

Towards the Problem of Creating Information Operator Support Systems for Nuclear Power Plants

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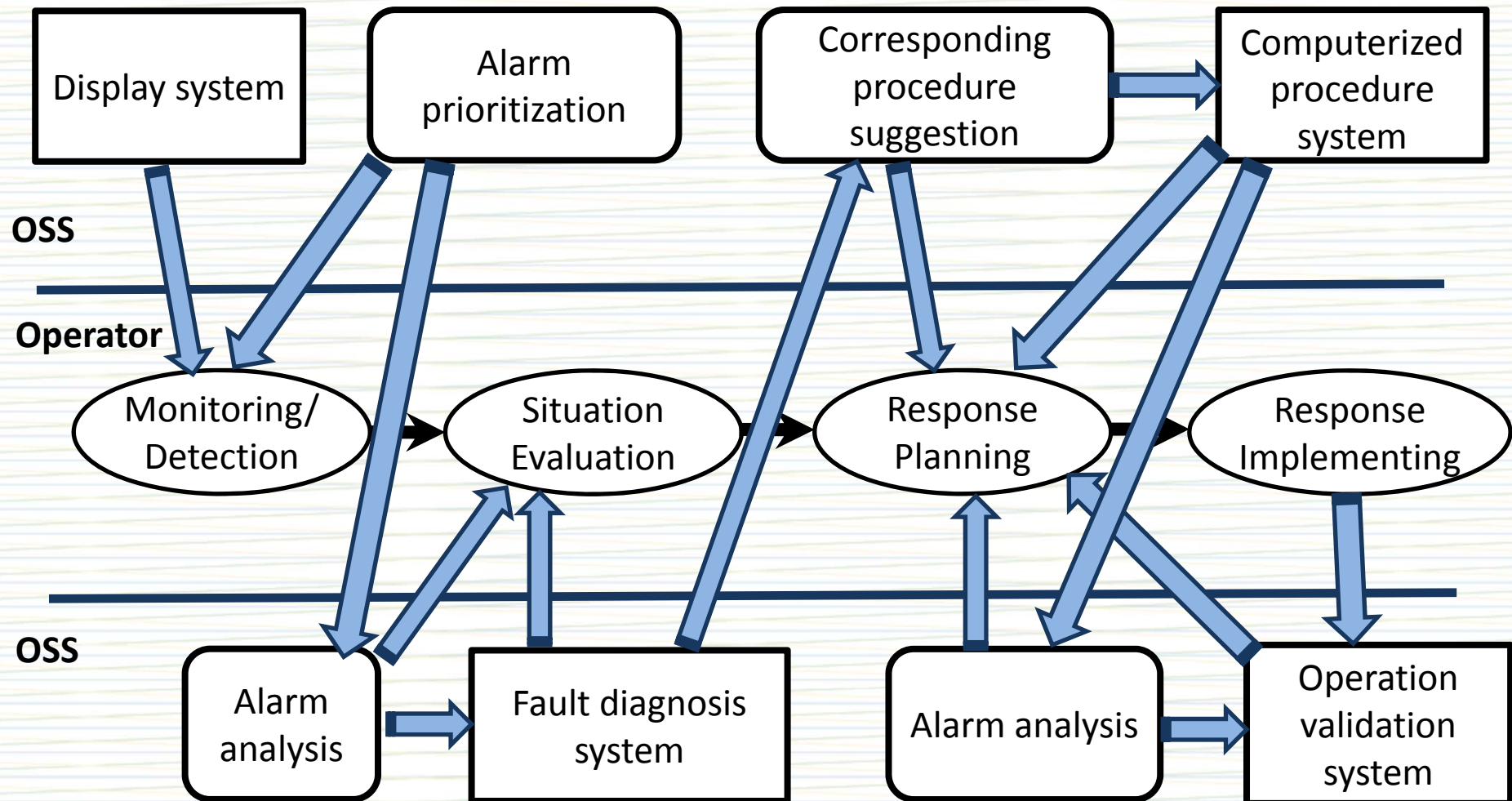
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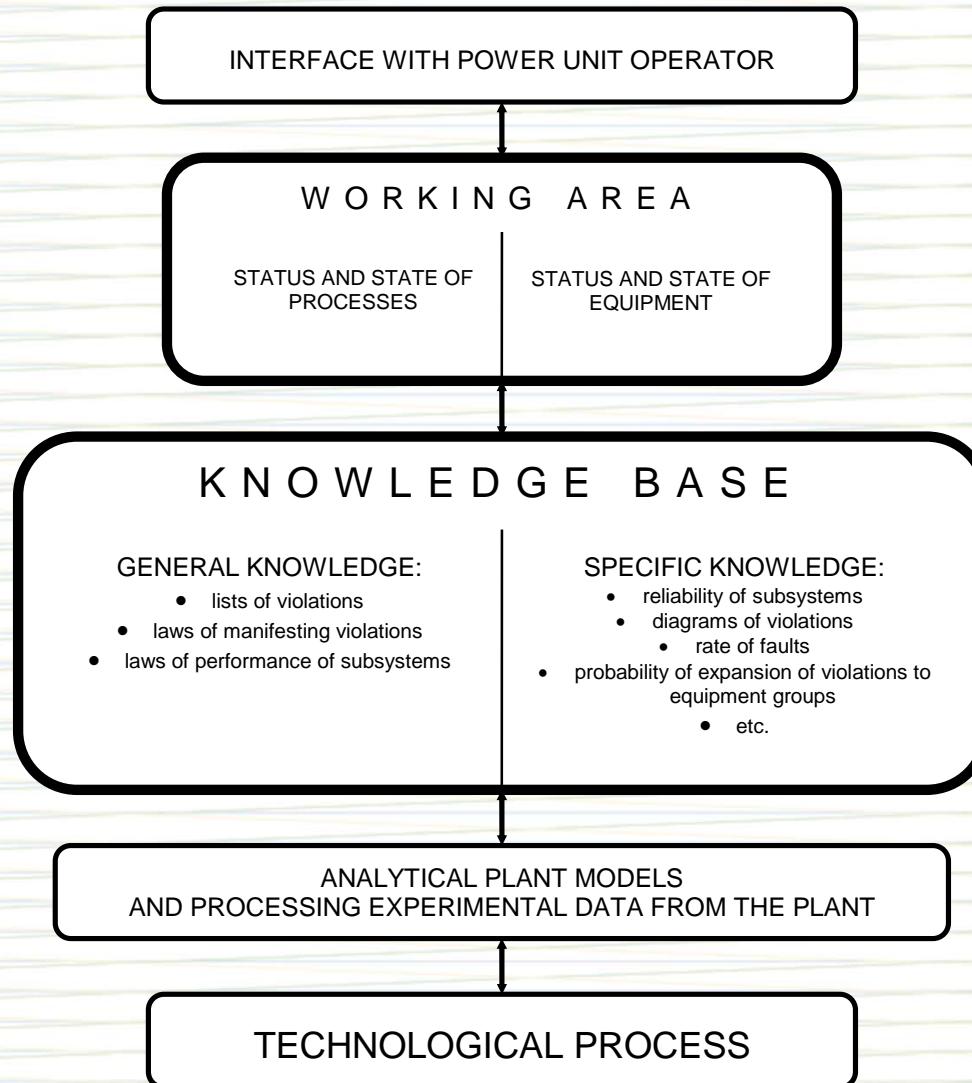
Model of human-operator actions



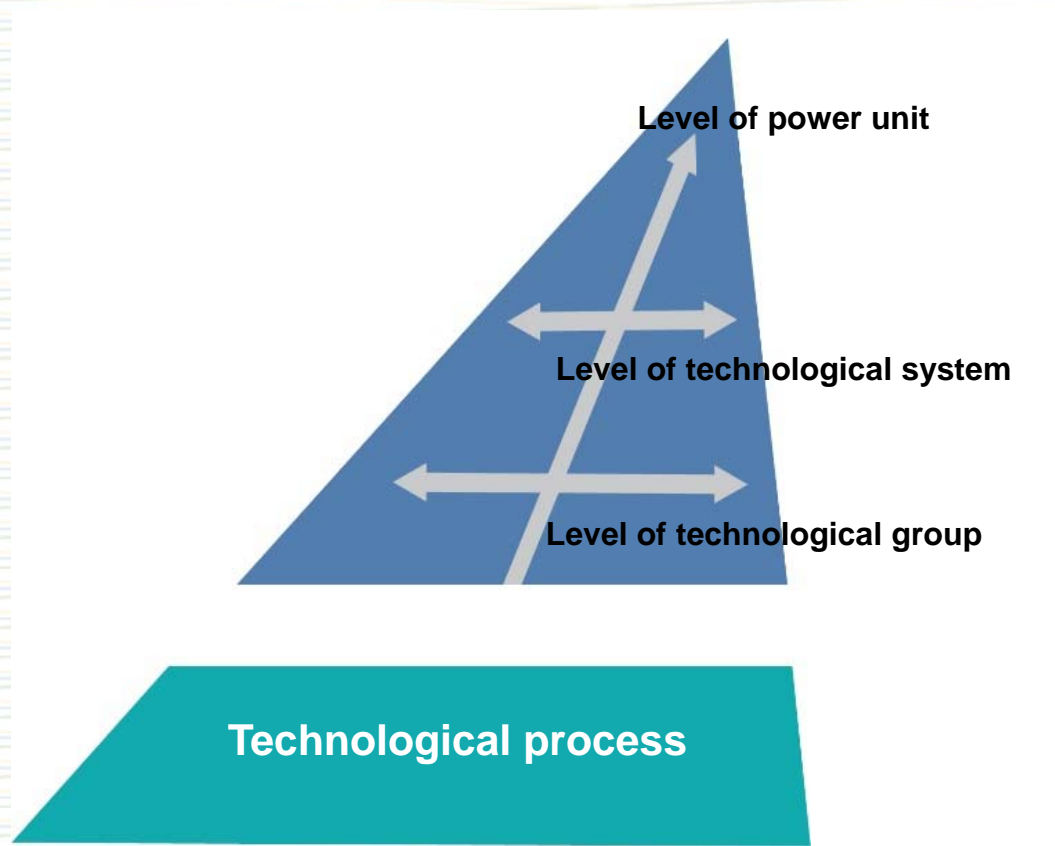
Main requirements, which the structure and properties of the NPP IOSS

- High detailing of description of power unit properties and ability of achieving the speed of modeling, exceeding the speed of run of real processes
- Using effective high-performing algorithms in the junction of powerful computer tools
- The modeling dynamic complex is to be flexible
- As initial data for the complex, information on operation parameters of the power unit, obtained directly from regular monitoring systems, is used
- An integral part of the complex is effective high-performance software applications of visualization of predicting results in the form of easily accessible for human-operator perception videograms

Structure scheme of expert system for the NPP IOSS



Hierarchy level in displaying information



Determining a cause of the violation consists of several stages:

- Detecting deviations from nominal running technological process
- Locating the violation cause to the level of an element of control object
- Detecting contradictions between measured and calculated parameters
- Revealing possible violations

Conclusion

- For purposes to not admit incorrect control decisions by human-operators of power units of NPP, the NPP IOSS is intended. The NPP IOSS provides not only the NPP personnel with operative information on the power unit performance, but enables one to implement organizational and technical activities to economize power sources
- Under development of the NPP IOSS software, unified approaches and solutions were used, being analogous to the software of the upper unit-level system

Many thanks for the attention !