

Where AI and Virtual Humans Meet: Next Generation Data Assets⁺

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About Me



Marc's professional journey is a fusion of academic rigor with real-world impact. He began his career 33 years ago as an academic molecular neurobiologist, instilling in him a deep respect for critical thinking and the scientific method.

Transitioning into industry, he held leadership roles that bridged data and healthcare: as Vice President of Data Strategy at Northwell Health, Marc leveraged one of the world's most diverse clinical data sets to drive patient-centered innovation via a \$100M partnership with Aegis Ventures, launching multiple AI-centered startups; and as Vice President & Dean of Data Science University at Optum, he spearheaded the training of thousands of professionals in practical, product-centric AI, data-driven decision making, and ethical data practices. In each role, he fostered cultures of curiosity, critical thinking, and collaboration - precursors to the Constructive Inquiry ethos.



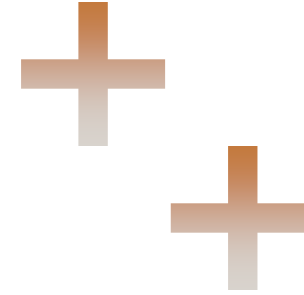
About SIYOM Consulting

Founded by Marc d. Paradis, SIYOM Consulting is a boutique advisory specializing in Data and AI Strategy for Healthcare and Life Sciences.

We help health-system executives, pharma innovators and investors identify, evaluate and execute on high-value data and AI opportunities.



From Assets to Data Assets: Expanding the Definition of Value



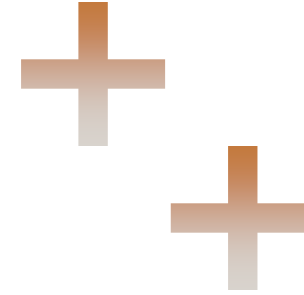
Traditional Business Asset

- Tangible or intangible asset resource with measurable utility or value
- Realized through ownership, control, and/or exploitation
- Diminishes with use (depreciation)
- Fungible, Rivalrous, Single Valued
- Managed through finance and accounting

Modern Data Asset

- Structured/Unstructured information that generates strategic, operational, and/or scientific advantage
- Realized through use, combination, and/or insight generation
- Grows with use (appreciation)
- Non-Fungible, Non-Rivalrous, Multi Valued
- Managed through governance, stewardship, and continuous curation

From Assets to Products: Factors to Consider



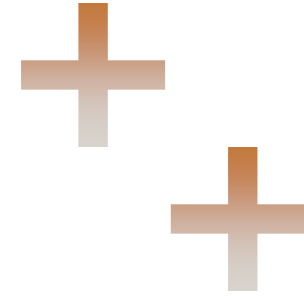
Traditional Business Asset

- Legality (IP, Ownership, Liability, FTO, Indemnification, etc.)
- Accessibility
- Refinability
- Transportability
- Ethicality
- Regulatory Susceptibility

Modern Data Asset

- Legality (IP, Ownership, Liability, FTO, Indemnification, etc.)
- Readability
- Computability
- Portability
- Ethicality
- Regulatory Susceptibility

The Future of Clinical Data: Too Large for Traditional Data Architectures



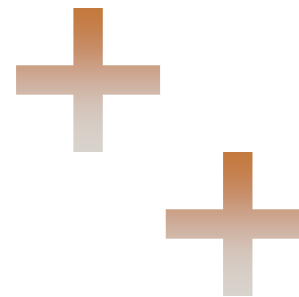
Traditional Clinical Data

- Discrete time points
- Designed for billing, documentation, and quality reporting
- Human-readability, manual curation, human analysis creates value
- Value is retrospective, captures *what* happened
- Narrative-bound

Next Generation Clinical Data Asset

- Continuous/Streaming
- Designed to support intervention and observation
- Machine-readability, automated curation, AI analysis creates value
- Value is holistic, linking clinical context, to event to longitudinal outcome
- Narrative-free

Some Examples of NGDA: Multi-Modal, High Volume, Context Rich



Continuous Wave Form Data

- Clinical and consumer grade wearables, bedside monitors, strip charts, etc.

Multimic Data

- Genomics, transcriptomics, proteomics, metabolomics, lipomics, etc.

Surgical Video Data

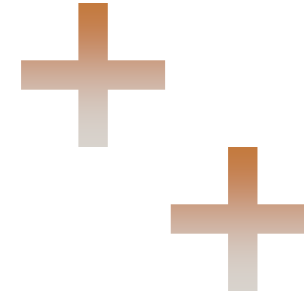
- High definition, multi-spectral, multi-angle video from scoped surgeries e.g. robotic, laparoscopic, endoscopic, etc.

Ambient Audio/Video Data

- Recordings of call center contacts, patient intake and examinations.

Waves of AI:

Fusing data, context, and embodiment



Wave I: Stochastically Deterministic AI

- Algorithms seeded with randomness but deterministic in inference; trained on highly curated, structured datasets.

Wave II: Contextually Generative AI

- Models that synthesize information across vast, unstructured, and multimodal datasets; meaning arises from relational context.

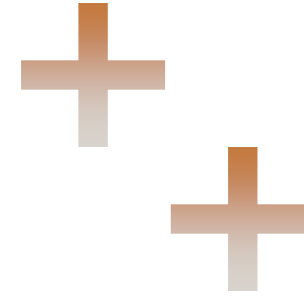
Wave III: Physically Instantiated AI

- AI grounded in the physical world — trained on sensor, biological, and procedural data, and embodied in real and/or simulated systems.

Wave IV: Holistically Integrated AI

- AI ecosystems that continuously learn, adapt and innovate across digital, physical, temporal and organizational boundaries.

Wave II: Seeing the Unseen



Wave I: Stochastically Deterministic AI

- Algorithms seeded with randomness but deterministic in inference; trained on highly curated, structured datasets.

Wave II: Contextually Generative AI

- Learns and represents unknown causal mechanisms i.e. models Unknown Unknowns, especially across scales and modalities.

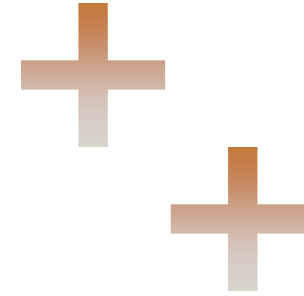
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Wave III: From Records to Representations of Reality



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Wave II: Contextually Generative AI

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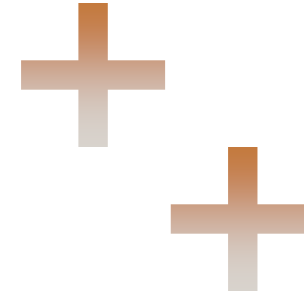
Wave III: Physically Instantiated AI

- Instantiated in both the physical (Robots) and digital world (DTs) combining the Known Knowns of Mechanistic Modeling and the Unknown Unknowns of Descriptive Modeling.

Wave IV: Holistically Integrated AI

- AI ecosystems that continuously learn, adapt and innovate across digital, physical, temporal and organizational boundaries.

Bridging Data, AI and DTs: From Knowing to Understanding



- For centuries, medicine has recorded the human story one data point at a time.
- Now, with Next Generation Data Assets and AI, we can move beyond documentation — to simulation, prediction, and design.
- Digital Twins are the first step toward a living, learning representation of human biology.
- Digital Twins don't just *use* data — they *generate* new data, completing a learning loop that brings us closer to modeling living systems in silico.
- The future of healthcare will not be written in notes or numbers, but in **models that think, learn, and evolve** alongside us.

Thank you

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