IQVIA
TECHNOLOGIES

Using Connected Intelligence to Improve Decision-Making, Part 2

Advances in Technology and Data Science

In this second in our series covering the IQVIA Institute's report, "Improving Decision-Making through Connected Intelligence," we point to the many ways in which advances in technology and data science are transforming how healthcare and life sciences organizations conduct their business. We also discuss some of the steps that companies must take in order to reap the full benefit of connected intelligence: the ability to act upon advanced insights.

More Data, Improved Data Flows

With access to more diverse sources of data, stakeholders are transforming their analytical processes, improving patient care and enhancing the patient experience. These data are refreshed more rapidly and made more useful through:

• Data pipelines that update in real time

• Mechanisms to de-identify, validate, project, model, store, and link data

• Data views that dynamically update with analytical tools

• Natural language processing

• The ability to surface information within workflows

• The push for global consistency in, and contextualization of, data and analytics

LEVERAGING THE POWER
Guiding decision-making requires not only the right selection of data sources, but also the ability to integrate data from multiple sources, to ensure there is a single source of truth, and to provide trend data in context so users understand what they're seeing.
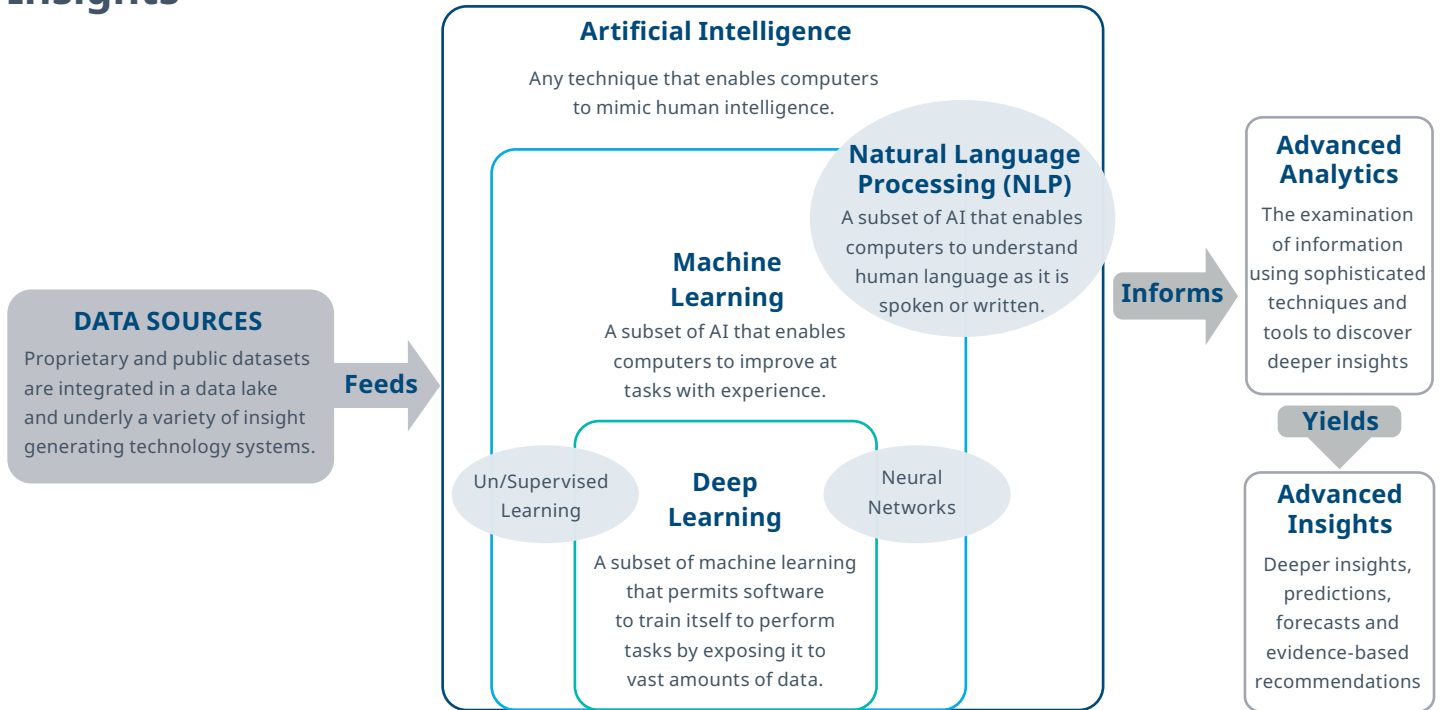
The Value of AI and ML

Artificial Intelligence (AI) and Machine Learning (ML) are adding to the value that life sciences companies can derive from big data, enabling systems to automatically:

• Recognize patterns

• Forecast likely outcomes

• Make recommendations on the next, best action

• Create alerts

• Complete manual tasks

LEVERAGING THE POWER
For companies to successfully develop and deploy AI and ML, they must first analyze the target business process, carefully select the model, feed the model with quality data, and run simulations. They must also identify the right use cases, establish KPIs to measure the effectiveness of implementation, and ensure that algorithm settings can be updated as needed.

From Big Data to Advanced Insights

Artificial Intelligence
Any technique that enables computers to mimic human intelligence.

Natural Language Processing (NLP)
A subset of AI that enables computers to understand human language as it is spoken or written.

Machine Learning
A subset of AI that enables computers to improve at tasks with experience.

Un/Supervised Learning

Neural Networks

Deep Learning
A subset of machine learning that permits software to train itself to perform tasks by exposing it to vast amounts of data.

DATA SOURCES
Proprietary and public datasets are integrated in a data lake and underly a variety of insight generating technology systems.

Feeds

Informs

Advanced Analytics
The examination of information using sophisticated techniques and tools to discover deeper insights

Yields

Advanced Insights
Deeper insights, predictions, forecasts and evidence-based recommendations

Advanced Technology Platforms and Tools

The emergence of healthcare-dedicated software in the cloud has given companies high-level analytical capabilities through:

- Access to vast quantities of data

- Anticipatory intelligence embedded into standardized workflows

- Robust, early warning systems of risks and opportunities

- An enterprise-wide view of data

Advances in the use of tools and apps linked to these platforms bring insights to end-users at multiple points along their daily workflow, creating intuitive interfaces.

LEVERAGING THE POWER

This technology tends to break down silos within organizations, connecting big data platforms across functions with one source of the truth. When automated systems are designed to be compatible, they can support clinical trial design and conduct, safety and regulatory, quality and compliance, real-world evidence of product outcomes, and patient and consumer engagement.

The following installment in our series will explain how the concept of connected intelligence is evolving and will review the five key elements needed to support connected intelligence. For a deeper dive into the topic, please download the full IQVIA Institute report here.

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