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Ready for the next revolution?

How pharma can build a truly people-centered approach to technology integration

Every organization has both explicit and tacit knowledge. Explicit knowledge includes documented processes, SOPs, training materials and automated systems. These knowledge forms are objective, reusable and transparent. They are also relatively easy to capture.

But documented data and processes are only the tip of the iceberg when it comes to an organization's knowledge ecosystem. Tacit knowledge includes skills, experience, observations and expertise gained on the job — and is usually undocumented. Long-time employees tend to accumulate a wealth of tacit knowledge that makes them go-to resources. They can answer questions that aren't addressed in official documentation and help troubleshoot out-of-the-ordinary situations.

Capturing tacit knowledge can be difficult, especially since its value is often unrecognized until a situation arises. But these unspoken rules and problem-solving strategies are critical to the safe and smooth operation of a pharma plant.

A centralized knowledge management system designed to capture both explicit and tacit knowledge can help pharma improve efficiencies, reduce risk and drive innovation. New solutions will help move pharma from Industry 4.0 to Industry 5.0 — a truly people-centered approach to technology integration.

Managing knowledge

Knowledge management is a dynamic process — especially when it comes to tacit knowledge. A knowledge management system must be able to generate the right information at the time that it's needed, communicate that information in a usable form, help employees apply knowledge to the situation, and preserve newly generated knowledge for future use.

Capturing, communicating, applying and preserving knowledge gained through experience moves knowledge from the tacit realm to the explicit realm. Efficient knowledge capture and dissemination ensures that tacit knowledge is not locked up in the heads of a few key employees, but instead can be accessed and utilized by anyone who needs it.

AI-powered knowledge management

An effective plant process management (PPM) system includes a knowledge-capturing component that empowers employees by giving them the right information at the right time to do their jobs effectively. Tapping into the existing knowledge dispersed across the organization enables better decision-making, reduces duplication of effort, saves time and decreases human error. Knowledge sharing across departments also generates new insights and enables the discovery of new efficiencies and innovations.

A centralized, digital knowledge system for data, observations, notes, tasks and activities across the plant captures the tacit knowledge that is hidden in shift handover notes, equipment inspection observations, maintenance logs and ad hoc email communication between employees. But capturing knowledge is just the first step. Keyword-based search methods may return hundreds or thousands of hits, with varying degrees of applicability. This is where recent technologies based on artificial intelligence like natural language processing (NLP) and machine learning (ML) help.

Building AI into the knowledge management platform enables new, transformative digital applications such as smart search and solution suggestion. Instead of sifting through a multitude of hits generated by traditional keyword search, people can ask questions or request information in their natural language, just as if they were talking to a colleague.

Using NLP and ML, the system understands what the user is looking for and finds the answers hiding in data. With ML, the system can predict which answers or solutions are most relevant based on the context of the question or even synthesize information to develop new suggestions. Soon, extracting knowledge from digital systems may be as easy as asking a colleague, "When was the last time the color of the product was out of specification?"

Smart search and solution suggestion will help the pharma industry transition from Industry 4.0 (basic automation) to Industry 5.0. AI-powered shift handover and PPM systems work with people, giving them tools and information needed to perform their jobs more effectively, and collaborate across areas of responsibility.

Combining the strengths of people and technology will allow pharma manufacturers to discover new process efficiencies and accelerate discovery and innovation. ○