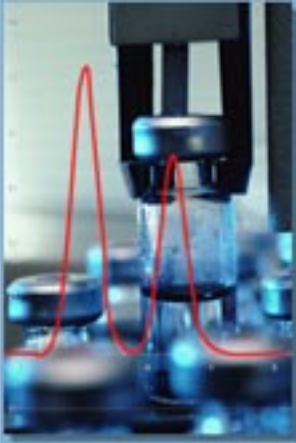




Laboratory Automation Engineering

from **Delphinus, Inc.**



Laboratory Automation Engineering is the systematic design and development of computer / instrumentation / robotics systems to assist laboratory personnel in their work. It's practice is based on the development of management policies and functional process models that together describe a Laboratory Automation Architecture for a particular labs work.

The work Delphinus is doing in the development of Laboratory Automation Engineering will benefit companies by:

- improving the effectiveness of automation systems, and their ability to be supported,
- reducing laboratory operating costs,
- meet the demands of regulatory agencies,
- protect / enhance the value of the labs intellectual property, and,
- make the most effective use of people's talents.

Management's Role in Engineering Laboratory Automation

Laboratory management plays a critical role in the specification and implementation of laboratory automation systems. The development of a "*Laboratory Automation Architecture*" provides a basis for:

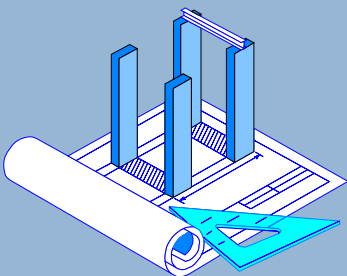
- defining product requirements,
- coordinating the work of internal developers, IT groups, outside contractors & equipment vendors,
- coordinating file formats for laboratory data management and the protection / utilization of intellectual property,
- inter- and intra-lab communications as well as communications with other departments, and,
- protect / enhance the value of the labs intellectual property, and,
- coordinating automation projects, both those done at the same time and those implemented over a longer time-frame.

As described in the "*Manager's Survival Guide to Engineering Laboratory Automation*" the architecture is built upon two elements:

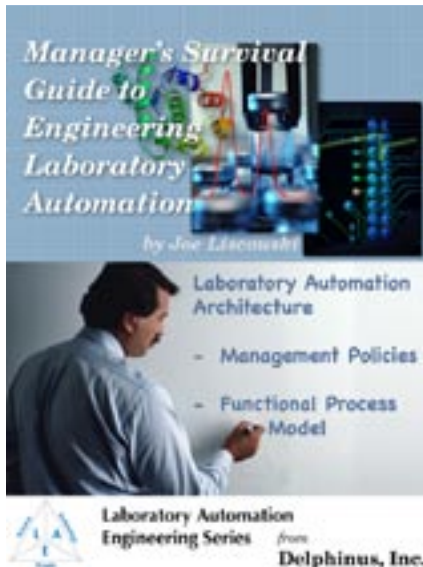
- policies and practices that define the infrastructure for laboratory operations, and,
- functional models of laboratory operations

This approach can be applied to single-lab operations or, a research and development complex.

Laboratory Automation Architecture



Management's Role: Developing the Laboratory Automation Architecture



Step 1: Develop Laboratory Automation & Computing Policies

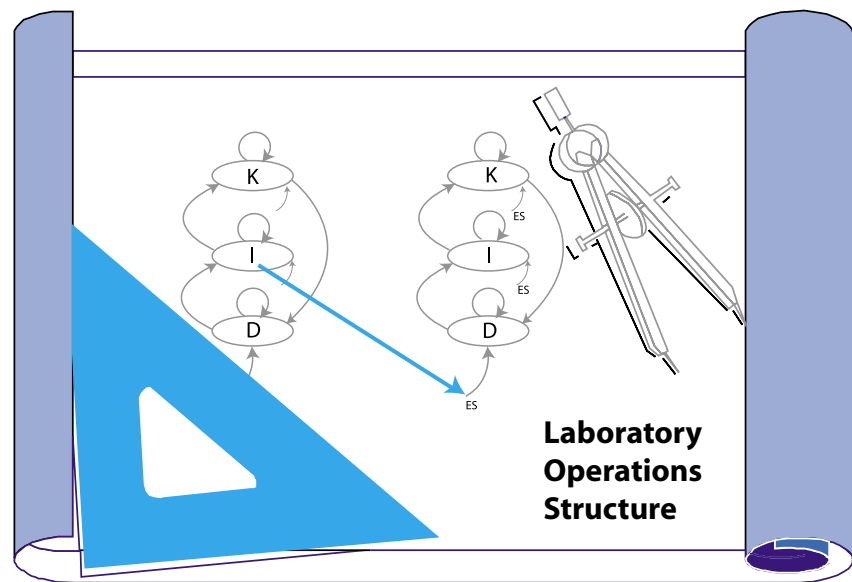


- Asset Management
- Process Management
- Integration
- Validation
- Change Management
- Security
- Relationship to IT Groups
- Software Development Practices
- Project Scheduling, and
- System Retention.

The policies and practices provide a similar function to a town's Building Code: *they define the guidelines for working with a lab's developmental infrastructure.* The policies ensure that interacting components of automation systems work together, and, that standards for project management are defined.

Step 2: Develop Laboratory Operational Process Model

...with tailoring for specific lab requirements and inter-departmental interactions



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The process models show how different elements of a lab's work are done, and the relationship between a given lab and other labs or departments. It helps illustrate communications needs. The models can be used to define system and product requirements including document control, characteristics of collaborative systems, database usage, protocol management, and workflow.