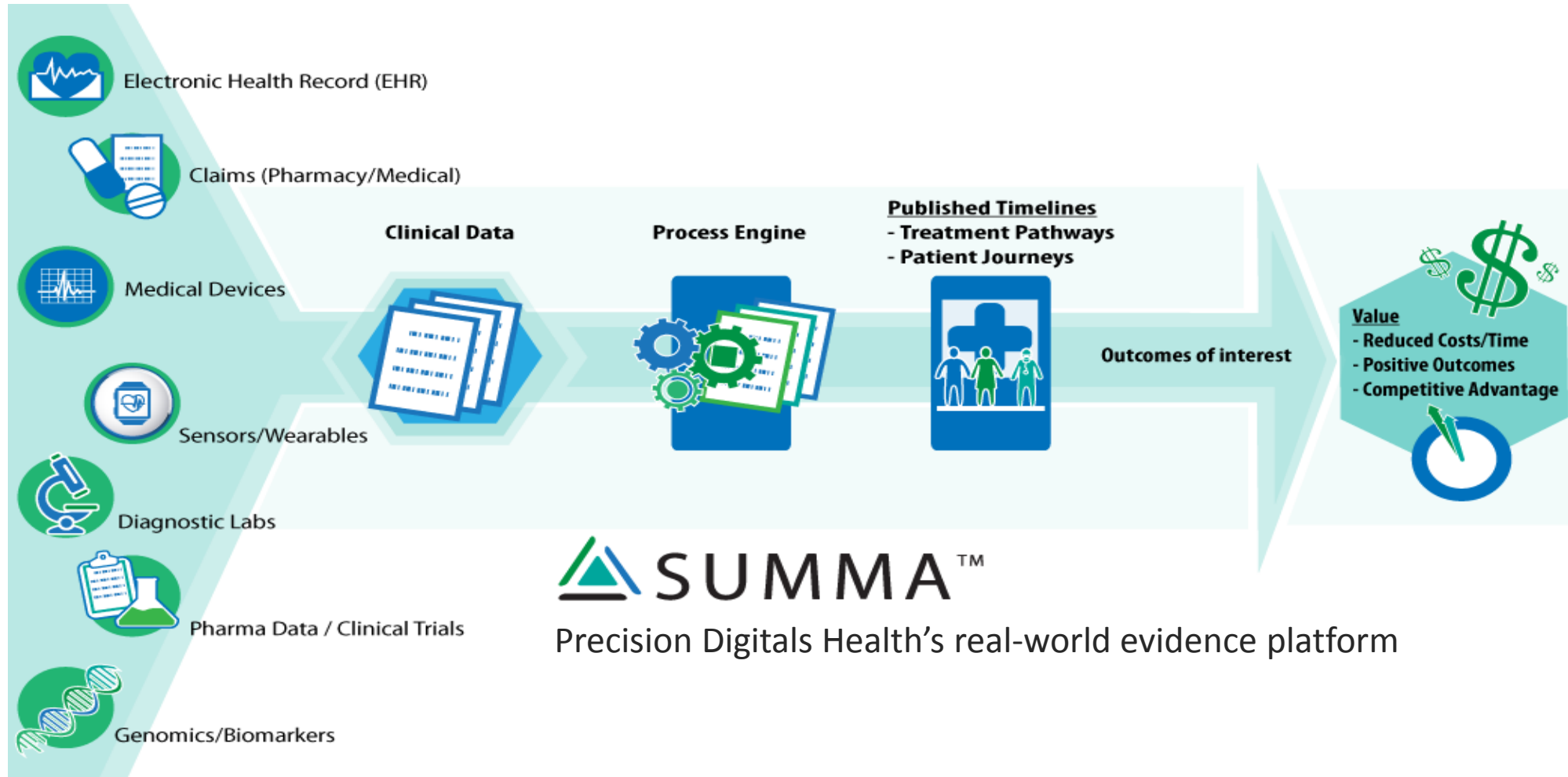
# PRISME Forum

Pharmaceutical R&D Information Systems Management Executive Forum

November 2017

# What we do... Raw data to clinical question in minutes

By harnessing all types of clinical data our SUMMA platform enables clinicians to make more informed research decisions based on evidence generation using real-world data.

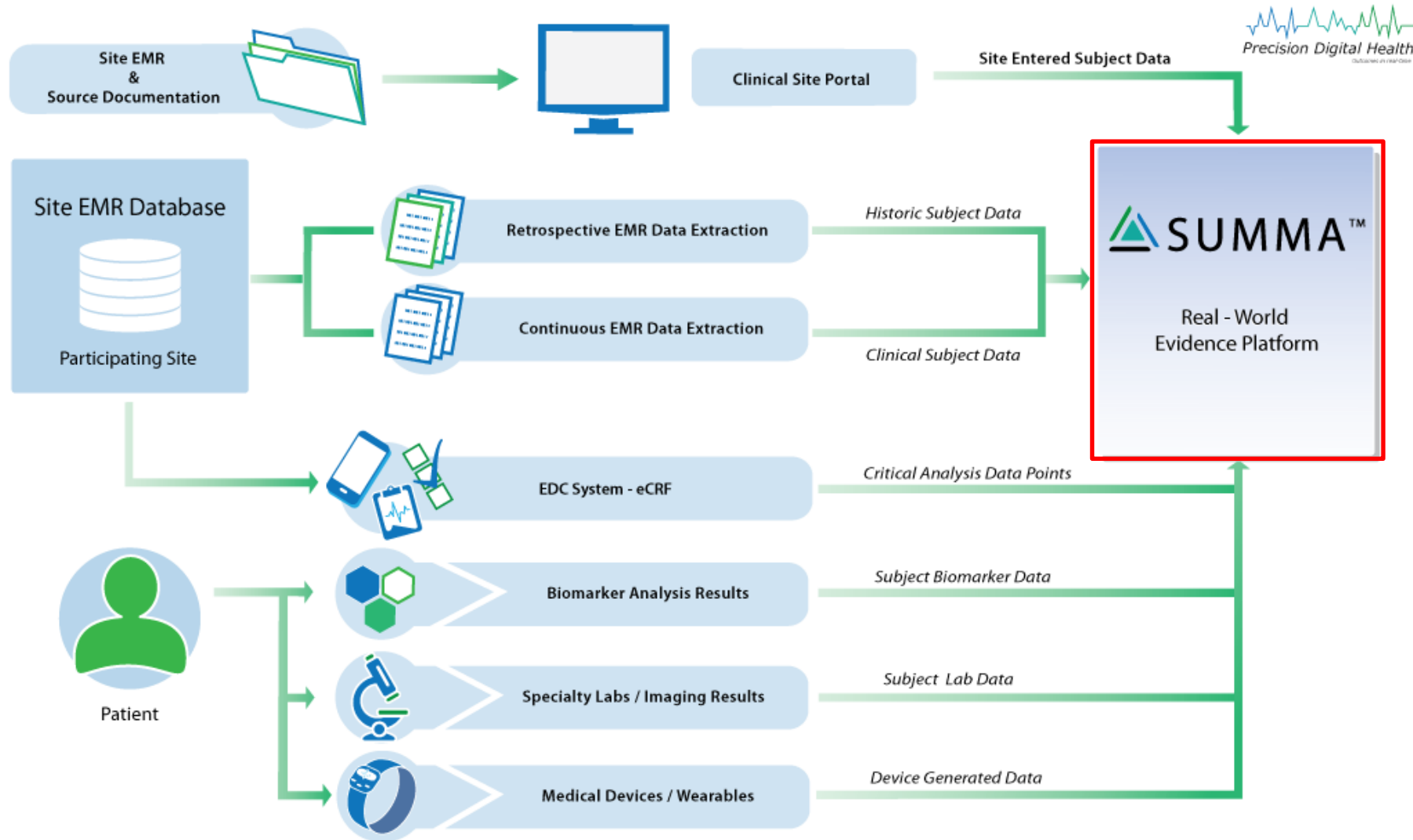


# R&D - Market Landscape Today

- AI projected to grow to \$6.6 billion by 2021 (Gartner 2016)
- Enormous investment bringing a new drug to market



# SUMMA™ Next Generation Research Platform



Real-world research: convergence of healthcare and life sciences



# AI: Sepsis Warning System – 7 days in advance of hospitalization

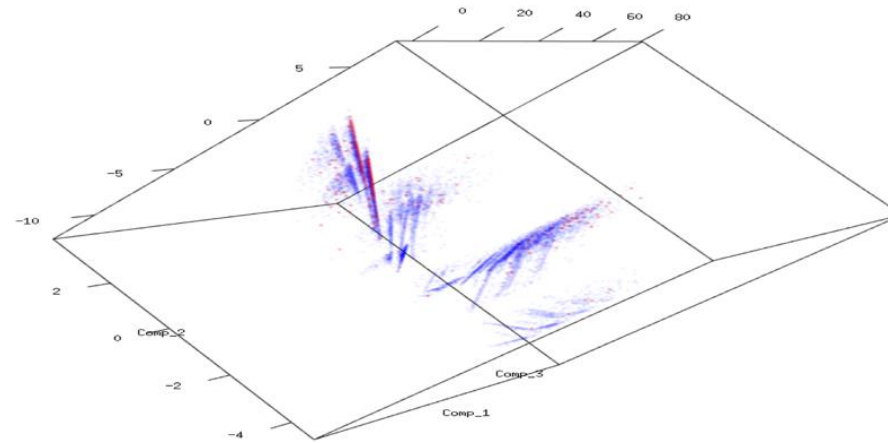
Actionable - Last-mile



Electronic fingerprint  
7-days before diagnosis



Regional Health System  
60M Diagnostic Tests  
Demographic Data



Data Ingestion &  
ML Processing

1

2

Cohorts Identified

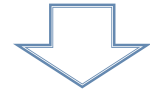
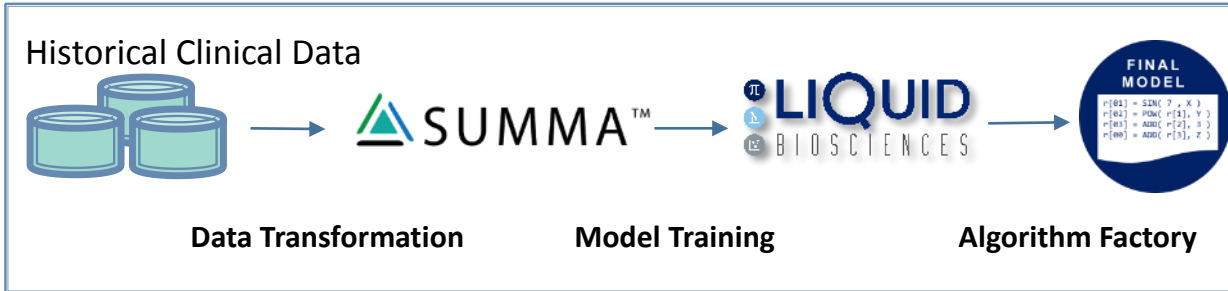
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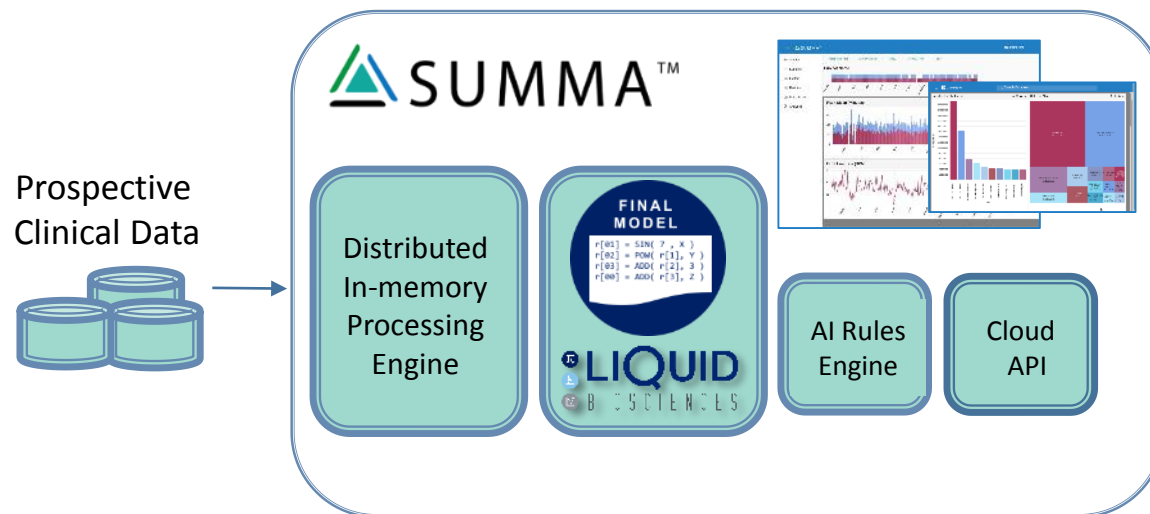


# AI: Evolution Algorithm Factory And Actionable Decisions

## Historical Retrospective Clinical Data (algorithm generation)



## Proscriptive Actionable Decisions in real-time



## Clinical data sources

5,000 subjects with 20,000 variables/subject:

- Clinical trial data
- Biospecimen sample analysis
- Biomarker data
- MRI results
- X-ray results
- Medical device - activity monitoring
- Survey data - The Knee Outcomes of Osteoarthritis Scale (KOOS)

**90% accurate prediction of osteoporosis requiring a knee replacement up to a year in advance of clinical diagnosis**

***We can model the complexity of the real world and deliver understandable, actionable insights in real-time with AI.***

# AI: Success Factors Required in Clinical Research

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- Results needs to be interpretable and real-time for decisions
  - Molecular pathways are not linear; AI/ML is not easily interpretable because of the types of algorithms and outputs used.
- AI has the ability to generate clinical hypothesis from large data sets
  - Traditional methods test hypothesis through clinical trials
- Integrated into the daily activities of researchers and across the organization
  - Operationalize analytics for decision support
  - *Last-mile of actionable analytics*

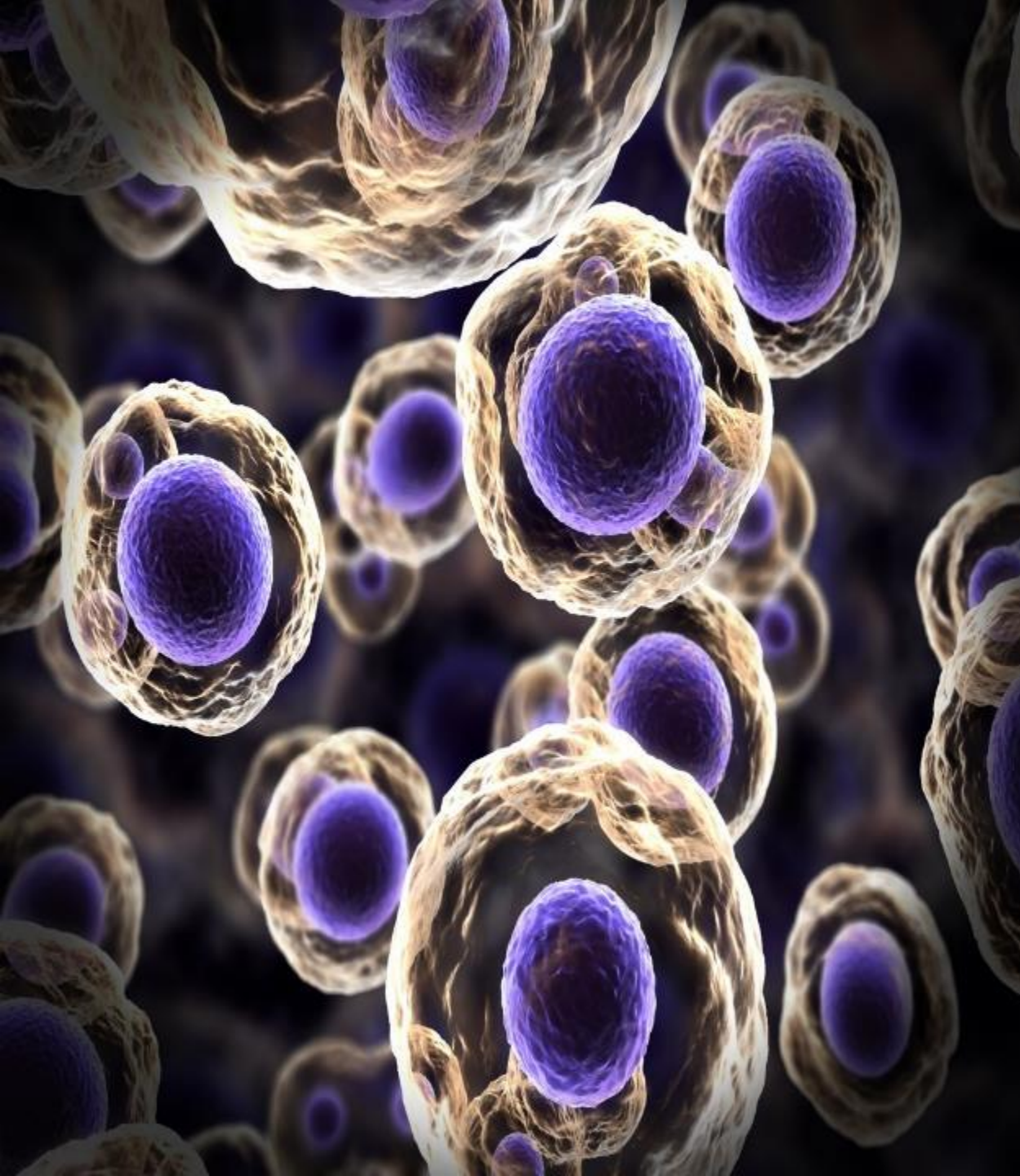
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# Thank You



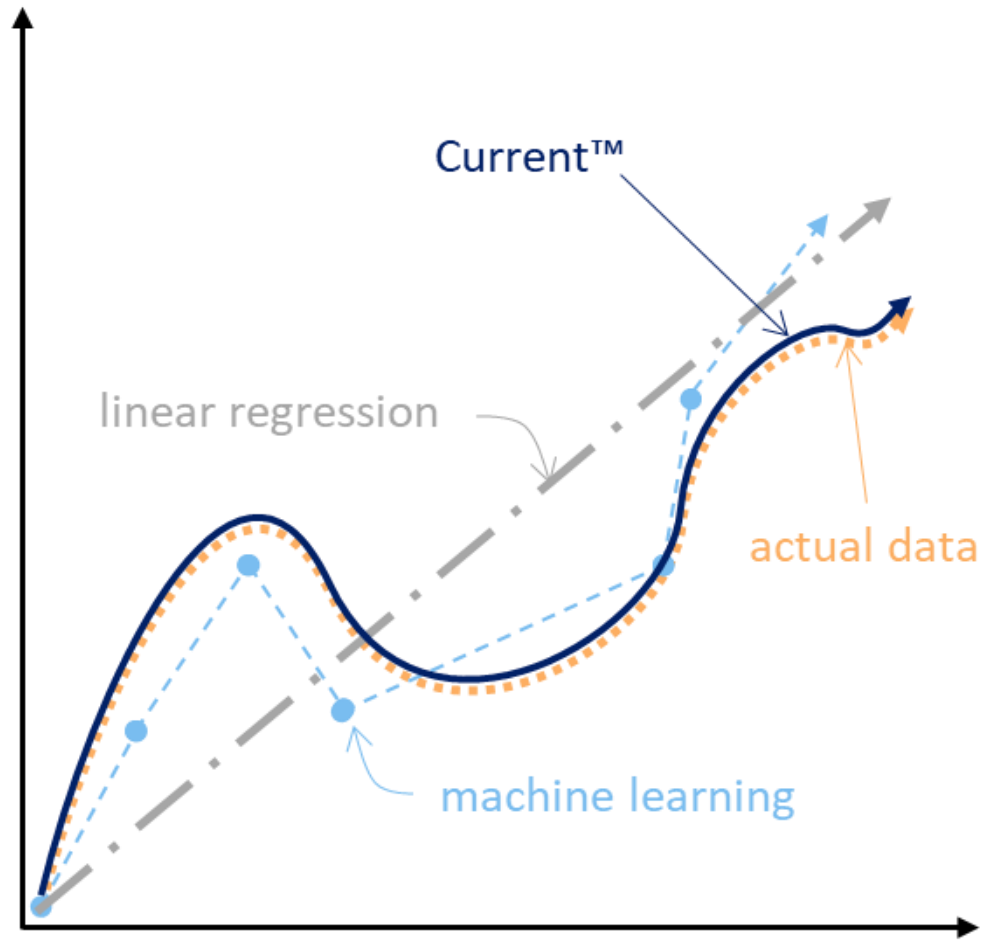
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# Reference Slides

# Why is our process differentiated? (AI Powered)



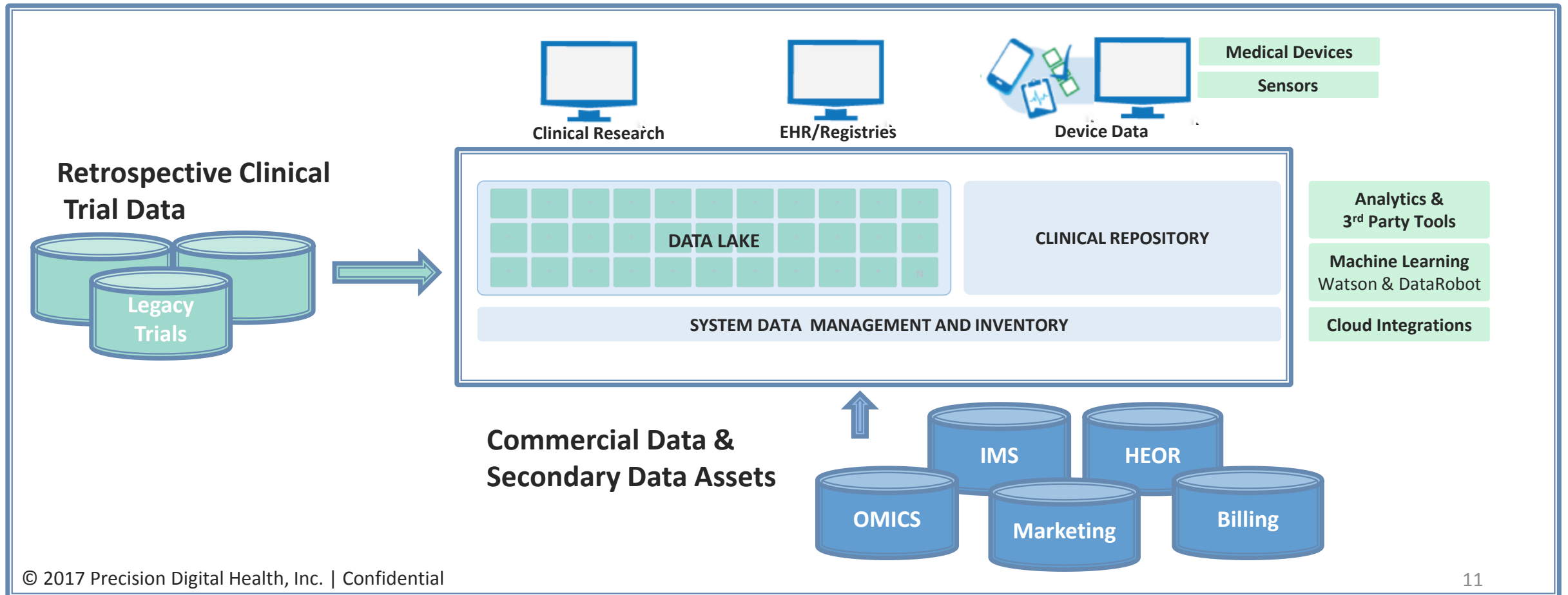
- Human systems are not linear as show in the diagram. (actual data)
- Linear regression's error rate is depicted where gaps exist, this demonstrates patients who are not identified
- Machine learning approximates the curve, but cannot explain why outcomes happen
- Precision Digital Health's SUMMA™ and Liquid Bio's Current™ is the ONLY approach that reflects the actual data using a single formula, **therefore we know which patients are impacted AND why**

Evolving algorithms using AI – allows higher accuracy and specificity

# Enterprise Analytics & Centralized Cloud Repository



Precision Digital Health's real-world evidence platform



# Enterprise Machine Learning Capabilities

- Native and interoperability support for machine learning / predictive analytics.
- Ability to operationalize exploratory models to componentize in SUMMA.
  - Enables model output as additional data source or action ability.

