Intelligent and Self-governing

The future of modular cloud ERPs

Abstract

Evolving market conditions and rising customer expectations are compelling organizations to embrace cutting-edge technologies and digital transformation solutions. At the center of digitalization of the IT core are the enterprise resource planning (ERP) systems.

Standardized, inflexible cloud ERP integrations are unable to address the burgeoning volumes of business and consumer data, and growing complexity of processes. Organizations are increasingly adopting cloud-based ERP systems for the flexibility, agility, reliability and scalability that they provide. Modular ERP solutions need to integrate with internet of things (IoT)-enabled devices and cross-organizational systems and applications to provide a single pane view of processes and data to enable informed decision making. The future of modular ERP will be driven by the need for on-demand, self-governing mobility, and automated and cost-effective solutions.

In this paper, we explore how self-governing ERP solutions allow business users to leverage automation to elevate their organizational processes. We detail out the key characteristics of a self-governing ERP and elaborate on the four key stages essential to the success of the module. Finally, we have also elucidated how the self-governing ERP model works in two different use cases in the retail and financial services industries.

Future forward your business with cloud ERP solutions

One of the key focus areas of digitalization of the IT core is the enterprise resource planning (ERP) systems. Organizations are increasingly opting for modular cloud-based ERP systems for managing their business functions such as finance, supply chain, retail and human resource management as they offer greater flexibility, agility, 24x7x365 reliability and ease of scale globally without heavy technology investments and maintenance concerns. They also provide freedom from large capex in a volatile market. As a result, more and more businesses are moving to SaaS and modular cloud-based ERP solutions. The global cloud ERP market is expected to grow 13.6% annually and reach *$40.5 billion by 2025[1]*, according to Statista.

IDC expects the worldwide enterprise applications market to have a five-year compound annual growth rate (CAGR) of 3.4% with revenues reaching *$265.7 billion by 2024[2]*.

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[1]   https://www.idc.com/getdoc.jsp?containerId=prUS46724220, July 2020, Accessed May 2021
[2]   https://www.statista.com/statistics/681753/worldwide-cloud-erp-software-revenue/, Accessed May 2021

The need for self-governing ERPs

With the burgeoning volumes of business and consumer data, and growing complexity of processes, standardized cloud ERP integrations are simply not enough to meet growing business requirements. These solutions continue to be largely inflexible, thereby requiring significant human intervention across routine data processing and other operational tasks. Most organizations need to adapt to the ERP systems, limiting their ability to optimize their processes and leverage their individual organizational strengths. Companies are now keen to leverage next-gen technologies including artificial intelligence (AI) and machine learning (ML) to optimize business processes, automate routine data processing and operational tasks, solve problems proactively, and leverage new insights to create more personalized solutions and offerings.

Technology barriers that necessitate manual intervention on routine business transactions limits productivity, innovation and speed to market. Enabling a self-governing ERP approach helps reduce the bottleneck of the popular Von Neumann architecture, which advocates the way in which humans work on machines, relieving human time and effort for more creative and strategic decision-making activities. The need of the hour is for resources to focus on strategic activities and informed decision making, rather than data entry.

Self-governing ERPs: Elevating processes to the next level

This is where self-governing ERP comes in, allowing business users to (semi) automate processes in a tailored manner. In fact, enterprise application vendors are already working on supporting new use cases by leveraging big data, analytics and machine learning to enable actionable insights across functions. They are also working on automating lower-level tasks. This trend is likely to continue to be a key factor in determining market positioning among enterprise application vendors in the future.

The future of modular ERP will be driven by the need for on-demand, self-governing mobility, automated and cost-effective solutions.

As the broader industry shifts towards implementation of Industry 4.0 principles, there are more niche use cases for self-governing technology as business processes mature. Reducing manual intervention in data entry is a strategic imperative for a good, self-governing ERP solution. Self-governing ERP leverages AI and ML solutions to reduce the manual intervention and data entry, freeing up labor and cost resources for other strategic tasks.

Characteristics of a robust self-governing ERP solution

While automated data entry is the first step for self-governing ERP, to realize the opportunity and align IT with business outcomes, we must include other factors as well. Key aspects that characterize a robust self-governing ERP solution include (see Figure 1).

1. **Zero-trust ERP cloud platform:** Ensuring verification and authentication of all connected systems, applications and users

2. **Agile processes:** Enabling smooth switch and rollover between processes

3. **Continuous accounting, supply-chain visibility and workforce management:** Enabling smooth transfer and visibility of decision driving data parameters through the value chain

4. **Digital ledgers across the value network:** Implementing blockchain led, decentralized processes, allowing simultaneous access to multiple stakeholders (customers, suppliers, employees) and workflows and leading to accelerated process outcomes

5. **Business continuity:** Enforcing fail-safe backup processes in the event of automation failure related to data, business process handoffs, etc., allowing for immediate human intervention

6. **Integrated multimodal interface:** Including AI, speech recognition, etc. to elevate processes to the next level rather than execute data entry with machines or through human intervention

Figure 1: Six core areas of self-governing ERP

Steps in implementing self-governing ERP solutions

Implementing the self-governing ERP is not a one-time activity. There are several sequential stages or milestones involved. We have identified four key steps below and outlined the activities undertaken in each stage.

Stage 1 - Discovery

The first stage, or 'discovery', includes identifying and defining business process functions that are amenable for easy presentation and integration via machine learning capabilities. These determine the business drivers.

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Stage 2 - Appraise

At this stage, a framework to improvise the process is defined, business models are assessed, and the key desirable and non-desirable results are identified. The business results are measured through business processes and not individual features of the ERP or functional activities. Value stream mapping of the processes to build in efficiencies prior to defining the automation framework is a pre-requisite.

Stage 3 - Rule

At this 'rule' stage, conditional decision making is built in to ensure flexibility to enable human intervention as and when required to aid decision making. This includes the ability for designated users to reverse particular business functions. This capability improves user adoption with the comfort and assurance of human intervention (promoting change management), and helps to invoke accurate transactions in a digital manner across functions such as payments, invoices, etc.

Stage 4 - Consummate

At this stage, business users can restrict their intervention to decision making and focus on aspects such as enhancing customer value and strategic tasks that need to be performed based on human decisions.

Self-governing ERP in action

These four stages are integral to ensuring the success of the self-governing ERP. Let's understand how it can be implemented in a retail CPG organization that receives their customer orders through multiple channels including in-store, social media and website. Customer order processing is a critical function in the retailer's supply chain and entails sequential activities, starting from receiving the order, to order fulfillment and eventually, order delivery.

The discovery stage involves identifying specific business process functions that the retailer wants to streamline and convert into self-governing ERP mode. This includes processes such as creating the customer master data, navigating through customer order history, recording order details, validating pricing details and so on.

To enable this, the key stakeholders need to be aligned to ensure that the processes are detailed out and duly captured. This is effectively done through a structured design thinking-led workshop forming the appraise stage of the process. With this alignment, the machine learning algorithm can then be trained to capture the business processes and enable it to be self-governing, constituting stage three or the rule stage of the process. The final stage or the consummate stage is to pilot the machine learning and self-governing business process so that business users can view the end to end automated journey of customer order booking.

To illustrate with another example, let's consider invoice processing in a financial services firm that receives customer invoices as well as payment instructions from the bank. The collection and processing of these invoices and instructions is in automated batch orders. For this organization, validating the invoices and payment instructions from the bank is key to generate the cash flow and keep track of payment collections.

A similar process can be followed to identify the core business process functions that will be converted to the self-governing ERP. In case of the financial services company, parameters such as invoice quantity, invoice amount, invoice discount, customer bank payment reference, partial or full payment details and so on can be captured to enable the self-governing mode. The identification of these parameters forms the first stage of discovery.

Based on the process discovery, desired outcomes can be defined, that is appraise stage – creation of customer data, navigation through order and payment history, records of invoice booking and validation of invoice and payment details and so on. The machine learning and artificial intelligence algorithms can be trained to scan the digital invoice and payment instruction to be fed in the ERP system in the rule stage. Lastly, the consummate stage would involve piloting the process to eliminate errors and ensuring smooth operations towards efficient self-governing ERP.

The future of ERP is automation driven

Increasingly, finance, supply chain, sales, and other asset management functions will play a larger forward-facing role, interacting with clients and customers more than ever before. Productivity improvements from shop floor to supply chain to enterprise-level business processes, automation of manual processes resulting in greater efficiencies and reduced errors, increased agility, enhanced, single-pane view and visibility of data and processes across the organization and reduced lost money and innovation opportunities are key to success. Businesses must also have adequate insights to sufficiently plan, budget, forecast and deliver the state of operations to their shareholders. The answer lies in self-governing ERP solutions that significantly enhance customer and employee satisfaction, while simplifying decision making and allowing business users to think differently to ensure customer value. TCS' ERP transformation offering for Microsoft Business Application addresses this emerging demand for self-governing ERPs. It helps enterprises across manufacturing, telecommunications, utilities and financial services using a next-generation modular intelligent ERP built on Microsoft Dynamics 365 cloud.

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