

ONTOLOGIES AND ARTIFICIAL INTELLIGENCE

Ontologies enable a knowledge graph representation of data assets for different business domains. In layperson's terms, it helps organize data assets in a meaningful way by adding relationships and context. This way, when new data comes in, its effect on all related assets is felt, and new insights can readily be observed.

As an example, consider a shift supervisor in load and haul operations. They are responsible for meeting the shift target: tons of material moved. KPIs are tied directly to that target, and the focus will be on ensuring the equipment is operating and assigned as efficiently as possible to move as much material as possible. However, the focus is not on the material itself, the quality of that material, or its contents in ore and waste. Therefore, all decisions are based on moving material without considering material grade or quality. This causes multiple issues in mine operations, with instances in which waste material is mistakenly moved into ore piles and vice versa, causing a severe impact on mineral recovery and production. A solution to this situation could include modified targets and KPIs to include a component that tracks material quality/composition. However, the supervisor can only consider this new component in their decision-making process if they have information on material composition and, therefore, understand how their decisions can affect the ore quality feeding into the plant. Using the knowledge graph, access to this needed knowledge becomes feasible.

As we expand this example to all areas of an organization, we can see how ontology and knowledge graphs help generate knowledge to allow better decision-making through the complete business process, forming a web of decisions that support business targets, not only specific area targets. As organizations grow, business processes become complex, generating more data. This makes the web of decisions harder to map and use for everyday decision-making, especially for real-time decision-making. Knowledge graphs enabled by ontology can include models, including AI models, that can help process that web of decisions faster and more efficiently.

Mining companies have been working on automation for many years, and they see it as a strategic goal supporting efficiencies, green mining, and safety. Using ontology and knowledge graph technology, SourceOne® EKPS is the knowledge system that can elevate that aspiration to an entirely new level.