IMPACT OF AI ON HEALTHCARE

AN EVOLUTIONARY EVENT

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Chief of Intelligence

September 2018

Relevant Background : Dr. Severence Maclaughlin

Saved a top HC organization **$25M/annum** operationally and mitigated a **$1B regulatory issue**

Major pharma company reduced patient leakage resulting in potential increase of **$200M** in annual revenue

Developed a model to increase medical consumption of on patent drug by **~200%** per patient

Developed a first in class patient identification system based on optical and pixel analysis for a major pharma company

My Role:

Artificial Intelligence & Data Science Practice
For Cognizant

Pedigree:

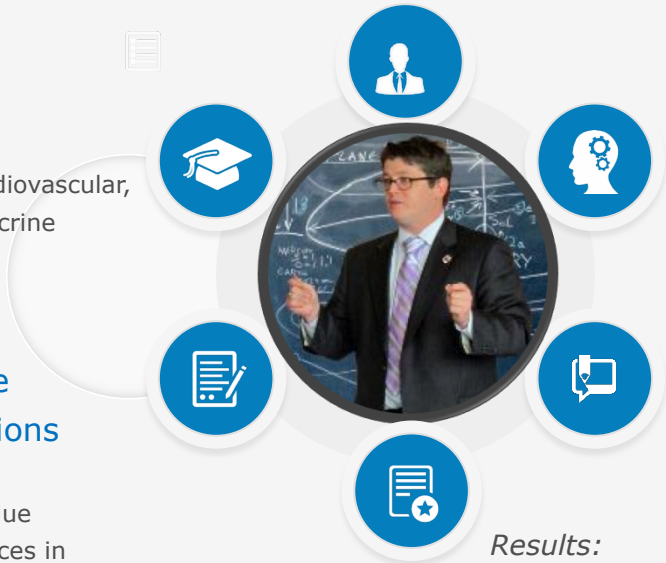
Ph.D.
Physiology

Developmental Physiology, Cardiovascular, Metabolism & Neuroendocrine

Relevant History:

Artificial Intelligence
Data Science & Operations Executive

Last Six Years Delivering Value through Enterprise Data Sciences in Healthcare, Life Sciences & Operations



Delivery Through:

300+ AI Specialists
Data Scientists

Access To:

12,000+ Data Analysts
250,000+ Specialists

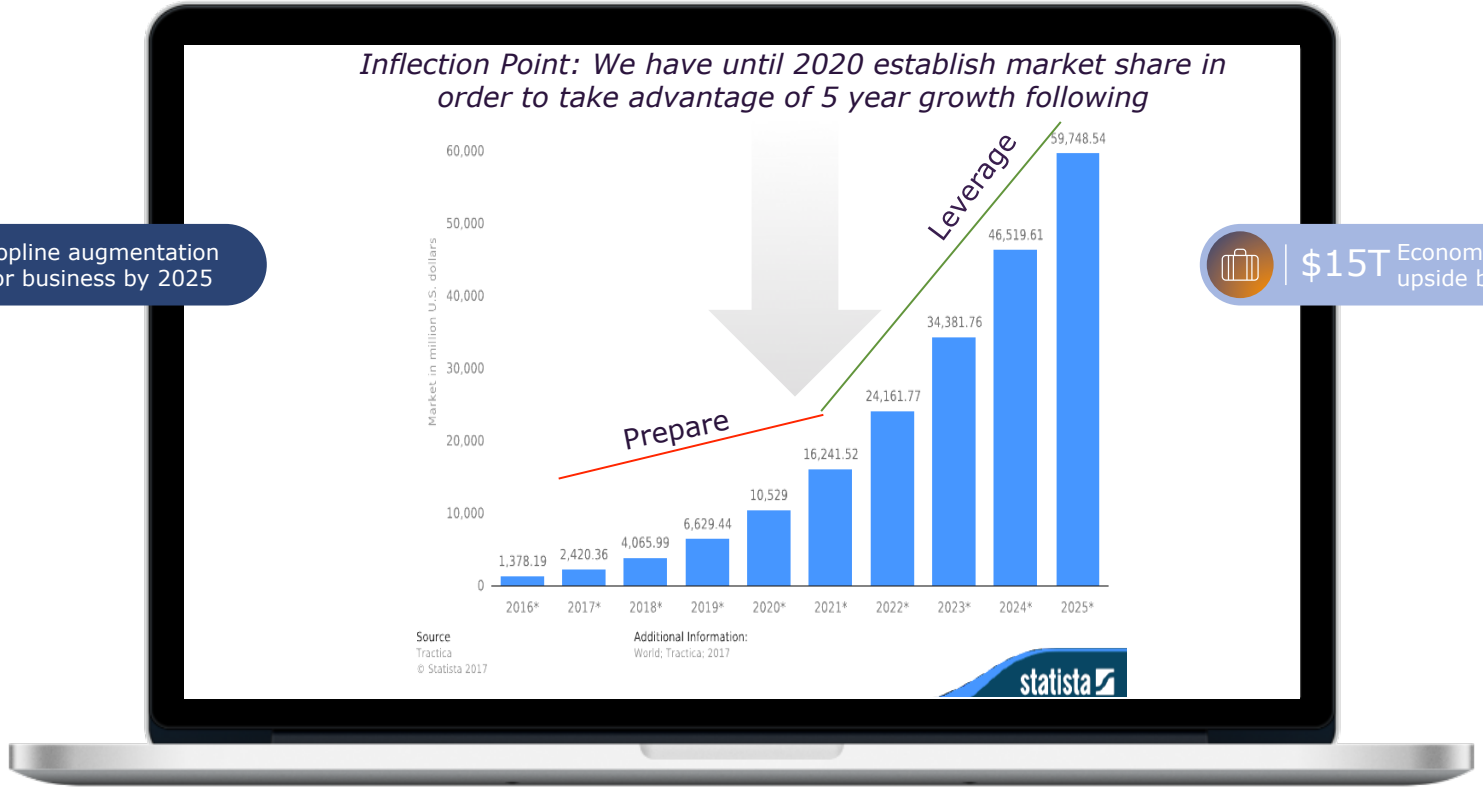
Results:

$8B Long Term Value through Artificial Intelligence & Data Sciences

Tapping into the AI Advantage

We have 2.5 years to prepare for taking advantage of AI's impact on the market

$60B Topline augmentation for business by 2025



$15T Economic impact & upside by 2030

Artificial Intelligence is an Evolution of BI

AI is a collective term for computer systems that can **sense** their environment, **think** and **learn**, and **take action** in response to what they're sensing and their objectives.

FORMS OF AI

Automated intelligence

Automation of manual/cognitive and routine/non- routine tasks.

Assisted intelligence

Helping people to perform tasks faster and better. About Efficiency.

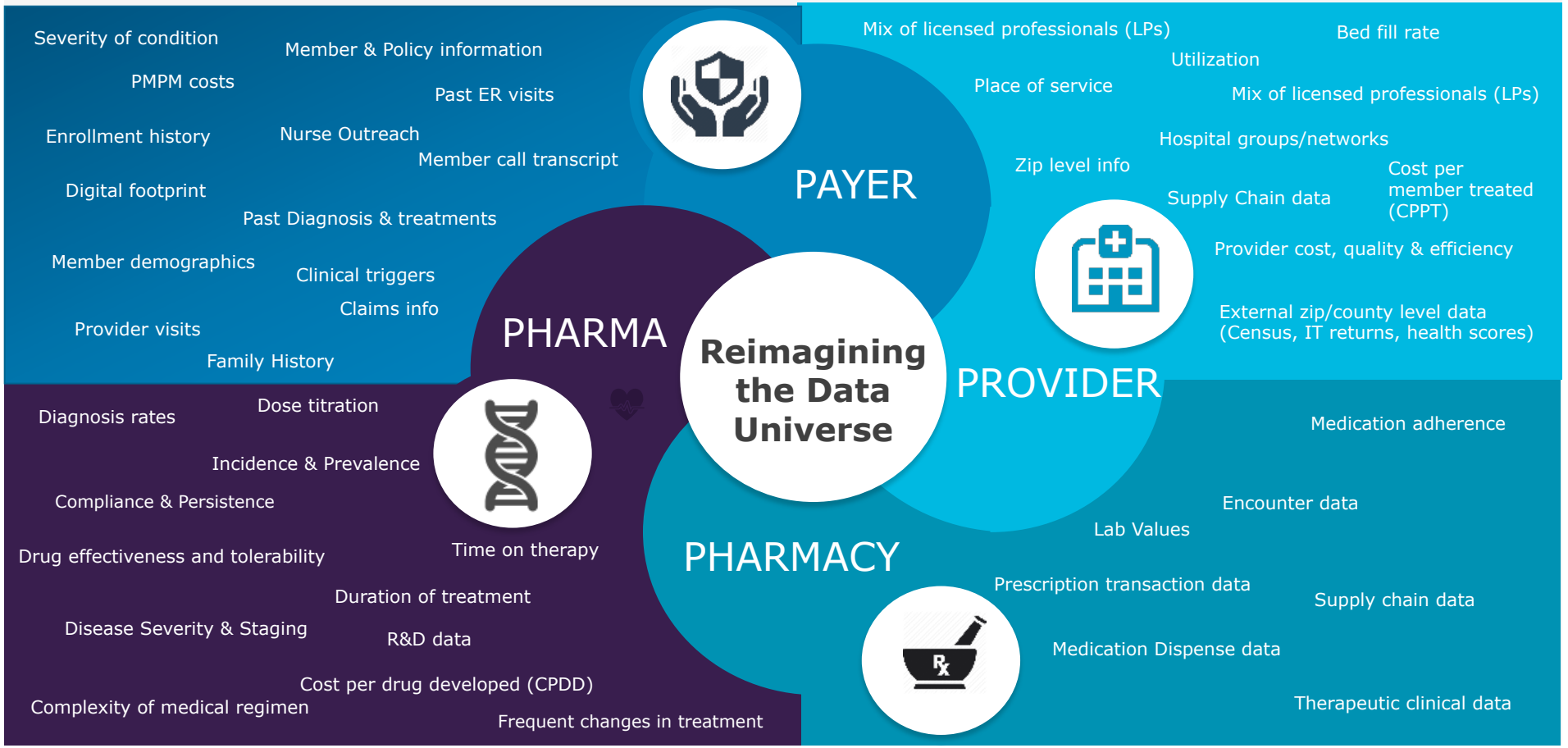
Augmented intelligence

Helping people to make better decisions. About Effectiveness

Autonomous intelligence

Automating decision making processes without human intervention. About Disruption. Defining the new normal.

The New Data Universe



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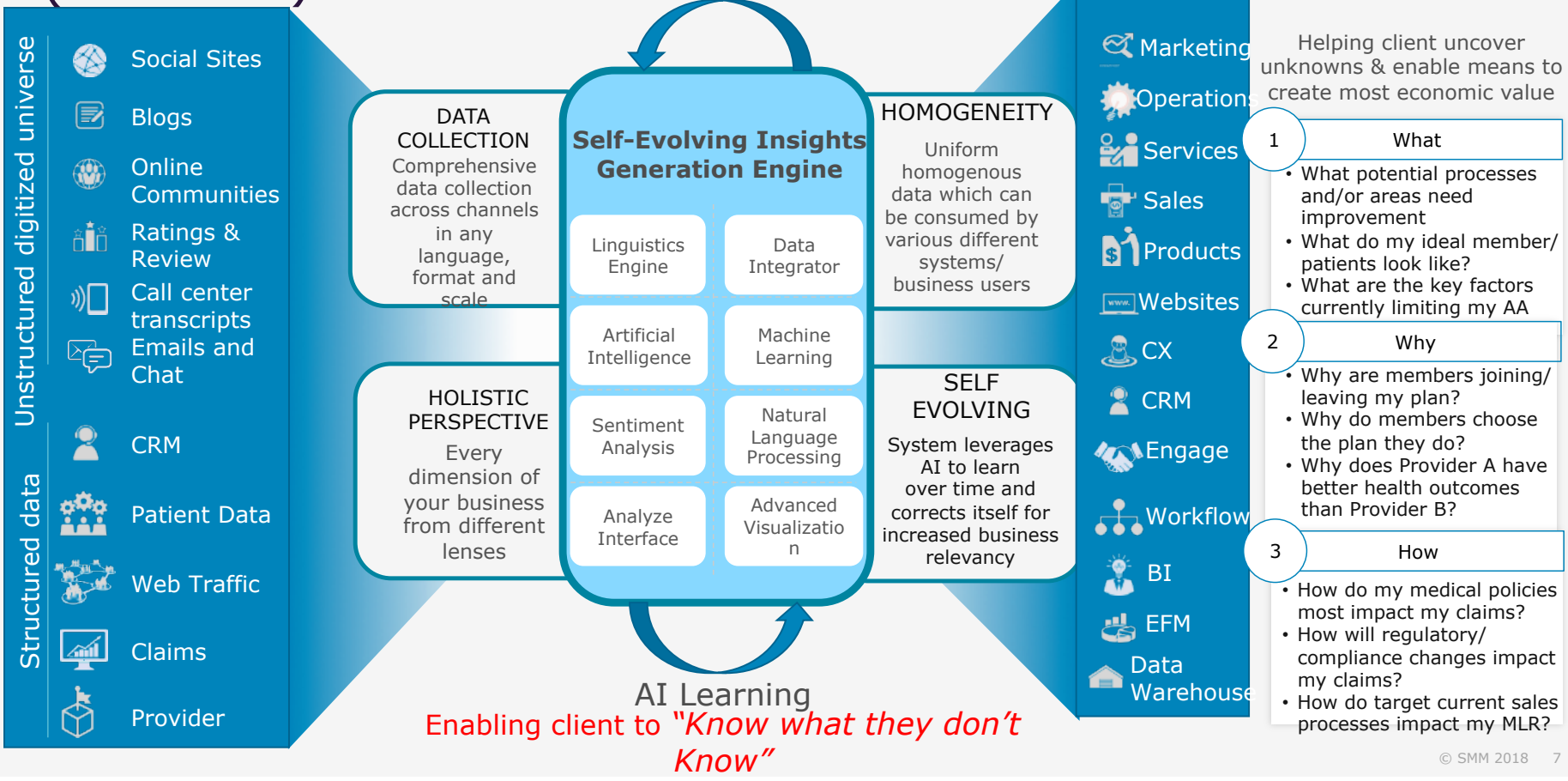
ART OF THE POSSIBLE: A FAST SECOND

CGEANI: ***Capgemini Evolutionary Artificial Neural Intelligence***

Capgemini Evolutionary Artificial Neural Intelligence (CGEANI)



Helping client uncover unknowns & enable means to create most economic value

1 What

- What potential processes and/or areas need improvement
- What do my ideal member/ patients look like?
- What are the key factors currently limiting my AA

2 Why

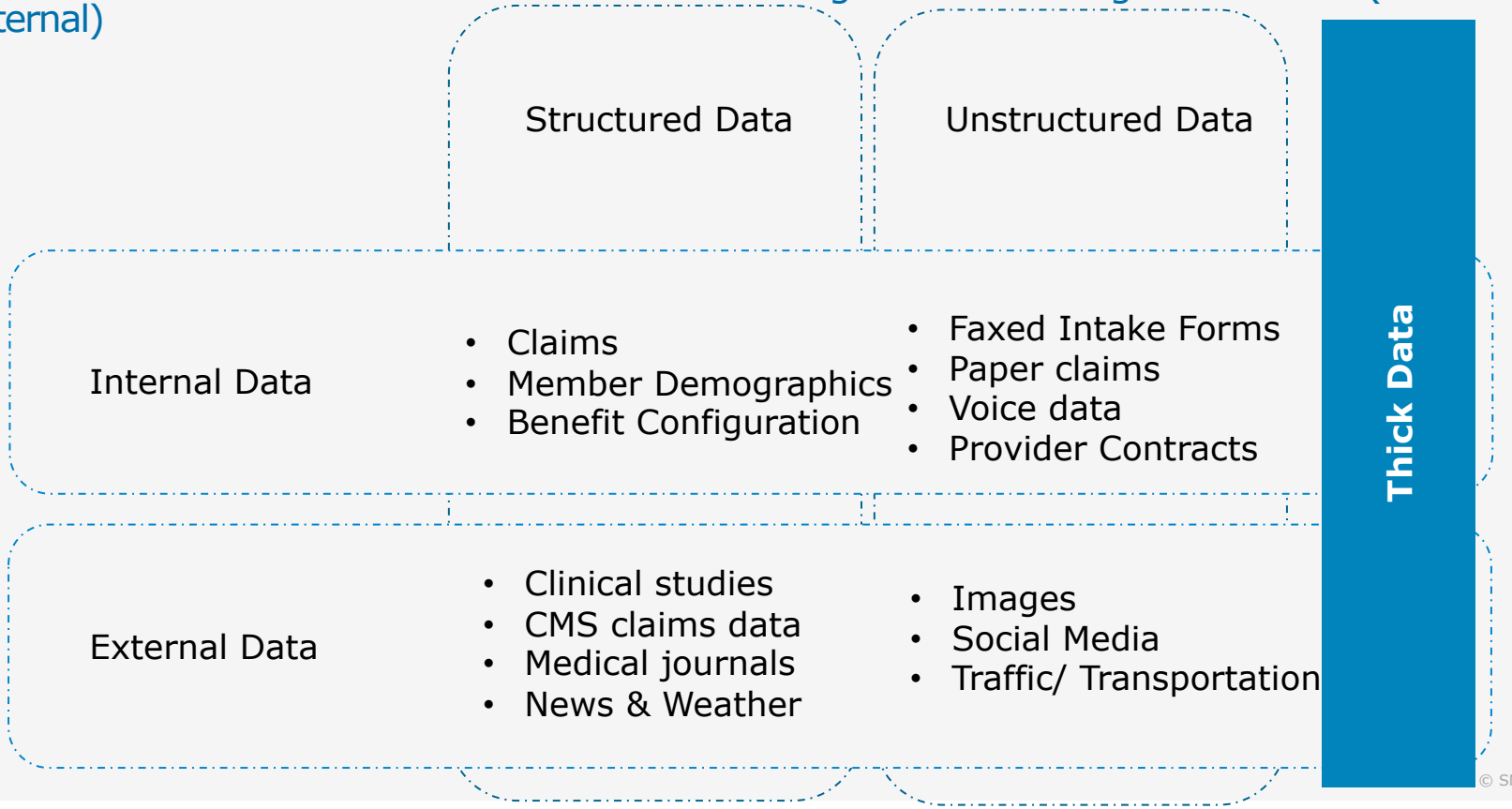
- Why are members joining/ leaving my plan?
- Why do members choose the plan they do?
- Why does Provider A have better health outcomes than Provider B?

3 How

- How do my medical policies most impact my claims?
- How will regulatory/ compliance changes impact my claims?
- How do target current sales processes impact my MLR?

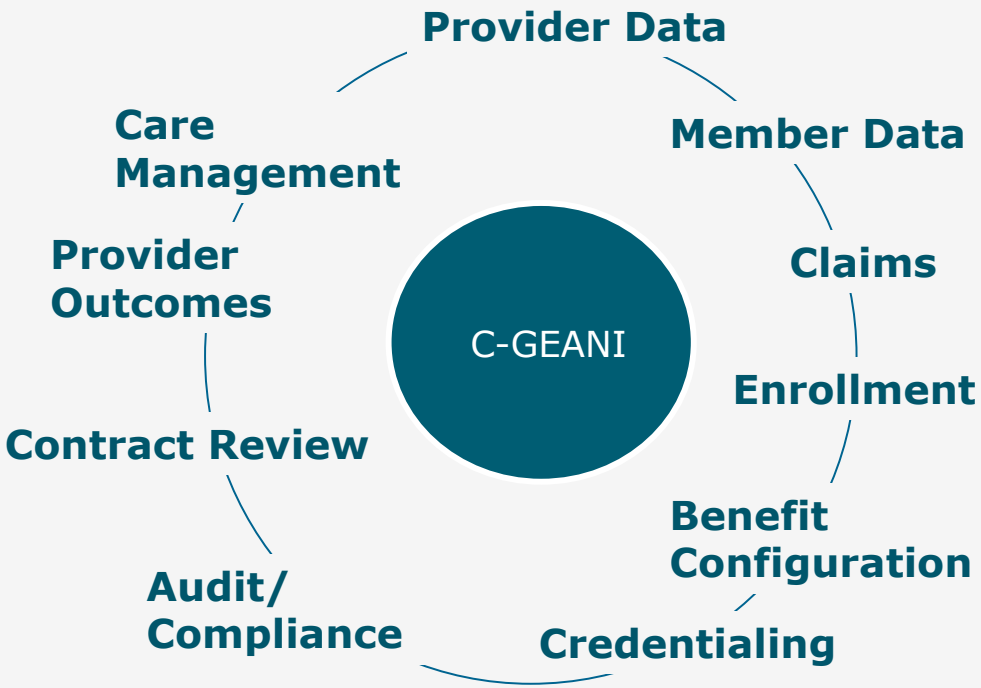
Data Ingestion & Analysis

CGEANI will utilize all available data to drive new insights from existing data sources (Internal & External)



Streamlining Decision-making Process

CGEANI enhances operational decision making by delivering newer, hidden insights.

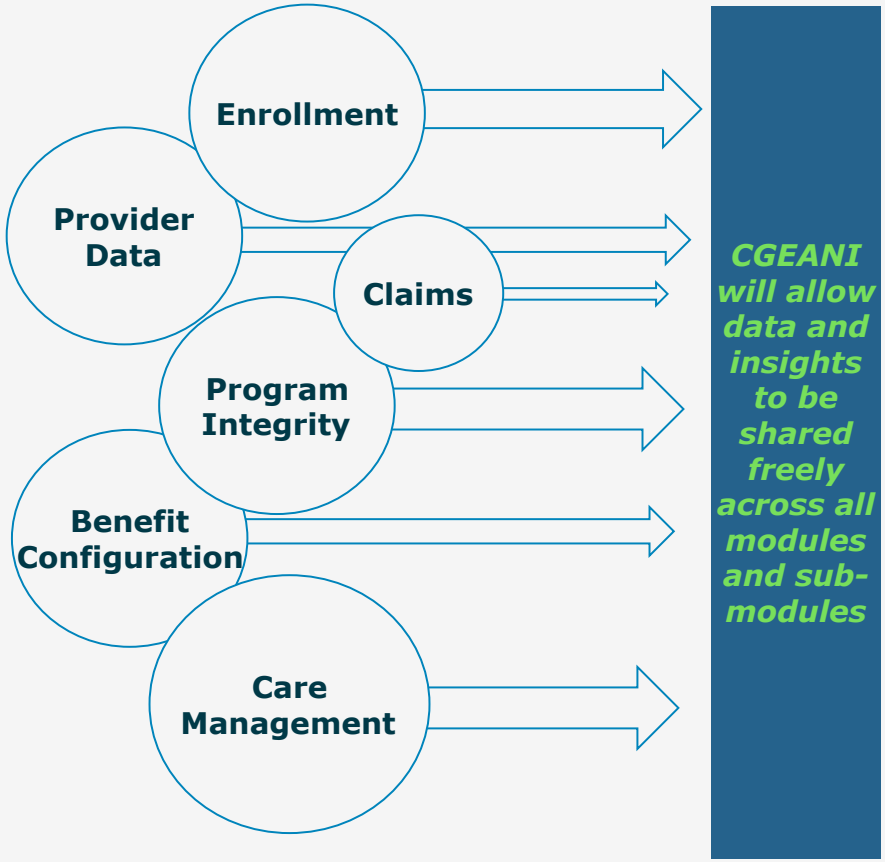


Outcomes

- Reduced MLR
- Improved Member/ Provider Satisfaction
- Optimized Data Quality
- Increased AA
- Increased speed, efficiency & accuracy of claim process

- C-GEANI will compliment existing efforts and outputs to create new information to drive outcomes targeting members, providers, claims, and operations

CGEANI will be developed by building-out sub-modules focused on specific areas



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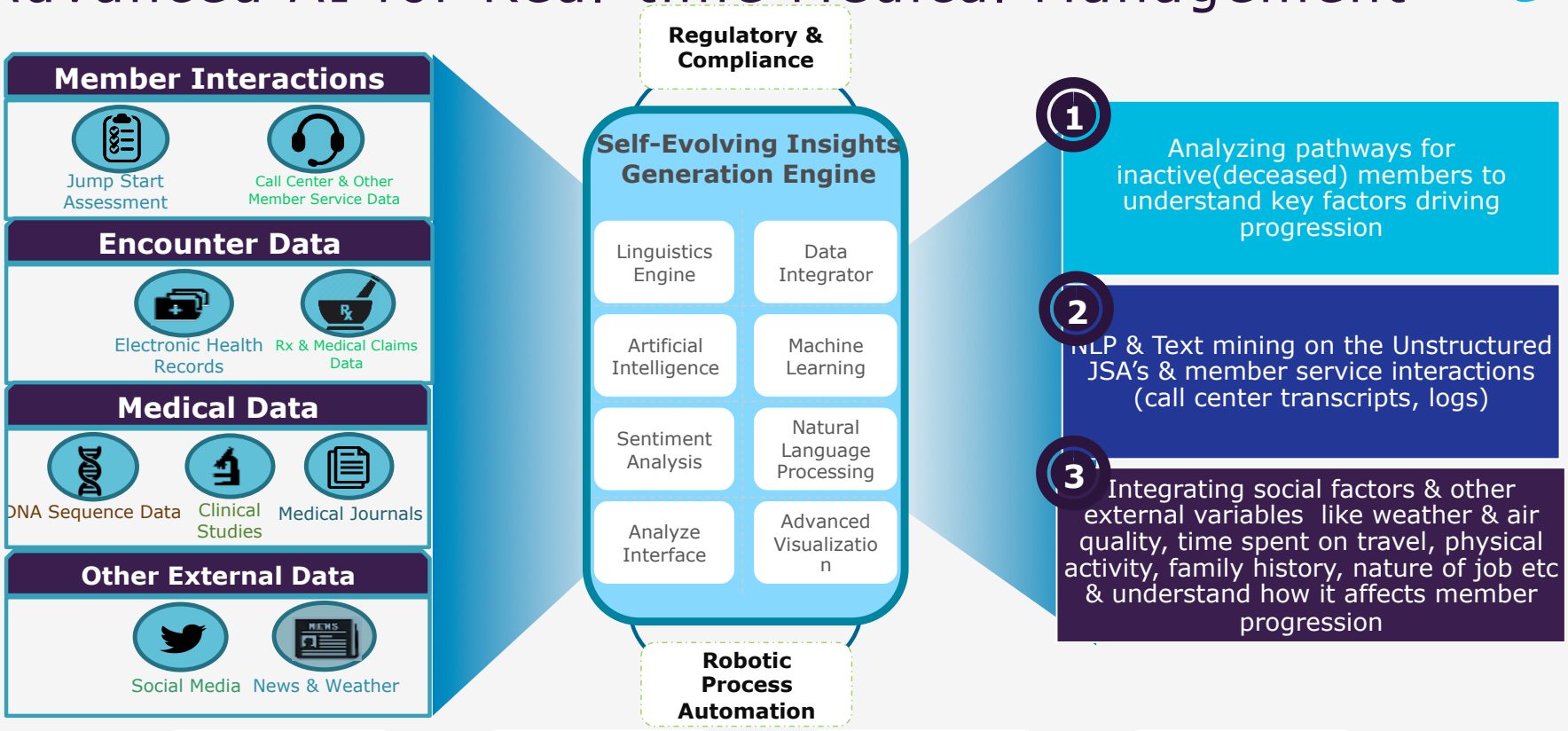
REAL-TIME MEDICAL MANAGEMENT

Advanced AI for Real-time Medical Management



New Member
Enters demographic data while enrolling

Automatic Risk Scoring and Clustering
Model predicts and assigns risk score and clustering

Real-time analysis and scoring adjustments
As new information enters payer data environment the model automatically and intelligently analyzes and utilizes the data

Automated interventions prevent cluster transition
When cluster transition risk factors are identified, model automatically initiates best outcome intervention

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OPTIMIZED PROVIDER ENCOUNTERS

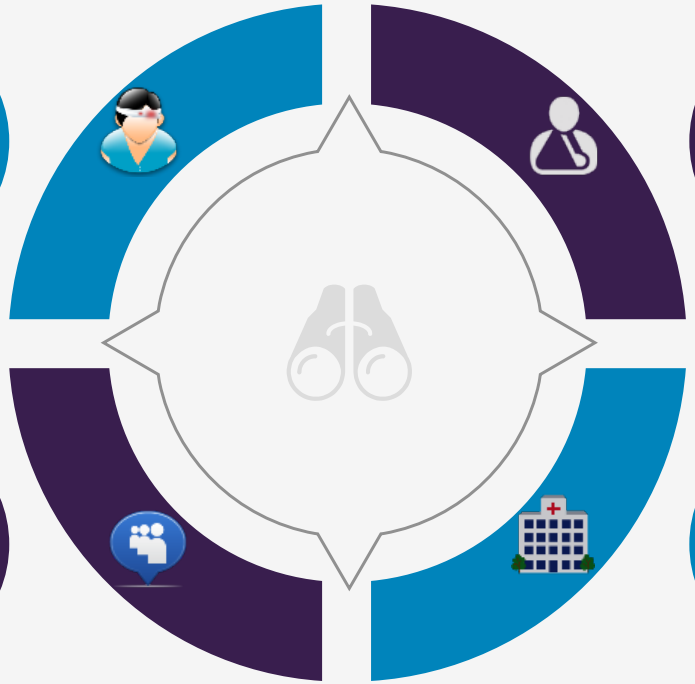
Predictive analytics: First phase of prescriber profiling

Practice– related factors

- Patient types
  - Children
  - Adults
  - Elderly
- Specialty Area
- Self-awareness

Seasonal– related factors

- Cyclical license renewal
- Seasonal trends in injury
- Holiday impacts
- New hires



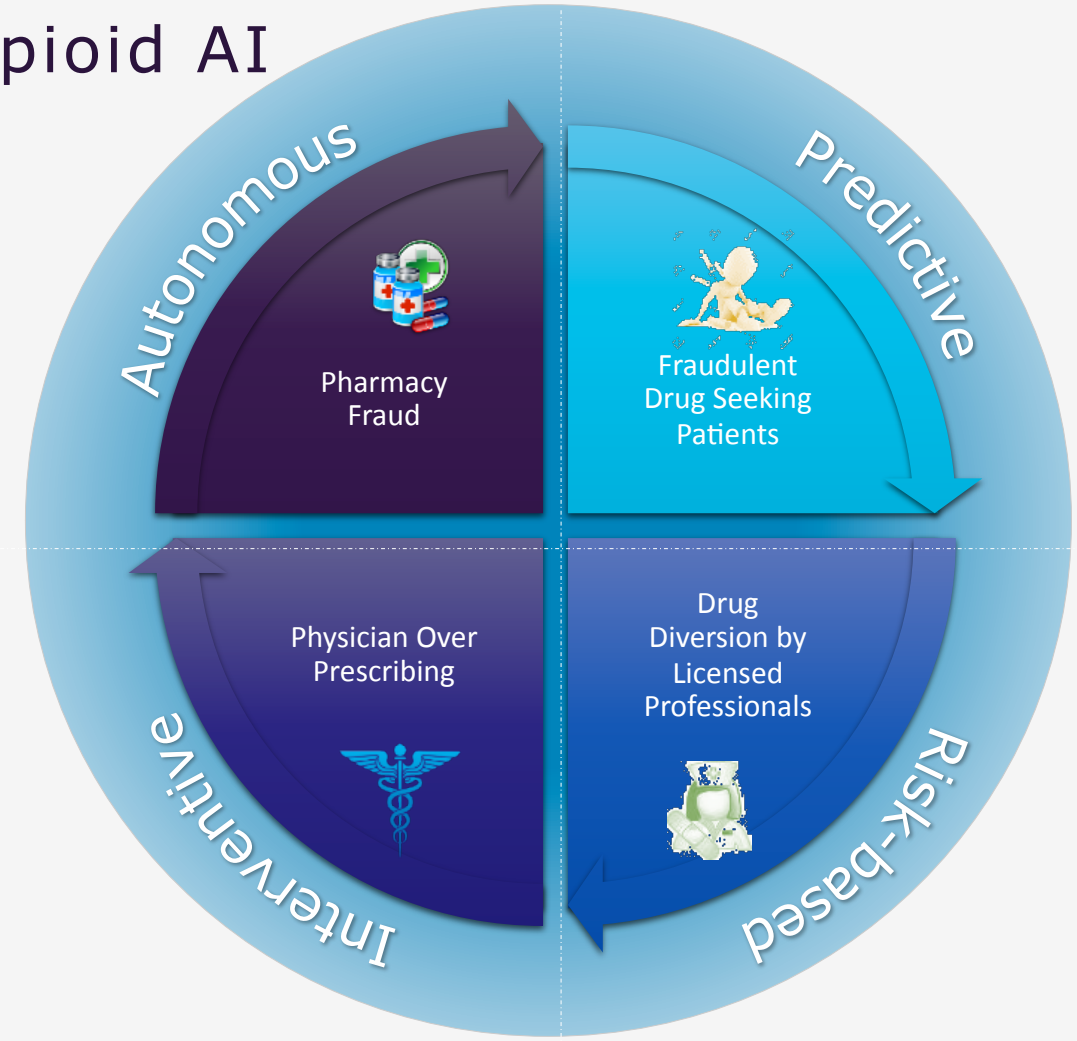
Socioeconomic factors

- FICO Score
- Social Network Profile
- Education

Geography– related factors

- Hospital
- Office
- Clinic
- Hospice
- Long term care facility

Advanced Opioid AI



Advanced Opioid AI (AOA)

Key Questions

Is an individual at risk of addiction?

Is an individual likely to be engaging in DSB?

How do we help this individual achieve the best health outcome?

Key Data Sources

Electronic Health Records

Rx & Medical Claims Data

DNA Sequence Data

Clinical Studies

Medical Journals

Social Media

News & Trends

Key Outcomes

Make physicians aware of risk and recommend alternate treatment therapies or minimal effective dosing

Activate existing intervention programs with highest likelihood of success

Actively monitor and revise intervention procedures based on successful outcome experience

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DATA SCIENCE FOR LIFE SCIENCES INDUSTRY

Unlocking The Power Of Data Science To Transform The Pharmaceutical Industry

Treatment modality Development and Selection	Clinical Trials	Patient Selection	Provider and Patient Medical Consumption	Supply Chain	C-Suite Concerns
1. What is the 20 year pipeline for the pathophysiology that we are targeting? 2. What is the population of our target patients in 12 and 20 years? 3. Do we have a horizon navigation document for our research goals? 4. How do we select the treatment modalities to pursue for individual patho physiologies? Will they be profitable? 5. Are our preclinical and animal trials in line with horizon data and clinical needs?	6. How do we decide on what candidates move into clinical trials? What is the investment and ROI? 7. Do we understand the clinical data in perspective of horizon, medical and preclinical understanding and data? 8. How do we decrease CPDD? 9. How do we increase the number of successful drug candidates from a cohort? 10. How do we decrease the time associated with brining drug post approval to market, thus increasing RROI and time on market on patent?	11. Do we have the proper patient population for all phases of clinical trials? 12. Have we planned provider and trial site geopatho analysis for best trial outcomes? 13. Do we have patient leakage after go to market? 14. How do we find patients that could benefit from our treatment modality and market to them? 15. Are all possible patients that could be treated with our drug being offered the treatment and if not why not? 16. What is the cost of not maximizing patients that could be treated but are not accessed?	17. How do we market our drug smarter and get to market faster? 18. With less time with providers, how do we maximize our efforts to target key providers in key geographies? 19. How do we find medical providers that will prescribe our treatment modality? 20. Are we using intelligence to specifically plan our market spend to enhance the number of patients benefitted by our technology?	21. Smart Data access, process, and value creation 22. IoT Tracking supplies & Equipment 23. Smart Supply Inventory Management 24. Maximize quality manufacturing and decrease regulatory risk through intelligent systems. 25. Increase production efficiency 26. Increase manufacturing efficiency and decrease cost of production	27. Increase Patient Outcomes 28. Increase Quality of Drug delivery 29. Increase Patient Satisfaction & Retention 30. Decrease Regulatory Issues 31. Decrease CPDD 32. Increase Margin & RROI per Drug Developed 33. Increase Bottom Line Growth 34. Clinical Business Intelligence – how do we harness unstructured data sources to be First In Class?

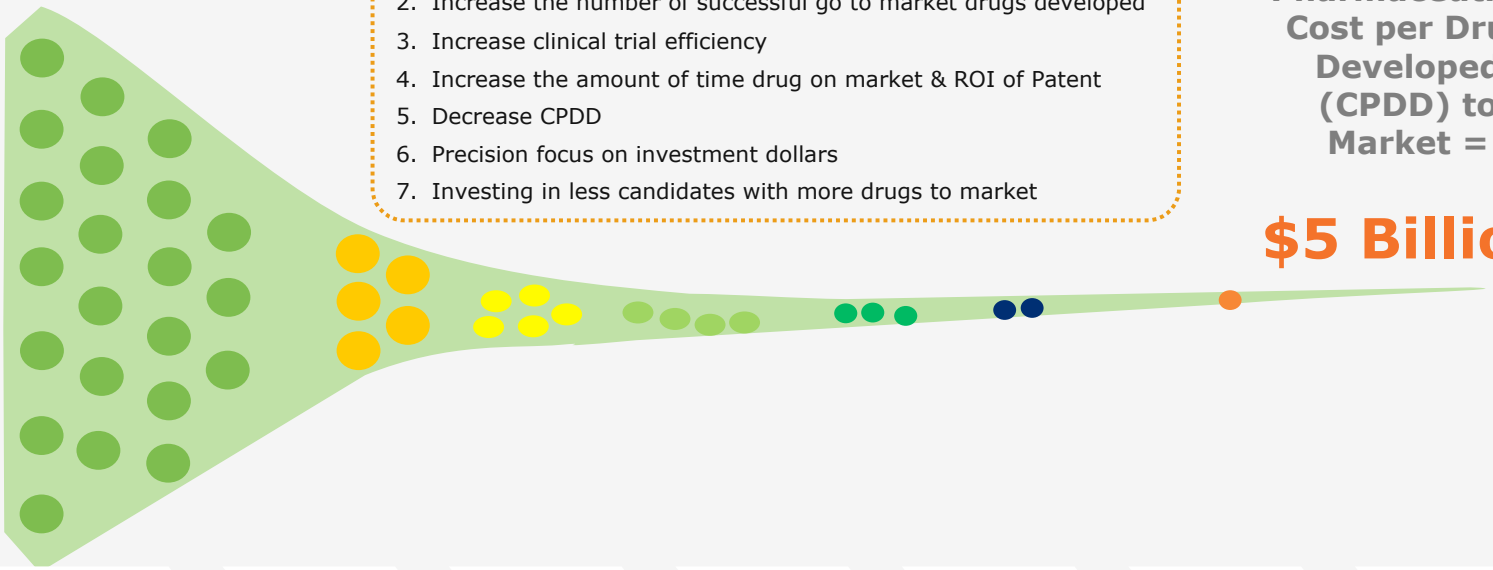
Life Sciences Drug Pipeline

Hunting with a Data Science Spear NOT a Net

1. Increase probability of selecting go to market drug candidates at molecular selection
2. Increase the number of successful go to market drugs developed
3. Increase clinical trial efficiency
4. Increase the amount of time drug on market & ROI of Patent
5. Decrease CPDD
6. Precision focus on investment dollars
7. Investing in less candidates with more drugs to market

Average Pharmaceutical Cost per Drug Developed (CPDD) to Market =

$5 Billion



Dev Phase | **Animal Trials** | **Pre Clinical** | **I** | **IIa** | **IIb** | **III** | **IV**

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People matter, results count.

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