

Being a digitally enabled, intelligent enterprise is now a competitive differentiator for organizations worldwide. This IDC Market Spotlight examines the key ingredients of intelligent ERP, a major component of the digitally enhanced intelligent enterprise.

Digital Transformation in Times of Change: What Intelligent Enterprises Need from Their ERP Systems

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Introduction: Challenges in Today's Enterprise

Today's enterprise increasingly needs agility, speed, and insight as the way to manage the COVID-19 pandemic. Businesses must now adapt to rapid changes in supply chains and working arrangements. Priorities are shifting quickly, and tight connection and communication both internally and with customers and vendors across the supply chain require companies to rely on digital technology and automation more than ever to stand as islands of stability amid today's turmoil.

The good news is that 65% of the G2000 organizations will rationalize, modernize, and transform their businesses by 2023. However, globally uncertain times require the business to shift to digital first and fast. IDC predicts that by the end of 2020, artificial intelligence (AI) will be the core for organizations, as 50% will purchase application technologies focused on the user experience. AI as the new user interface (UI) means the enterprise is becoming more intelligent faster, utilizing advanced technology to enable this leap.

Evolving to an Intelligent Enterprise

Organizations are digitally transforming, and as part of this effort, they are also evolving to become intelligent enterprises. IDC's recent *Digital Transformation Executive Sentiment Survey* found that the top 3 benefits companies have received are productivity improvements, cost efficiencies, and process cycle times — with average improvements of 16–18% across all three areas. Digitally transformed enterprises also have 8 times more revenue and 2 times more profitability, according to IDC's *Digital Transformation Survey* of more than 402 manufacturers and retailers from 2013 to 2019. Similarly, small and medium-sized businesses that transformed are more likely to report double-digit growth and higher profitability.

AT A GLANCE

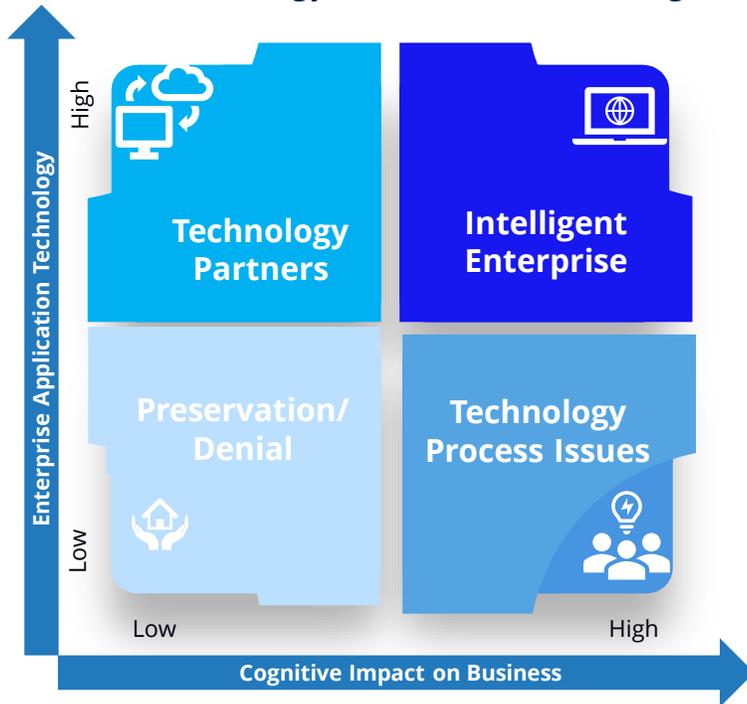
KEY STATS

IDC's 2019 survey of 300 SAP clients on the deployment of SAP S/4HANA, an intelligent ERP system, found that:

- » 55% can use data for better analytics, predictions, or simulations.
- » 51% have or will have significantly improved the time it takes for the business to process and utilize information.
- » 48.3% said their business is or will be enabled to implement new products or services quickly.
- » 48.3% are or will be digitally enabled to drive new levels of efficiency and effectiveness and enable transformational business models.

When AI and cognitive dimensions are added to the digital experience, intelligence becomes a derivative of the technology, the business process, and the entire enterprise. The organization evolves as the derivative is increased and enhanced, moving it to become an intelligent enterprise (see Figure 1).

FIGURE 1: **Technology Evolution and the Intelligent Enterprise**



Source: IDC, 2020

Evolving to an intelligent enterprise means the organization must implement an operational foundation for future innovation. IDC calls that evolution intelligent ERP. Intelligent ERP automates tasks using algorithms, data sets, analytics, cognitive, and an assistive user interface across people, process, and technology to forecast, track, learn, route, manage, analyze, predict, and report. This automation allows for better insights and actionable decision making that results in better business performance.

The 10 Ingredients of Intelligent ERP

1. **Cognitive.** Every organization must cope with massive amounts of data generated both internally and externally. Intelligent ERP can tie these massive data aspects to analytics and cognitive aspects of machine learning, deep learning, and robotic process automation to analyze the data, glean insights from the data, and make predictions of processes, transactions, and other data elements. The ability to turn analytics into insights and deliver value in real time makes cognitive a critical element. As data grows in volume and variety and analytics are engaged to keep up, the risk of having more insights than people can process becomes a significant challenge. Digital data means the same data used for transactions and analytics can now, in real time, glean insights and patterns that may never have been conceived of in the past. Programming becomes history. The intelligent enterprise relies on speed and the ability to take account of changes detected across all aspects of the data quickly and completely.

2. **Connected.** Sensing what is happening within the business is critical to intelligently setting the right course and altering it as changes occur. Transaction data from the ERP system, coupled with data from other enterprise applications, social media, weather, news, sensors, robots, and drones, can be fed into analytical frameworks to yield real-time information that helps the enterprise make the right decisions in the moment and over any time span. Organizations using intelligent ERP can connect to customers, suppliers, employees, and other businesses so they are stronger and more resilient.
3. **Agile.** Intelligent ERP systems are easier to use, more interactive, and more intuitive. Agility is enhanced because the technology and processes provide employees with a greater ability to think, understand, analyze and move quickly with decision making. Organizations using intelligent ERP systems have more mobile and transparent workflows. The entire organization has visibility into what is happening, enabling the business functions to work together in making decisions that lead to better performance.
4. **Compliant.** Intelligent ERP algorithmic recommendations must comply with corporate statutory policies. Quarterly updates to regulatory and other requirements are a necessity, as are ad hoc updates.

The digitally enhanced intelligent enterprise must respond to customer centricity, which requires predictive business processes that flex to meet changing customer demands. A great customer experience is critical to repeatable revenue, and this means adhering to repeatable yet compliant business processes. From manufacturing to procurement and suppliers to engineering, following the right business processes is necessary to ensure the right customer experience. The business must operate consistently on a global basis, achieving the organization's goals while staying compliant. This includes the segregation of duties in accounting, material management controls and track and trace in the supply chain, and the engineering-specified materials in the products.

Compliance also means incorporating both policy-based and informal knowledge of veteran workers into intelligent ERP. IDC believes that by 2021, driven by a widening skills gap, 50% of organizations will utilize intelligent ERP to capture and share the knowledge of their more experienced employees.

5. **Capable.** With intelligent ERP, the business can support more requirements that span the entire enterprise instead of certain elements based on a function only. Finance, procurement, and manufacturing can access the information they need, making the right decisions for the business. In-memory technology capabilities mean the business can manage without delays from traditional structures for areas such as financial close and material requirements planning (MRP).

Every industry also has specific needs to add in its own extensions to help make the customer experience unique and compelling. An example of an extension for the food and beverage industry is in its positioning of vending machines outside of stores or fuel stations. These newer vending machines are tied back into an intelligent ERP system connected with Internet of Things (IoT) sensors to read location inventory so that inventory can be replenished as needed. These sensors identify the inventory needed, applying replenishment data, and can even add in other contributing factors such as the amount of certain beverages that might be purchased at different times within a week, a month, or a year (seasonal items).

Operational data is also always available, enabling consistent intelligent insights tied to agile learning algorithms. The operations have expanded to a business that is now adding insights for areas that were previously ignored or not understood, which brings forward the adaptiveness of the digital core to additional data. A reliable source of accurate analytical information must be an integral part of the core for it to be truly adaptive and to turn data into action for the enterprise.

6. **Modern.** Modern ERP systems are cloud ERP systems. They are agile, configurable, continuously updated, quicker to implement, available anywhere and anytime, and scalable. Cloud computing is defined as accessing shared IT resources "on demand" and over the internet. Many organizations are using cloud solutions for their functional business requirements but have not yet shifted to them for their ERP systems. The current global uncertainty has shifted the focus to the cloud, underscoring the need for an organization to work anywhere and anytime. IDC expects organizations to start moving to a digitally enhanced modern intelligent ERP system.
7. **Collaborative.** The intelligent enterprise is highly collaborative, and collaboration is critical to meeting customer experience expectations. Organizations have spent many years using different applications to manage a function and the data elements within it. However, in most organizations, the overall business operations have also been run using manual and spreadsheet-driven processes. Intelligent ERP takes advantage of the data in all areas, making visibility, insights, and actions easier to manage. With intelligent ERP, investment into business processes, data, and analytics cuts across multiple functions and domains, so the "white space" between the applications is being removed gradually. IDC believes that by 2022, 50% of organizations will invest in new intelligent applications that are able to facilitate enterprisewide end-to-end workflows, removing white spaces between existing applications. White spaces being eliminated include buy-side approvals and routings, separate expense reports for manufacturing components, incoterm changes and updates, and inventory location and routing information.

The ability to extend collaboration beyond the enterprise means the enterprise can now extend the value of its operations. Third-party producers, logistics providers, designers, and engineers are now part of the virtual digital enterprise. The ability of intelligent enterprises to extend this collaboration into the value chain means the entire chain benefits.
8. **Innovative.** Intelligent ERP has a smart core that analyzes data from multiple sources to improve decision making and outcomes. Combining cognitive, analytics, data sets, APIs, and other data assets represents an innovation that helps an organization derive critical insights in real time. In fact, IDC finds that by 2022, over 75% of enterprise applications will be powered by an intelligent core that analyzes different types of data from a myriad of sources to improve decision making and business outcomes. The successful organizations that emerge from today's turbulent environment will be those that use intelligence to innovate quickly with brand-new models. These systems must be flexible enough to adapt and scale quickly as needed. In addition, IDC sees midmarket ERP systems adopting the intelligent ERP practices pioneered by large enterprises. By 2022, 90% of these system selections will prioritize analytics, data, and prebuilt cognitive business processes as critical differentiating features that impact system acquisitions.
9. **Scalable.** Businesses ebb and flow over time, and the ability to scale up and down with software is critical for companies. Subscription-based pricing models such as consumption pricing make it easier to scale as needed. The software and the pricing scale together in a consumption-based model. The typical model is based on a subscription price at a tier level so that the intelligent ERP vendor and client get the best of both worlds.
10. **Real time.** Data accumulates every second of the day across multiple business areas. Most legacy ERP systems are batch oriented in terms of updating the information. When these systems are augmented to include real-time data, the information and insights are skewed because the data timing is off. Real-time intelligent ERP systems allow the business to scale intelligently with the most important and up-to-date data possible. Consuming this real-time data enables actionable insights so that the intelligent enterprise can make the best business decisions at all points in time.

When an organization is using intelligent ERP, it has enabled a new variety of intelligence across the enterprise. It no longer views the technology as a must-do process; rather, it views the technology as a partner helping the business run at its best.

Intelligent ERP Benefits

Intelligent ERP is a technology system that is always on. It acts as a partner to the business by optimizing the enterprise resources of people, process, and technology. The technology takes on a bigger role, consuming more data by using analytics and cognitive workstreams. Processes are optimized across more data and can go end to end further or deeper into finite functionality areas. Human interaction starts to shift from transactional inputs and extraction and analysis of data. Instead, the human role is to augment the technology by asking it questions that can help unearth more value for the business.

Considerations of Intelligent ERP

Intelligent ERP does come with some risks. The considerations to keep in mind are as follows:

- » The data being consumed by intelligent ERP is subject to potential distortion and incomplete or erroneous information. To be of benefit, data must be understood based on where and how it is used, context, and scenarios.
- » Organizations cannot consume all inbound data without business process context, situational awareness, and supporting technology. A full definition and mapping of inbound and outbound data can assist the enterprise in its understanding of the technology facets that surround its decision-making abilities.
- » Understanding end-to-end business processes is critical as algorithms, data, analytics, and learning are applied. Intelligent ERP is built in context, but every industry and business is different, so the end-to-end processes may be different, too. One must understand the full breadth of the product when in use.
- » Intelligent ERP algorithmic recommendations must be compliant with corporate and statutory policies. Wrapping in regulatory, statutory, and business approval policies is a natural aspect of intelligent ERP. Unless these policies are included in an intelligent ERP system, the company will miss important data and risk noncompliance. Fines are tough pills to swallow.
- » Intelligent ERP is cognitively innovative when the business processes are tied with the data and analytics and the relationships between all are understood. Mapping out what the system can and cannot do is valuable for the entire business.

Intelligent ERP Will Become Autonomous

Cognitive is moving the enterprise from a human-to-human and human-to-machine interaction to an autonomous machine-to-machine interaction. The breadth and depth of this transformation still need to be understood, but the autonomous era is right around the corner.

Autonomous systems need intelligent ERP as well as other elements to succeed. In addition, the future of work and the future of trust for these systems will be different despite some similarities with intelligent ERP. The journey will evolve over time and will include technology partners working together to help each other achieve autonomy.

Emerge Stronger with Intelligent ERP

Intelligent ERP is here to stay for at least the next 5–10 years. Investing in it will allow a business to optimize its resources of people, processes, and technology. Intelligent ERP allows an organization to become more digital and intelligent while achieving better outcomes. With more insights and actions taken because massive data sets can be consumed so quickly by the technology, the enterprise naturally becomes smarter.

Organizations around the world understand that more intelligence brings greater power to the organization and sets up a competitive differentiator for the business. These turbulent times have forced the business world to embrace digital as never before. Last year, a manufacturing company using SAP S/4HANA told IDC, "Digital transformation is no longer an option; it is a necessity for our organization's very survival." How prescient those words sound today.

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About the Analyst



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Mickey North Rizza is program vice president for IDC's Enterprise Applications and Digital Commerce research practice. She leads a team of analysts responsible for IDC's coverage of the next generation of enterprise applications including ERP, financial applications, procurement, supply chain automation project and portfolio management, enterprise asset management, services resource planning (SRP) and related project-based solutions software, and the digital commerce business network.

MESSAGE FROM THE SPONSOR

Riding the waves of turbulence presents us with new challenges, demanding even more speed, agility and creativity to emerge with strength.

In the current crisis, companies are having to define and focus on their core competence, drive deeper customer relationships, develop new business models, adapt their supply chains, streamline their operations, and manage their finances. Those that can do this quickly will expand their differentiation.

SAP Intelligent ERP can help customers in all industries become best run businesses, enabling them to grow and align resources more efficiently. Unlocking the power of artificial intelligence helps employees make better, more informed decisions, drive out waste, grow healthy financial reserves, develop business resilience with best practices with rapid time-to-value



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