

IT SERVICES PROFILE OF INFOSYS:

Intelligent Enterprise for SAP

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Infosys Introduces Intelligent Enterprise for SAP to Address Need for "ERP Digitalization"

While SAP has become core to many large enterprise business processes, it has been slow to adapt as user and business expectations have evolved; an interface that requires forty to fifty separate inputs across five or six screens does not reflect how users expect to interact with systems today.

Similarly, ERPs now often lack the necessary agility to support the current business environment with organizations increasingly under pressure to digitalize their operations, automate processes to achieve increasing levels of straight-through processing and provide enhanced user experiences.

SAP is taking two approaches to tackling these challenges. Firstly, SAP itself is evolving to address these challenges by modernizing its ERP software; migrating to HANA to operate more in real-time; introducing Leonardo to expand capabilities, and Fiori to change the user experience.

Secondly, the company is addressing the need for increased flexibility and functionality through partnership. In particular, the company has become more open to working with outside partners and allowing open source software to be built on to the core SAP system. This approach shifts SAP from an all-inclusive system to being the digital core of the enterprise, with incremental functionality, either from open sources or built by SI partners, adding to its capabilities.

SAP's revised approach has also enabled IT service vendors to play a more strategic role in supporting SAP. Where IT service vendors were previously focused on the implementation and on-going outsourcing of SAP system support, they are now playing increasingly important roles as business transformation partners, offering both expanded business capabilities and value-add offerings that are tailored to address specific vertical or business function requirements.

Infosys' Intelligent Enterprise offering seeks to meet these needs for ERP modernization. It aims to address the challenges inherent in monolithic ERP systems implemented over the last twenty years, through:

- **Digital re-engineering:** redefining business processes and enabling supporting systems as necessary
- **Leveraging technology:** incorporating IoT and other emerging technologies to expand the ERP's capabilities
- **Re-imagining the enterprise:** using automation, machine learning and workflows to simplify and automate manual business processes while providing an integrated view of processes & data for full transparency
- **User experience:** simplifying user interfaces, assisting users with smart transactions and eliminating redundant business processes

Intelligent Enterprise Applies Nia AI Platform Across SAP Stack

Infosys Intelligent Enterprise combines Nia, Infosys' "knowledge-based AI platform", with its AssistEdge RPA platform, and its ValuePLUS SAP application management framework. It also integrates directly with SAP products including Leonardo and Solution Manager while leveraging HANA's native machine learning capability with other ML technologies.

Nia is built using open-source technologies and has been in use across Infosys for ~3 years. Nia ingests client data including:

- ITSM ticket data
- Alerts, events and error logs
- Application meta data
- Business process data
- SAP Solution manager data.

It then uses this data to automate aspects of service delivery, including:

- Correlation of alerts-errors
- Anomaly detection
- ML-based knowledge mining
- Root cause analysis
- Front-end automation (RPA)
- Back-end automation
- Chatbots
- Probabilistic diagnosis model

In addition, Nia seeks to develop insights into business and IT operations as well as identify opportunities for business process improvements, including:

- Providing a unified view of business process KPIs and SLAs
- Enabling visibility into business process milestone progress
- Identifying business process inefficiencies.

Infosys Intelligent Enterprise applies Nia capabilities across the entire stack of an SAP enterprise, including core technology layers of infrastructure, SAP Basis and database; techno-functional layer of ABAP, security and development; and the business functional layer of business processes and functional modules. It then aims to identify which components are at highest risk of failure and which components can be optimized to improve business and technical performance.

Infosys' Intelligent Enterprise deployment framework begins with design thinking sessions to identify the use cases that are of highest value to the client, whether eliminating pain points

or enabling the client to take advantage of new opportunities. It then uses SCRUM and agile methodologies to implement the defined use case(s).

Given the broad scope and impact of implementing Intelligent Enterprise, Infosys is placing a major focus on governance and change management aspects to ensure the client and its employees can realize the planned benefits. This approach includes a defined governance structure addressing all stakeholders and a SWAT team to support all implementations and share best practices. Change management includes a structured communications plan incorporating roadshows, training and rewards programs to incentivize adoption.

Intelligent Enterprise Use Cases

The use cases for Infosys Intelligent Enterprise multiple areas: automation-related use cases, typically based on AssistEdge, and machine learning-related use cases, involving the application of Nia & other machine learning technologies.

Infosys currently has ~125 automation use cases across industries tailored to specific industry verticals. The current number of automation use cases for each industry is as follows:

Apparel & Footwear: 51

Manufacturing & Resources: 11

Pharmaceuticals: 25

Retail & Logistics: 22

Agribusiness: 16

Infosys estimates that ~80% of these Intelligent Enterprise automation use cases have been implemented in client environments.

When applying machine learning-based technology for the first time, it can be difficult to quantify the business case up-front. However, clients have been willing to undergo proofs of concept (POCs) to gauge the value that can be realized. A POC provides an indicative value that can then be extrapolated to provide a range of benefits when applied more broadly across the organization.

Infosys' machine learning-based intelligent automation for SAP use cases are typically usable across multiple industries, including apparel, manufacturing, pharmaceuticals, retail, mining, and food and agri-business. These use cases include:

- Purchase contract consumption
- Inventory stock location management
- Effective decision and customer satisfaction
- Predict sales volumes
- Order probability prediction
- Customer hold prediction
- Predict credit limit consumption
- On-time delivery prediction
- Returns order prediction
- Predict equipment maintenance
- Information lifecycle management.

These machine learning-based Intelligent Enterprise use cases are both at proof of concept and early adoption stage, with ~10 POCs completed and an additional five POCs in the pipeline.

Use Case Examples

Purchase Contract Consumption

Targeted at the procurement function, the purchase contract consumption use case supports the tracking of consumption under supplier contracts. Using machine learning, it analyzes consumption patterns and sets up minimum-level thresholds that trigger alerts for re-contracting

The use case minimizes the risk of stock-out impacting production for manufacturers and reduces the cost of undergoing an extensive procurement process for necessary orders.

The use case targets multiple industry verticals, including manufacturing, pharmaceuticals, automotive and even professional services firms like Infosys itself. The offering was developed internally by Infosys and is offered as a shared service through a COE to its various clients.

Customer Segmentation

Targeted at supporting sales and marketing, customer segmentation uses machine learning to analyze order and spend patterns to segment a customer base for better targeting. Applying an algorithm directly to data housed in the ERP rather than needing to extract to analyze (as is the case for legacy analytics platforms like Hyperion and Cognos) increases the speed at which data can be analyzed and learnings applied.

The segmentation can be done based on multiple variables, including customer demographic, spend pattern, recent purchase, ordering frequency, buying similar products from the competition, time spent on ordering, social connection, and pages visited.

Inventory Stock Location Management

Targeted at retailers, inventory stock location management defines how to organize items in a warehouse for efficient picking time. Machine learning analyzes sales history to identify items that are purchased together to define how to organize the warehouse for optimal picking efficiency.

Enhancing AI Functionality within Intelligent Enterprise Platform

While its current Intelligent Enterprise efforts are primarily focused on implementing POCs, defining business cases and identifying new use cases, Infosys is continuing to invest to expand its overall capabilities. The company's key investment focus areas over the next two years are:

- Exploring more machine learning algorithms that are applicable across industries
- Building more intelligent enterprise solutions suitable for various types of SAP landscapes
- Building solutions around SAP Leonardo offerings to further enhance value from IoT and other additional components of artificial intelligence
- Focusing on user centric offerings to simplify tasks of end users and pass on as many functions as possible to be performed through automation or ML
- Implementing Digital Assistants specifically designed for the SAP ecosystem
- Expanding ML capabilities, including the incorporation of enterprise-grade machine learning software from acquisition of Skytree.

ERPs have historically been slow to evolve as new technologies and capabilities are introduced. By introducing Intelligent Enterprise offerings to augment core SAP functionality, Infosys is positioning itself to provide the capabilities that clients seek but SAP has yet to deliver: vertical and horizontal targeted solutions that utilize intelligence and automation to maximize their value.

About NelsonHall

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