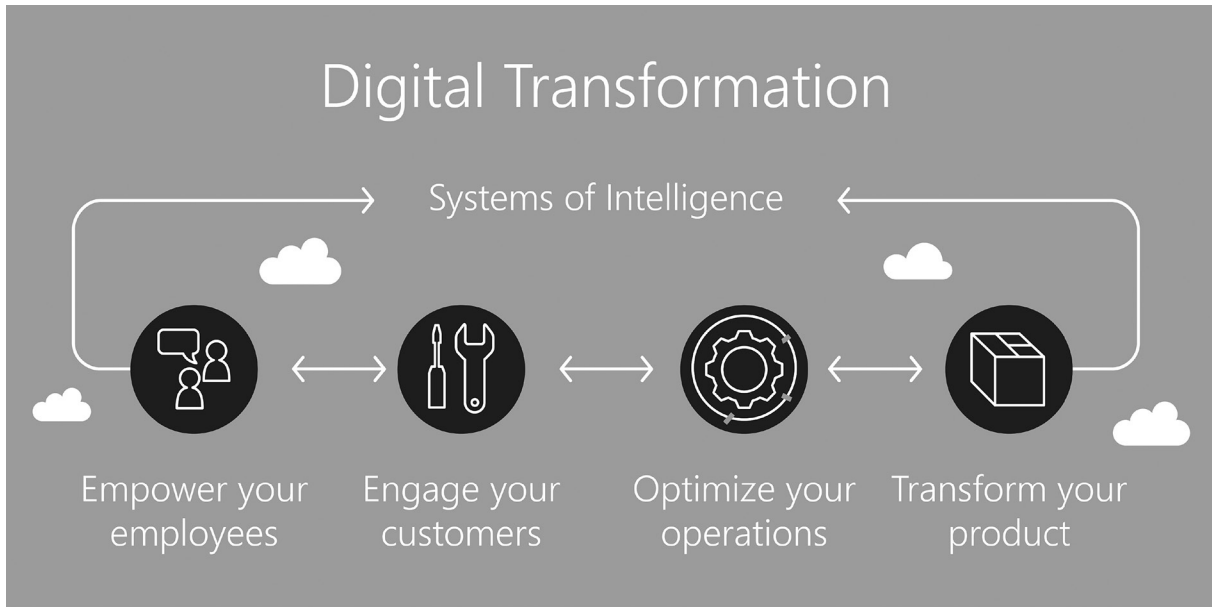


Digital Transformation

AI and ERP



AI in the workplace will change ERP systems
As AI becomes more embedded in workplace processes and bots, it will learn on the job and eventually become more independent, leading to more autonomous ERP systems.

The rise of machine learning and AI in the workplace has been well-documented over the past few years, and the growth of the machine is unquestionable. However, recent shifts in AI technology are now specifically impacting ERP systems.

We have been discussing and researching AI in the workplace for many years. In fact, the dream -- or nightmare -- of thinking machines has been in the human mind for many years. So, why all the noise about it now? This is because several different technological advancements are coming together to drive Industry 4.0 digital transformations. These include:

- **Computational capability:** The availability -- often via the cloud -- and power/cost of systems have reached a level where many AI algorithms can run in

real time. The most obvious example of this in the consumer space is the increase in devices that process real-time speech.

- **Connected machines:** Systems are more connected to the physical world than ever before via IoT, which means they can operate on up-to-date information. Soon, nearly everything will have a sensor that machines can use as a decision input.

- **Machine trust:** The rise of blockchain and other machine-to-machine trust technologies means that machines can trust each other like never before. This reduces the need for manual validation and verification.

- **Mobile alerts:** Mobile technology is greatly improving the ability for machines to alert people to

problematic situations. Now that nearly everyone has a mobile device, the machines can easily phone a friend when things get too tough.

There are many different models that companies can use to implement AI in the workplace. As the options continue to increase, there will likely be a growing trend of AI as a service, where the implementation of AI isn't something the end user has to think about as long as it achieves results. SAP and Google have developed embedded AI platforms, for example.

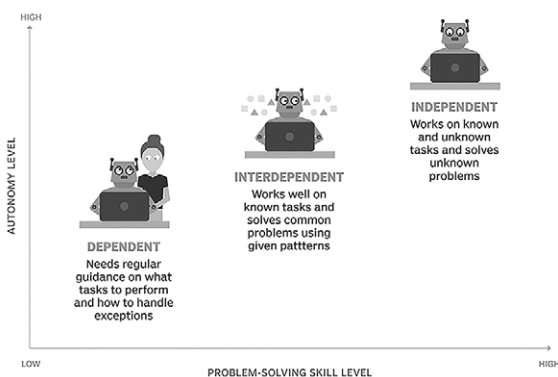
AI in the workplace learns on the job

Deploying AI in the workplace will likely progress very much like the relationship between a supervisor and a new employee. This occurs in three phases where the employee -- in this case, an AI-enabled process or bot -- works its way up from a position of dependence on those with more experience to one where it can make decisions independently.

Phase 1: Dependent AI

In the early days, it will be unclear what tasks the AI co-worker is qualified to perform, so it will be critical to spend time supervising its work and training it how to handle known situations. At this stage, the machine helps with repetitive tasks but requires guidance when exceptions occur. This is like how most of us interact with computer systems today, especially if they have complex planning algorithms or predictive capabilities. The computer makes suggestions for actions to perform, and we accept or reject them.

Stages in a working AI relationship



processes in the workplace will evolve in responsibility and independence.

Phase 2: Interdependent

Computers are starting to learn how to solve problems based on historical patterns without requiring instructions at every step. This is where machine learning comes in, as the machine looks at how similar situations were dealt with and applies similar logic -- although not necessarily the same. This is known as training the model -- that is, feeding the machine with lots of high-quality historical data so it can find patterns of behavior that it can apply. This is similar to when you have an employee who has been on the job for six months. You may still choose to check his work or require approval for certain actions, but you can delegate more control to them as you become more confident in the recommendations. Most AI in the workplace capabilities are at this point today, and it's a lack of high-quality data to properly train the model that most commonly prevents adoption at scale. So, the training data often needs to be cleansed to remove behavior that the machine doesn't need to learn.

Phase 3: Independent AI

The final stage of AI occurs when the machine is actually dealing with both known and unknown situations and can reliably make decisions and recommendations that are as good or better than a human would make. This is known as the Singularity, where machine intelligence moves ahead of human intelligence. We are some ways away from seeing this type of AI in commercial enterprise software. But research labs are working on it, and it is coming.

AI is coming to ERP

So, what does all of this have to do with ERP systems? Vendors are beginning to use AI capabilities to take on tasks in ERP systems that have traditionally required human effort. For example, AI may be used to perform repetitive tasks to correct mistakes or remedy situations where rules were applied inconsistently. They can also be used to replace manual efforts that introduced latency into the process. For example, the SAP S/4HANA ERP suite incorporates machine learning capabilities and predictive analytics to enable businesses to tap into real-time insights and apply them automatically to particular business contexts.

Using AI to take on these types of tasks enables systems to operate much closer to real time by keeping the digital version of events in line with the physical. Over time, it's realistic to envision being able to move to a darkened ERP world -- or intelligent ERP -- where humans only get involved via critical exceptions or key performance indicator violations.