Presenters



Lance Hill CEO

Within3



Renu Juneja, PhD

Head, Scientific Evidence & Communications US Medical Affairs Oncology

Janssen Pharmaceutical Companies of J&J



Robert Kersting

Worldwide Head of Global Alliances

Novartis



Jonathan Weiner

Global Head of Scientific Engagement for Development & CMO

Sanofi

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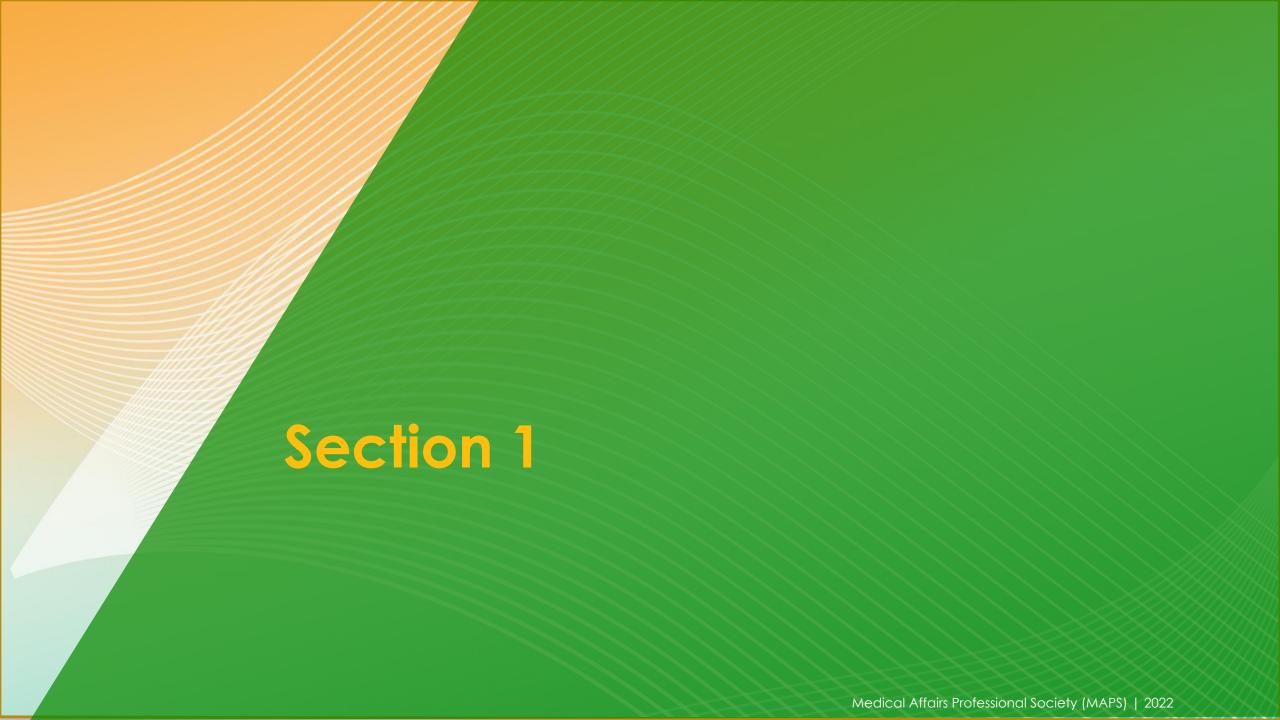
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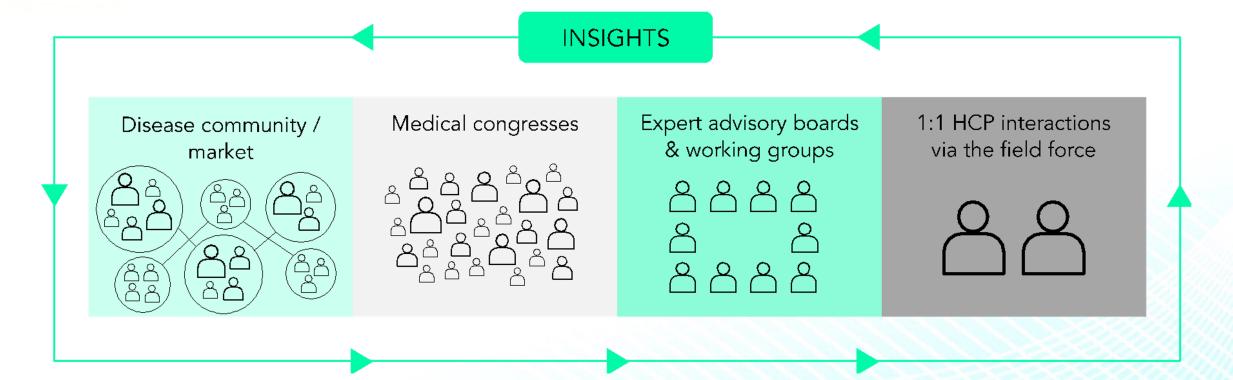
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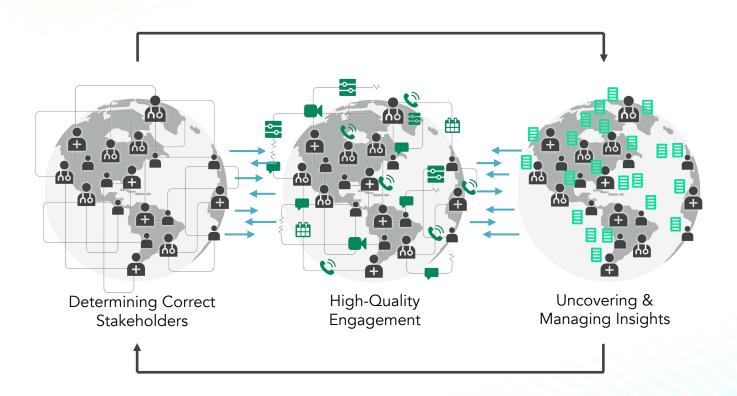
Welcome!
Insights Management:
People, process, or technology



Effective organizations gather mission critical insights from multiple sources – spanning from trends in broad disease populations down to 1:1 HCP interactions.



Poor execution through this complex process can have negative impacts

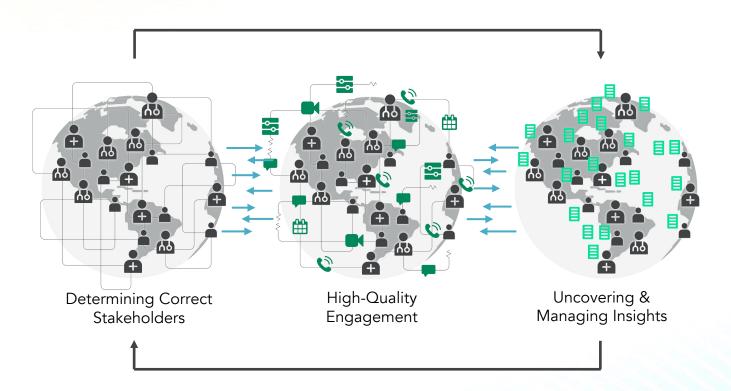


NEGATIVE BUSINESS IMPLICATIONS:

- Underperformance in clinical study design and execution
- Misalignment with payers or regions
- Degraded performance for product launches
- Ceding market opportunity to competitors

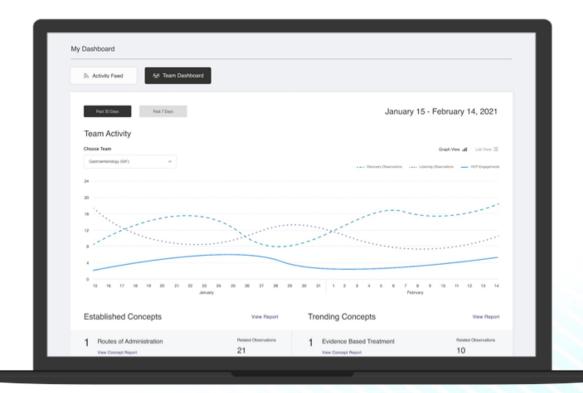
Poor execution through this complex process

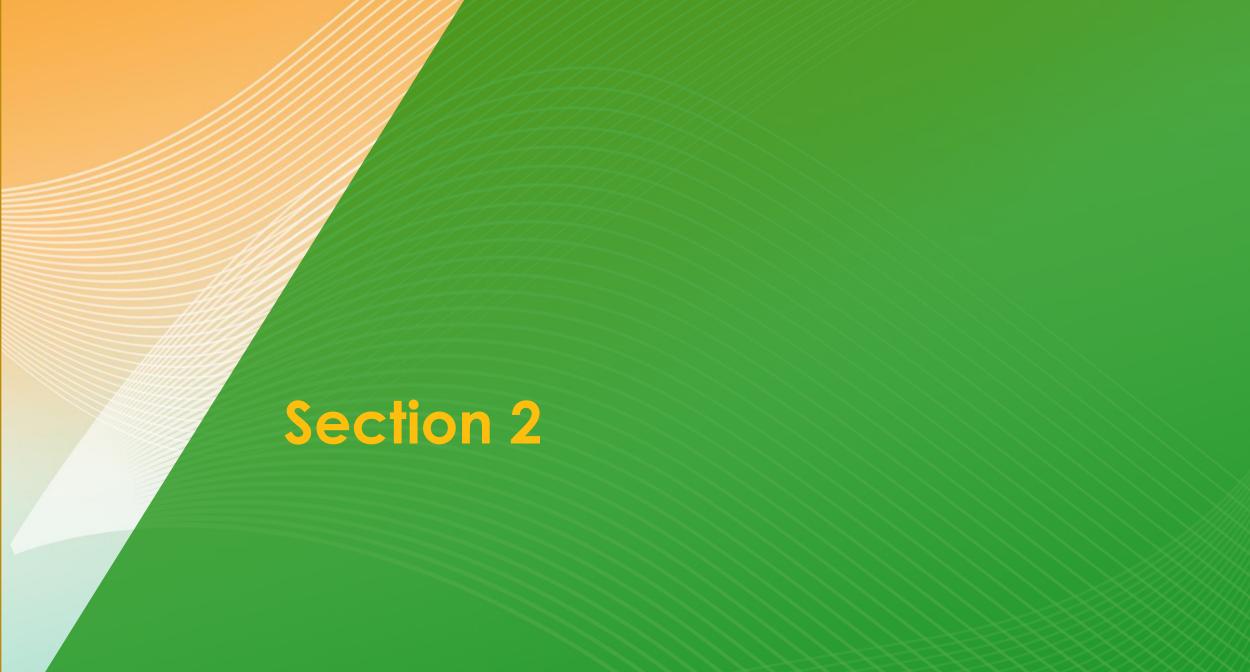
can have negative impacts

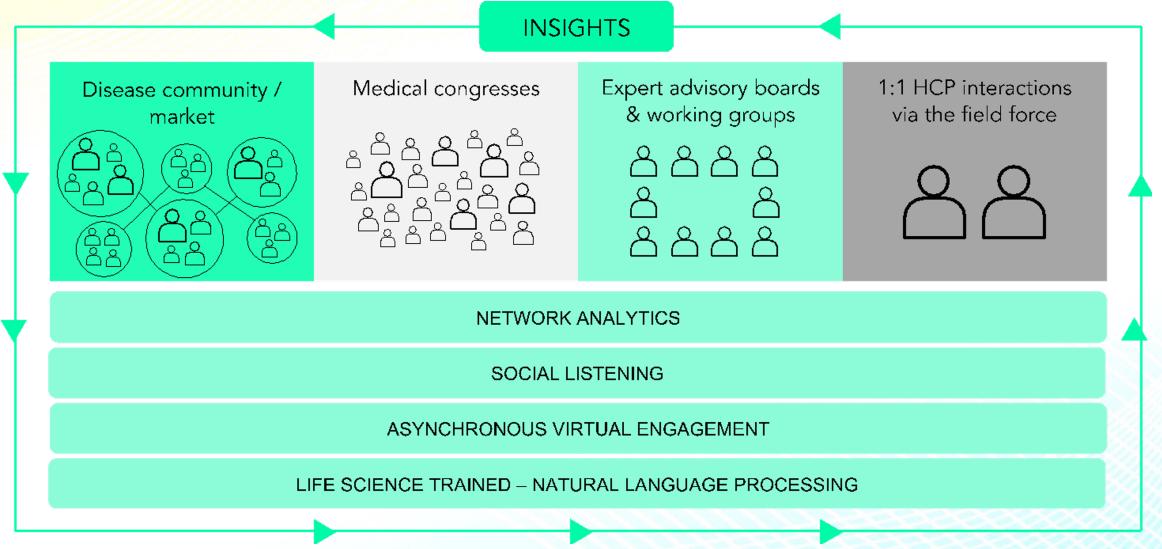


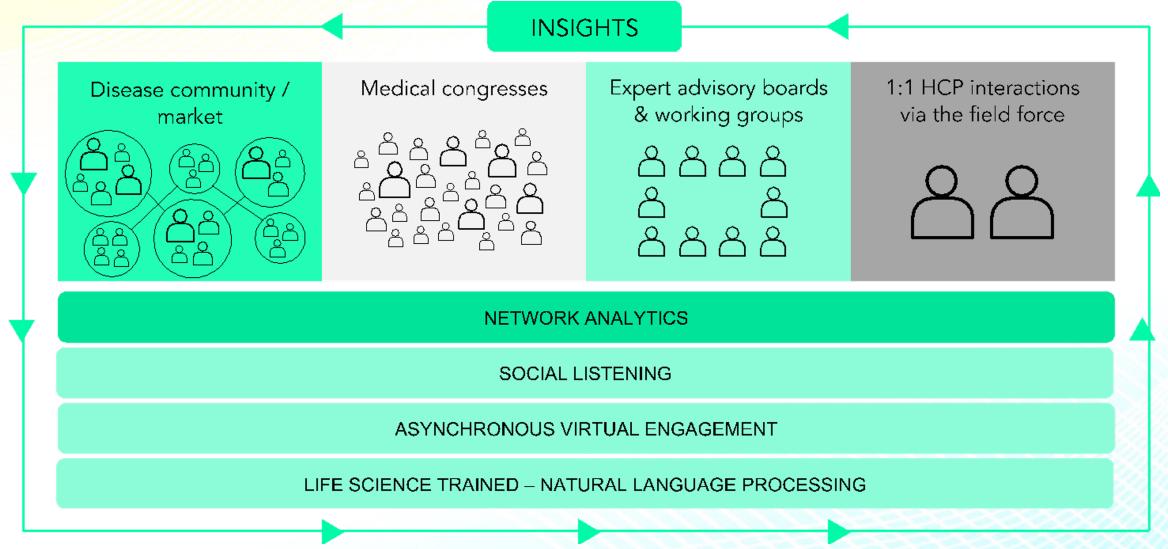
- Each iteration can take months, not weeks
- Lack of timely information degrades strategic decision making
- Each iteration is work intensive,
 driving internal cost
- Multiple software and service vendors throughout the process drive inconsistent outcomes
- No enterprise synergy is gained as the process executes – each iteration is an isolated tactic

So what's the goal for insights management, and what's the role of people, process, and technology in getting there?

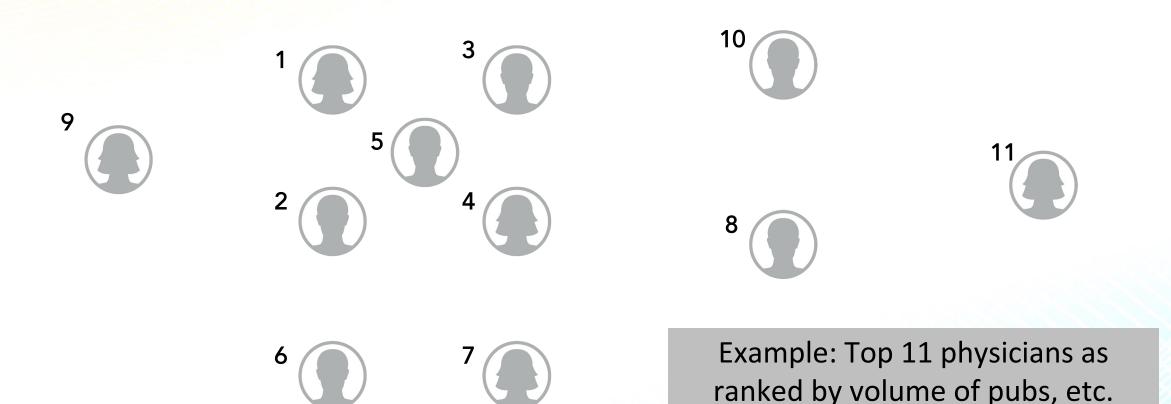








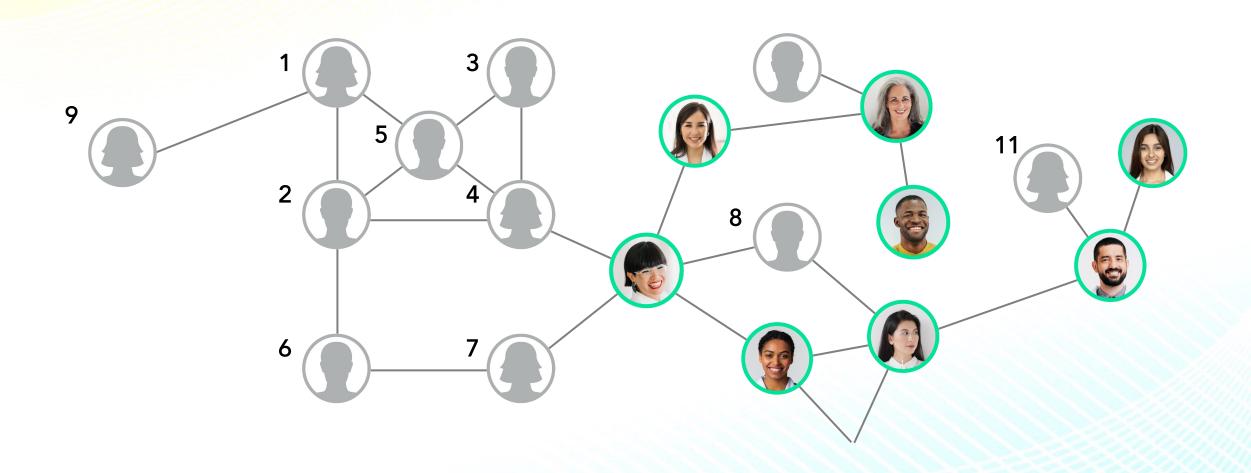
Traditional "Profiling" analysis provides your top customers by ranked volume of activity



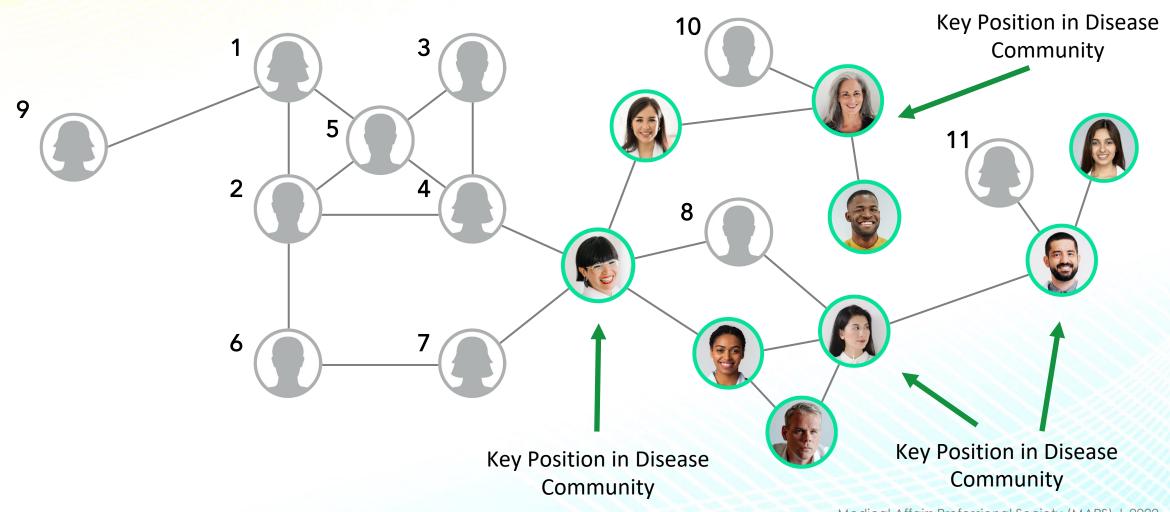
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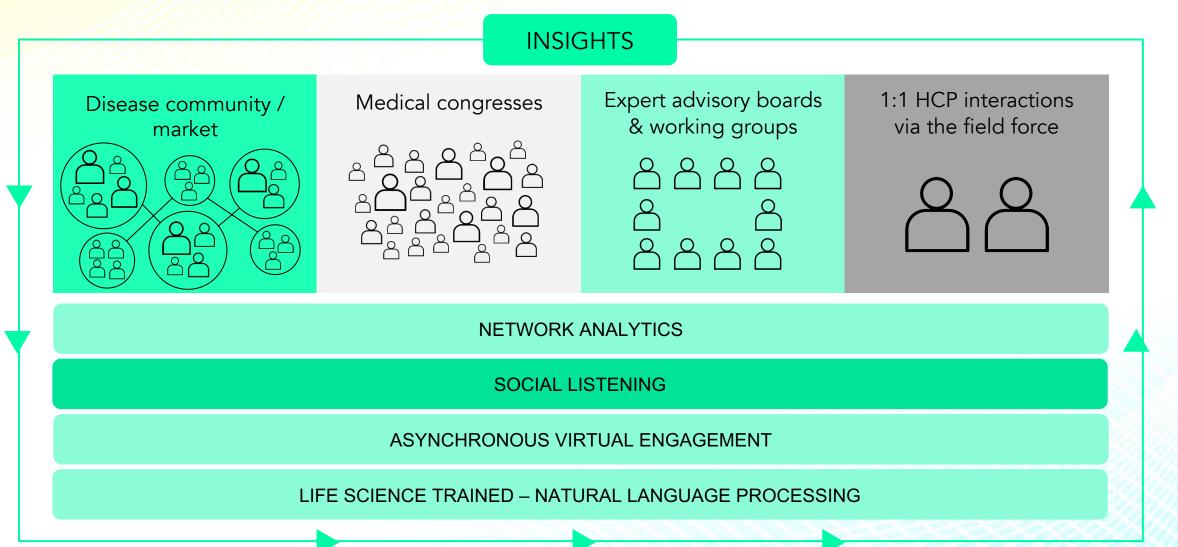


Network analytics maps the strength and volume of connections between HCPs in very specific contexts.



By doing so, we can move from "volume of activity" to the "Invisible College" within a disease community.

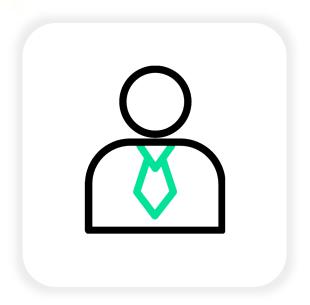




Scientific Exchange Increases via Online Channels at **Medical Conferences**



Conference Twitter users increased from 3,212 to 10,362 over 3-year period across 3 conferences



Scientific tweets represented a significant majority of all tweets (72%)



The majority of Twitter users who were the most active were physicians (48%)

Source: Tanoue MT, Chatterjee D, Nguyen HL, et al. Tweeting the Meeting. Circ Cardiovasc Qual Outcomes. 2018;11(11):e005018. doi:10.1161/CIRCOUTCOMES.118.005018

Social Listening Technology Offerings -Some Key Features

- Omnichannel Tracking & Visibility
- Curated Content Capabilities
- Trend & Sentiment Analysis
- Dynamic Reports & Dashboards
- Supports Compliance

Rare side effects

Patient discussions

Patient feedback

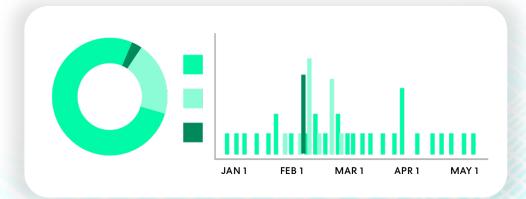
Clinical trial data

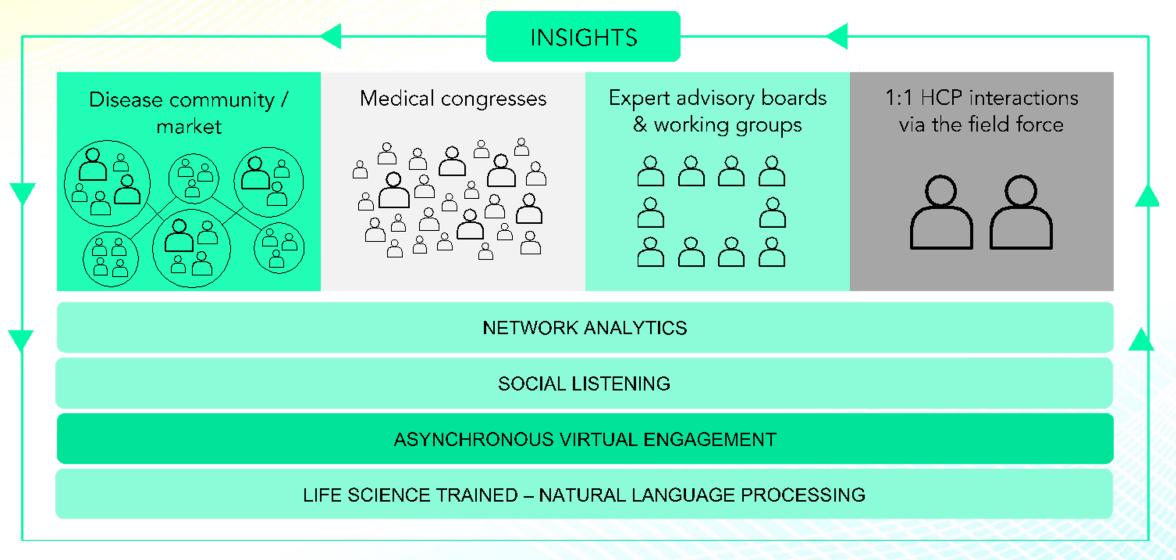
Treatment switch Crisis management

Phase I & II

Disease impact

Physician assistant

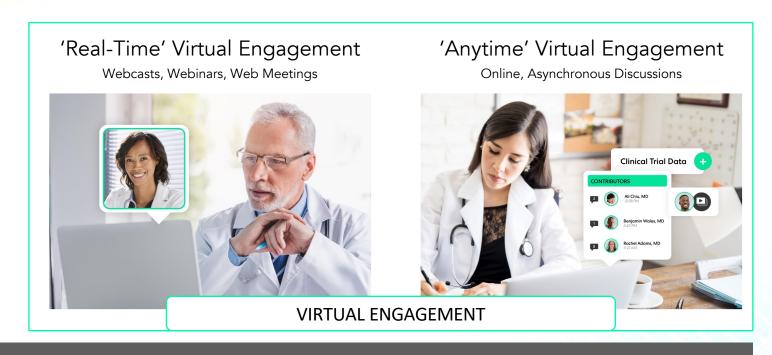




Asynchronous engagement is a powerful tool in the toolkit – driving different logistics and outcomes results.

Engagement venues can be divided into "synchronous" and "asynchronous."



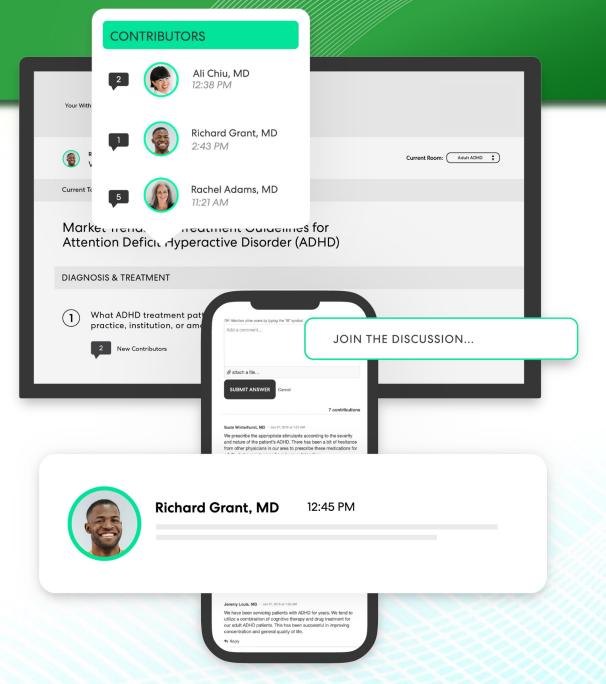


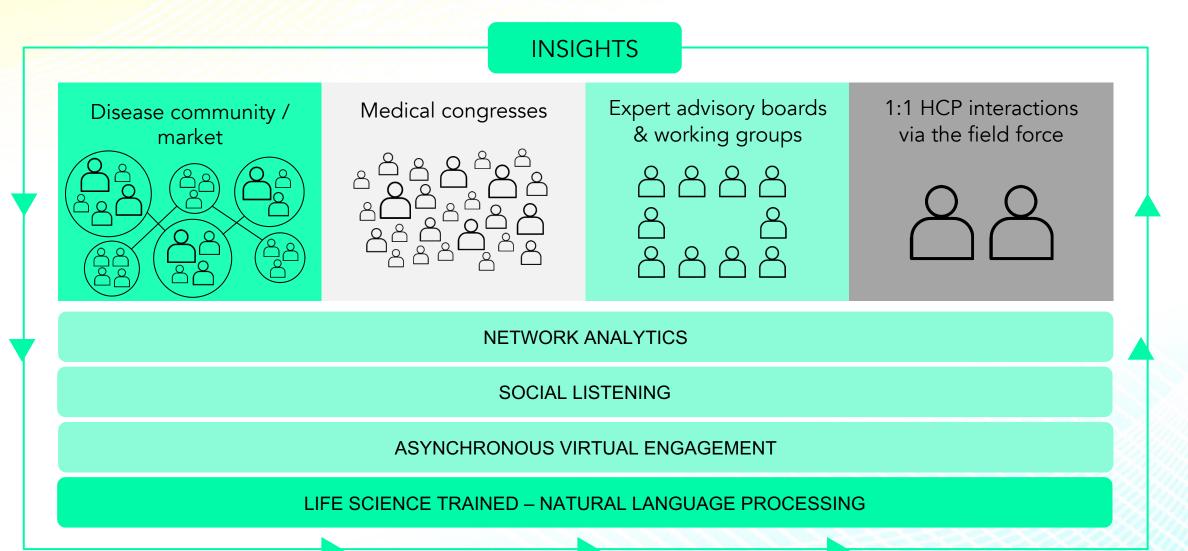
Real-Time and Anytime Engagement Occurs Across the Organization:

MSLs • Sales Team • HCPs • Patients / Caregivers • Payers • Researchers • Internal Strategic Teams • Compliance • Others

Asynchronous Platforms

- HOW THEY WORK
 - "Discussion over time" venue
 - Handfuls or thousands of users
 - Secure & Compliant
 - Flexible & scalable
 - Intuitive, convenient and easy to use
- SOME OF THE BENEFITS
 - High HCP satisfaction
 - Greater Interaction
 - Improved market insight
 - Reduced costs





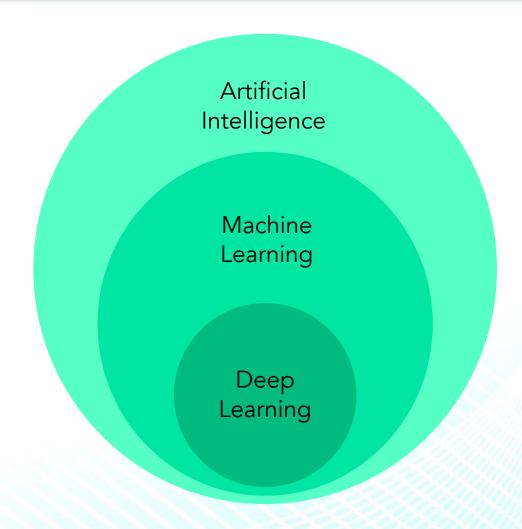
What is Artificial Intelligence?

Artificial Intelligence (AI): AI is building smart machines capable of performing tasks that typically require human intelligence.

Ex: Alexa, Siri, etc.

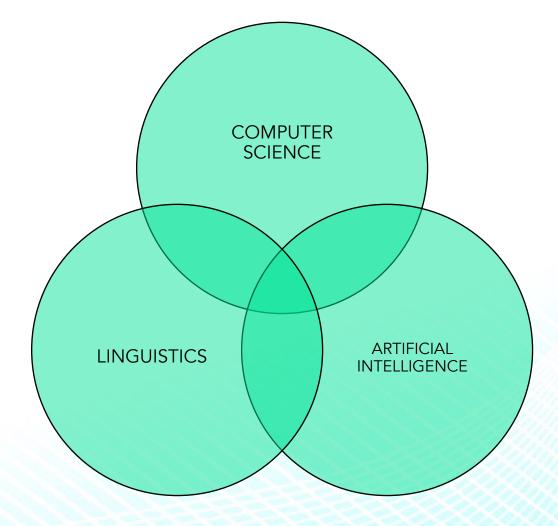
Machine learning (ML): Machine learning (ML) is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Ex: Alexa uses ML to predict your next question and answer it correctly

Deep Learning (DL): Deep learning is an artificial intelligence (AI) function that imitates the workings of the human brain in processing data and creating patterns for use in decision making.



What is Natural Language Processing?

Natural Language Processing (NLP) is a field of Artificial Intelligence that gives the machines the ability to read, understand, and derive meaning from human languages.



The Anatomy of an Insight through NLP Technology

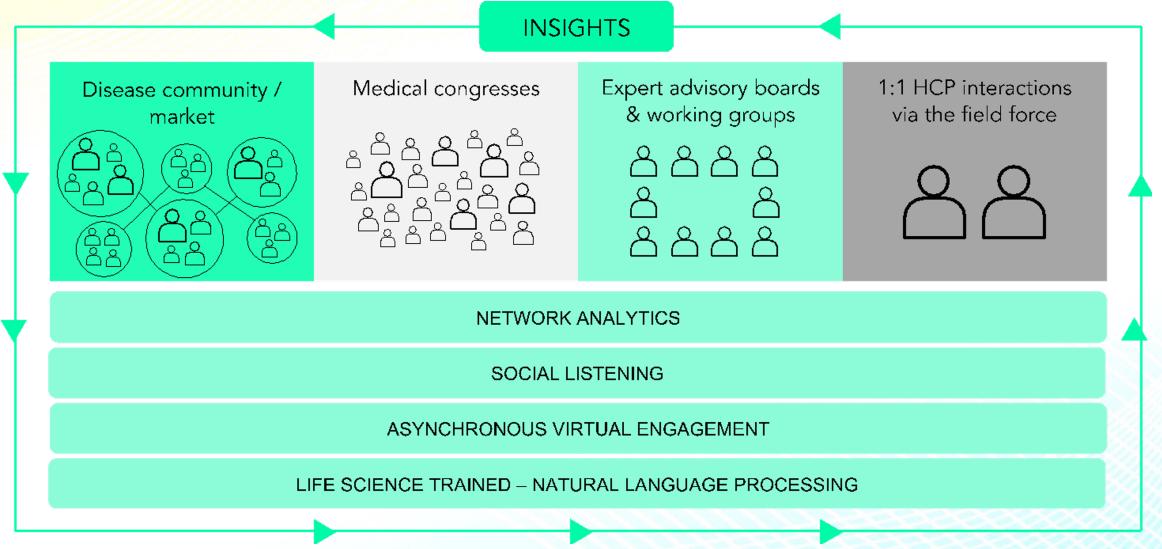
Life-Sciences trained AI/NLP uncovers the essence of an observation via derived insights, concepts, and sentiment analysis, using the aggregate results to tell you a story about your data.

Term Analysis is industry trained to identify products, disease states.

Sentiment Analysis using LSTM and Aspect Identification using Grammar Analysis.

"Product A has been well tolerated in younger infants, but older infants Have had lots of safety scares. Families were scarred by seeing their children so sick, and HCP feels they cant get over this. Possible negative community feelings on **Product A**."

Concept Analysis using Medically trained Neural Network identifies additional concepts beyond keywords in text. Concepts: adolescence, families, impact



Common "technology architectures" for insights management

