

Engineering Standardization and Consolidation

Case: Standardize Engineering Format and Digital Content – Searching, Viewing, Comparing, Consolidating

The Case

One of the key difficulties of engineering information comparison and consolidation is the absence of a standard format. For example, a company may very often have many P&IDs in various formats using different symbols due to historical changes, regional differences, and sometimes merge and requisition activities; equipment, instrument datasheets using a variety of formats across projects, sites, regions or business units. This makes engineering standardization extremely difficult, and knowledge consolidation virtually impossible.

Engineering documents are data-rich, filled with process design flows, equipment dimensions, operation parameters, material specifications, piping line tags, instrument design tags and specifications, and supplier/vendor information, and more. Most of these data have been accumulated over decades, housed in document management systems and mostly archived in paper or rudimentary electronic formats. As a result, much valuable engineering data has been essentially left unutilized, making information retrieval highly inconvenient. This leads to time wasted searching for information within these documents, and then having to compare when there is a conflict and sometimes consolidate this information into a common standard.

Making Standardization and Consolidation Possible

By using the image/text recognition, natural language processing and machine learning and deep learning capabilities of AI technology, engineering drawings, documents and specifications can be digitized, standardized, even consolidated. In addition, by applying

Google-like search technology, users can perform searches within all relevant engineering documents and information in minutes, as well as identify critical information conflicts and consolidate information.

Intelligent Project Solutions is using AI technology to develop iEng Solutions, an AI application that digitalizes engineering documents such as P&IDs and datasheets. These AI solutions are machine learning algorithms that detect and recognition of information within engineering drawings and datasheets, build a logical framework describing the relations and connections underlying the identified information and then construct a relational database to provide proper organization of the extracted information, allowing information to be easily and quickly searched, compared and even consolidated at the content level, significantly cutting project time.

Imagine having the ability to:

- 1) Standardize and recreate all your key engineering document such as P&ID, and datasheet
- 2) Search all key information contained within documents and drawings using equipment, line and instrument tags rather than document names, and obtain search results appear within seconds;
- 3) Compare key information (design parameters, materials specifications, etc.) across multiple sources, and highlight areas of conflicting information, and
- 4) Consolidate information based on rules of single source of truth

AI technology is the future for knowledge consolidation and generative design.

Interested in working with our IPS team in developing the latest AI algorithms and models for your upcoming project? Speak with us today!