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AI-Driven Automation in Life Sciences

AI and automation present the Life Sciences industry with the opportunity to transform traditional processes across discovery, development, manufacturing and regulation, to bring medicines faster to patients. Complex drug discovery and computational bio and chemistry modeling powered by AI hold significant potential to deliver early insights into the working of drugs. This can significantly improve business performance and downstream development effort.

Lengthy and high cost drug development processes are potential areas where AI can be leveraged to augment trial managers in effectively handling complex global operations, trial designing and planning, risk predictions, monitoring and CAPA, and gaining significant efficiencies. With digital channels, AI and automation can facilitate effective patient engagement and drive quality through the clinical trial journey. Similar opportunities exist in supply chain and manufacturing areas that help maximize plant capabilities, and create an effective supply chain in a global manufacturing and distribution environment.

AI Journey: Transformation of Operations towards Software + People Model

Although AI and automation hold significant promise for Life Sciences, these technologies are yet to be adapted in a pharma regulated environment. Organizations should follow a carefully planned maturity model to adopt these technologies to gain internal and regulatory confidence. We believe that the initial wave of AI and automation will augment human capabilities by targeting time-consuming tasks and will gradually move into decision support functions.

Life Sciences organizations should actively promote a white-box approach for AI. This will provide complete transparency into the rationale behind performing a function in a certain way. This approach allows organizations to avoid any machine-induced errors that can impact patient safety. It also creates a continuous learning environment for AI technologies.

Organizations should integrate AI in other critical functions and create a roadmap for AI technology infrastructure organization-wide. The roadmap should proactively consider continuous developments in the AI space and normalize them to align with existing and upcoming regulatory guidance. A successful AI journey begins with an understanding of the specific opportunities and limitations it brings. It requires Life Sciences organizations to meticulously act on multiple levers (as shown in Figure 1), to achieve desired results.

An incremental approach to AI adoption also needs a step-wise approach from Operational to Predictive and Cognitive processes, to generate knowledge-driven insights, as the organization attains a certain level of maturity in understanding of AI processes and benefits. It will allow organizations to also handle the human aspects of organizational change (as shown in Figure 2).

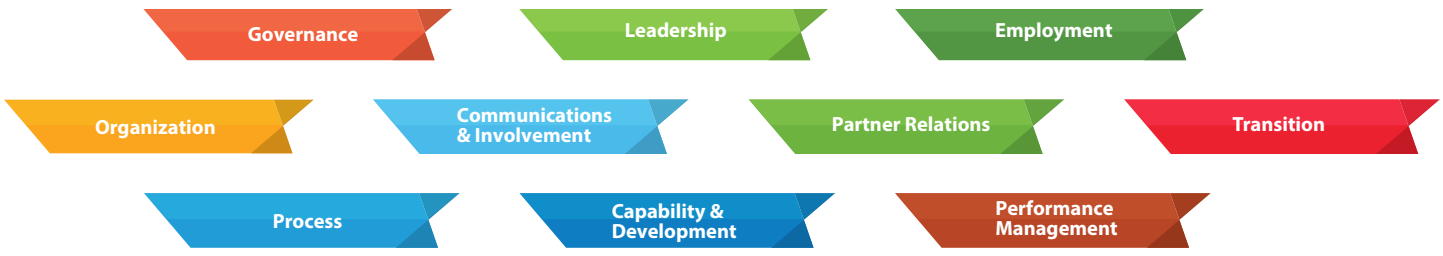

Figure 1: Key Organization Levers in the AI Journey

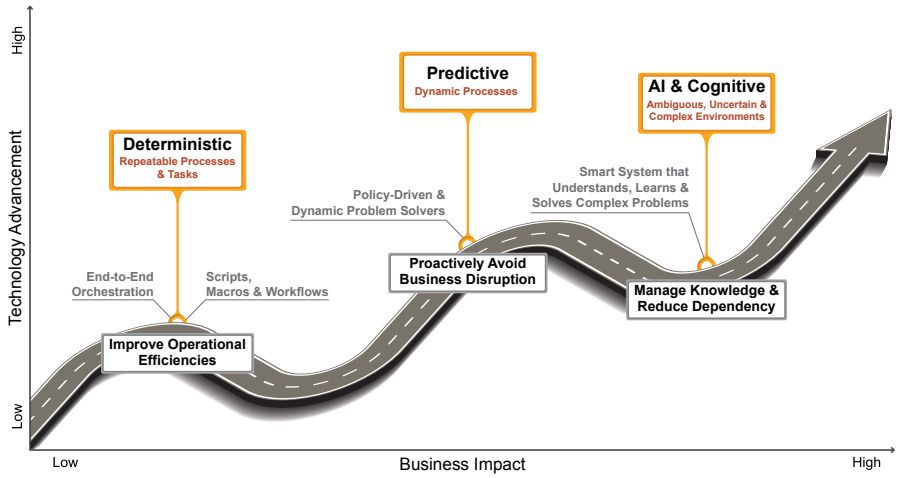

Figure 2: AI Solution Maturity

Scope of AI Opportunities in the Life Sciences Value Chain

When embarking on the AI journey, organizations should continuously prove business value realization and architectural considerations for a sustainable technology stack to support automation. This will enable organizations to identify the relevant use case and business function to kick-start AI adoption (as shown in Figure 3) while continuously driving business value.

Infosys Nia™ – The Next Generation Purposeful AI Platform

Infosys NiaT™, the next generation purposeful AI platform, collects and aggregates organizational data from people, processes and legacy systems into a self-learning knowledge base and automates repetitive business and IT processes. This enables businesses to use information without human intervention.

The AI Knowledge Platform Delivers

- Smart automation
- Prediction and prescription
- Knowledge curation and inferences
- Intelligent business process monitoring

The platform helps capture, formalize, process and represent knowledge in a powerful ontology-based structure that allows knowledge reuse, as underlying systems change.

Business Benefits of Automation

We are already seeing quantifiable benefits across a number of AI use cases that we are working on with clients in the Life Sciences industry. Some of the key benefits that we see are:

- Lowered overall cost of operation
- Improved quality of clinical trials
- Increased R&D productivity
- Enhanced operations efficiency
- Improved patient experience
- Increased opportunity to build and leverage organizational knowledge

AI and automation are increasingly becoming relevant across regulated and non-regulated processes in Life Sciences organizations. The world, including many of our clients, have begun to understand the benefits of AI and are moving from a mobile-led transformation in the last decade to an AI-led transformation in the coming decade.

Figure 3: Applicability of AI in the Life Sciences Value Chain across Business Processes

For more information, contact askus@infosys.com

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