IDC PERSPECTIVE

Early Views into Automation and AI Adoption in the Life Sciences and Healthcare Today

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Early Views into Automation and AI Adoption in the Life Sciences and Healthcare Today

This IDC Perspective provides insights gathered by IDC Health Insights' analysts participating in the Infosys Automation and AI in the Life Sciences and Healthcare Industry event held at the Hanover Marriott on August 9, 2017. David Schubmehl and I co-presented the event keynote, followed by an introduction to Infosys' Nia AI platform and closing with a panel discussion on industry AI trends with contributions from IDC, Infosys, and representatives from both the life science and healthcare industries.

Key Takeaways

- With strong attendance representing both the life science and healthcare industries, there is clear interest in what process automation and AI can effectively deliver today and in the future.
- Both the life science and healthcare industries remain early adopters of AI technologies.
- AI technologies encompass a broad spectrum of solutions that could benefit innovative life science and healthcare companies.
- The Infosys Nia enterprise AI platform is among the first to cohesively bring together a comprehensive offering of AI technologies in a unified solution.

Recommended Actions

- Assess organizational strategies concerning process automation and AI to determine whether further investment is merited.
- Review the current state of adoption of AI technologies within and across your organizations to determine progress relative to industry peers.
- Consider whether a more enterprisewide approach to AI adoption could deliver increased value.

Source: IDC, 2017

SITUATION OVERVIEW

Background

In both the life science and healthcare industries, it is clear that the better use of data can improve efforts across the organizational value chain. Whether it's R&D or commercial, tactical or strategic, or hands on or management, more effective use of data to better inform decisions can be expected to reduce risk, decrease operational costs, and yield better outcomes. As a result, leading industry innovators have aggressively moved to improve access to data across the enterprise while concurrently ensuring that data is comparable, high quality, and managed in compliance with relevant regulatory requirements. The co-development of analytical dashboards has provided early windows for key data users, ensuring that data is available to support research, process development, and tactical and/or strategic decision making.

The continuing exponential growth of new data (in both volume and variety) promises to overwhelm both existing infrastructure and the ability of organizations to consume, use, and manage data on a daily basis. As organizations look for ways to keep ahead of this data tsunami, AI may provide new, more sustainable paths forward. Beyond direct data concerns, AI (broadly defined) also has the potential to deliver new capabilities that help uncover new insights, transform existing processes, and deliver improved outcomes across the industry value chain while concurrently saving both time and money.

Technology Adoption in the Life Science and Healthcare Industries

As highly regulated industries, the life sciences and healthcare have been historically slow to change, based on concerns over regulatory noncompliance and patient safety. Increased urgency driven by the drug patent cliff (life sciences) and unsustainable cost growth (healthcare) have forced leading innovators to more aggressively pursue scientific, technological, and operational innovations that can help companies more quickly transform themselves. With a full spectrum of applications spanning multiple industries, AI promises to deliver proven new capabilities to the life science and healthcare industries in a timely manner. As expected, ongoing industry concerns have slowed, but not stopped, consideration and adoption of AI solutions in the industry.

The Infosys AI Event: A View into AI Adoption in the Life Science and Healthcare Industries Today

There continues to be strong interest within the life science and healthcare industries on innovations that can yield new actionable insights and improve operational efficiencies. The Infosys AI event, held at the Hanover Marriott, New Jersey, was well attended by local life science and healthcare companies, with 32 delegates from 14 different companies represented.

In our opening keynote, Dave Schubmehl and I highlighted leading trends in AI adoption, both broadly and specific to the life science industries. As expected, AI technologies are delivering significant new insights and value in R&D, including supporting drug R&D in the life sciences and helping stratify patient risk in healthcare. In addition, AI technologies are finding near-term practical uses across multiple industries through improving operational efficiencies using process automation and enhanced data mining of unstructured organizational data.

The event concluded with an active panel discussion that included participants from IDC, Infosys, and representatives from the life science and healthcare industries, supported by active participation from the industry audience. Ongoing and expanding use cases discussed included:

- The use of advanced analytics and machine learning at a pharmaceutical company to better understand bottlenecks in IT and manufacturing and develop predictive and prescriptive models and processes to improve current and future incident handling
- The use of natural language processing (NLP) and advanced analytics by a healthcare payer to incorporate insights from unstructured (and structured) data to better identify call center issues, uncover previously unrecognized patterns and trends, streamline incident responses, and develop more proactive and lasting solutions to customer issues

The use of advanced AI technologies remains very early in consideration and adoption, in large part due to traditional industry risk avoidance and concerns over regulatory acceptance of potential "black box" models.

Infosys Nia: An Introduction

As the event sponsor, Infosys took the opportunity to introduce Nia, its knowledge-based AI platform that delivers a full spectrum of AI capabilities, including advanced analytics, optical character recognition (OCR), natural language processing, machine learning, knowledge management, and automation – both deterministic and cognitive. Designed with the enterprise context in mind, Nia ingests data from a variety of sources using prebuilt APIs, discovers relationships between data elements using NLP and machine learning, and creates intuitive, user-friendly knowledge models enabling a wide variety of use cases for both IT and business processes. Nia provides organizations with a single point of entry to AI, clear near-term deliverables, extensibility, and the potential to grow as organizational acceptance of AI grows.

As part of the forum, Infosys described specific use cases where it believes that Nia can help improve existing processes or systems. Broadly, these use cases can be grouped into three categories (patient/customer-facing uses, operational uses, and administrative uses), based on how they can potentially impact the organization.

Patient/Customer-Facing Uses

- **Customer support:** AI technology delivers contextualized and personalized customer support either by empowering agents with relevant customer data or by deploying a web or mobile conversational interface (chatbot) that interfaces with the knowledge ontologies.
- **Patient engagement:** Clinical, claims, EMR, ePRO, behavioral, and sensor data are ingested; then machine learning algorithms identify factors impacting patient engagement and adherence to treatment programs.
- **Automated pharmacovigilance:** Data from multiple channels including social media, emails, fax receipts, call center transcripts, and other document management platforms are ingested. Machine learning algorithms extract information and identify appropriate safety personnel for review, triage, and/or reporting into safety management systems.
- **Risk assessment:** Clinical trial data is analyzed to create a risk-benefit profile of an experimental drug or benchmark a drug in the market against a competing product. This allows organizations to make better-informed decisions on the viability or performance of a drug.

Operational Uses

- **Data quality:** One of the persistent problems that consumes significant effort is ensuring availability of accurate provider data across all the payer organizations. AI technology can continuously monitor provider data hosted within payer organizations and correct inaccuracies automatically, thereby reducing penalties and eliminating delays in payout.

- **R&D analytics:** Infosys Nia provides an integrated view into all applications that support clinical operations. It greatly improves operations by eliminating silos and bringing together data from different sources. Relevant, contextualized insights help predict key events of interest such as patient safety events, clinical trial performance, CRO oversight, and data integrity violations.

Administrative Uses

- **Data reconciliation:** Data inconsistency across different systems at a payer (insurer), such as billing and enrollment, results in significant manual effort. Infosys Nia brings together data from different systems and leverages big data analytics and machine learning to automate the data reconciliation process and greatly improve the quality of data across the systems.

- **Regulatory reports:** A more exotic implementation can ingest results from a clinical study and automate the time-consuming task of generating the clinical study report using preexisting templates. The solution leverages natural language generation and semantic search capabilities and can be scaled to author other reports such as safety narratives and periodic safety reports.

IDC'S POINT OF VIEW

The industrywide trend to better utilize data to improve productivity and better inform decision making has reduced industry data silos, normalized data to enable comparative analyses, and created data resources and supporting analytics dashboards. As a noncore competency, implementation of these capabilities has been largely externalized to industry partners. As data analytics takes the next step, AI technologies are growing and maturing to expand data analytics to include knowledge and practical best practices. In the life science and healthcare industries, AI adoption progress can be expected to lag behind other industries' due to regulatory and patient safety concerns. However, the industries are moving faster than ever to pilot and implement solutions as they prove their value. Competent service providers, including Infosys, and comprehensive AI platform offerings, like Nia, will likely be at the forefront of industry consideration as practical experience drives adoption of the most robust and extensible solutions.

LEARN MORE

Related Research

- *How Are Pharmaceutical Companies Considering the Use of Cognitive Computing and AI Within Their Organizations?* (IDC #US42907417, July 2017)

- *How Machine Learning and Cognitive Computing Are Delivering Near-Term Value and ROI in Life Science R&D Today* (IDC #US42491417, April 2017)

- *U.S. Life Science Top 10 Market Trends for 2017* (IDC Health Insights #US42289017, February 2017)

Synopsis

This IDC Perspective provides insights gathered by IDC Health Insights' analysts participating in the Infosys Automation and AI in the Life Sciences and Healthcare Industry event held at the Hanover Marriott on August 9, 2017. David Schubmehl and I co-presented the event keynote, followed by an introduction to Infosys' Nia AI platform and closing with a panel discussion on industry AI trends with contributions from IDC, Infosys, representatives from both the life science and healthcare industries, and an active industry audience.

"With improved availability of organizational (and extra-organizational) data becoming the norm and initial analytical dashboards in place, leading life science companies are beginning to explore cognitive technologies to further extract value from their data resources. As demonstrated by strong life science and healthcare participation in the recent New Jersey event, a renewed interest in cognitive use cases and vendors that can help implement cognitive solutions has followed, with significant opportunities for innovation over both the near term and the longer term," said Alan S. Louie, research director, IDC Health Insights Life Science R&D Strategies and Technology.

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