

Learning Map-006

Use of GraphML for PERA Human and Organizational Diagrams

Intended Audience:

Anyone currently involved in analysis of human activities including

1. Learning Maps (combining MLMs into logical sets or courses for specific audiences).
2. Swimlane Diagrams (showing movement of “Deliverables” between groups)
3. Workflow Diagrams (showing more detailed activities within groups)
4. Task Lists (accomplished by one person without ongoing supervision or direction)
5. Organization Charts and similar hierarchical diagrams

Context and Objectives of this Learning Map

PERA emphasizes the importance of including human and organizational design (People) in each phase of enterprise:

Because PERA’s emphasis is on “People” (along with Facilities and Systems), several documents are particularly important in PERA, including Learning Maps, Organization Charts, Swimlane Diagrams, and Workflows.



To facilitate automation and ultimately the use of AI agents, we have chosen to implement these as “Intelligent” XML Diagrams.

To reduce the time and cost to create and update “XML Diagrams,” we recommend the use yEd Graphics (see *MLM-021-A What is yEd Graphics?*). Although other graphics and workflow packages can produce GraphML, past PERA experience indicates that yEd Graphics was the most effective and lowest-cost for our purposes. However, other software such as MS Visio or special-purpose workflow packages, can be used and the results exported in GraphML format.

In the past, MySQL and other databases were used for PERA Learning Maps and Product hierarchies. However, “flat” XML documents prove to be a better alternative because this information can be utilized more easily by AI applications. For example, new XML information on the PERA website is loaded into the PERA Chatbot daily. .

These, and proposed future uses, are discussed further in *MLM-021-B How yEd is Used in PERA*.

PERA proposes to “leverage” these “Human and Organizational Deliverables” by using open XML standards. Since the first PERA User Guides (release planned for January 2026) will be for process industries, we also propose to use ISA 95 B2MML, and other XML standards to model data flows between plant Automation and Control Systems (ACS) and the Manufacturing Execution Systems MES/MOM of the enterprise.

Additional MLMs are shown on Learning Map LM-006 that include more detailed help in preparing specific diagram types.