

SEFS Dynamic Behavior

by *Gerrit Muller* USN-SE

e-mail: `gaudisite@gmail.com`

`www.gaudisite.nl`

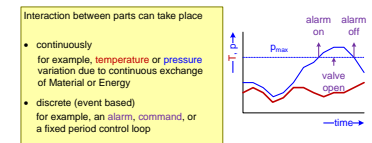
Abstract

The desired system behavior and performance emerges from the interaction of the parts. The challenge in architecting is capturing the relevant dynamic behavior to facilitate reasoning about system behavior and performance.

Distribution

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

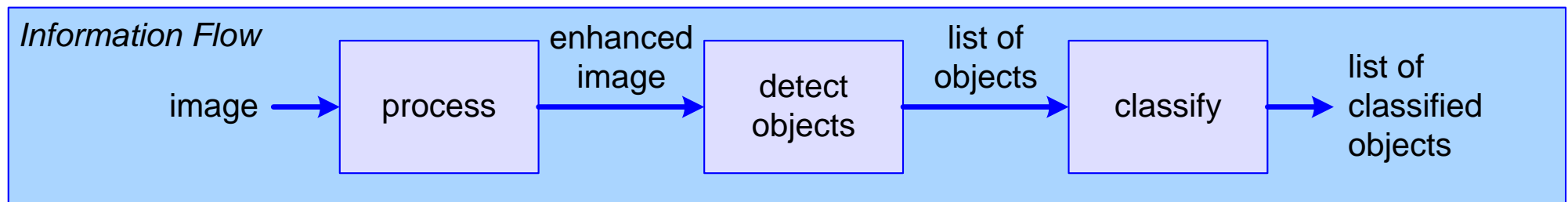
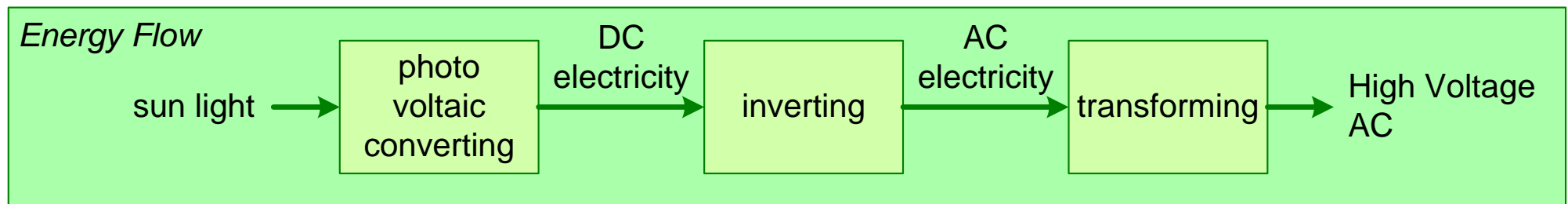
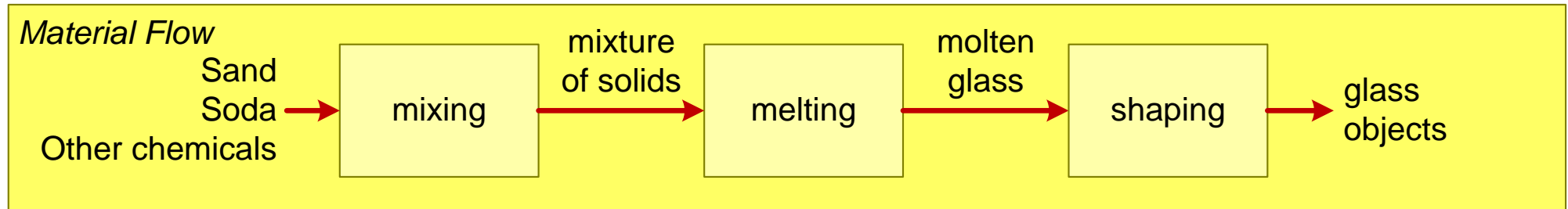
August 16, 2025
status: preliminary
draft
version: 0.3



Interaction between parts takes place via exchange of

- **M**aterial
- **E**nergy
- **I**nformation

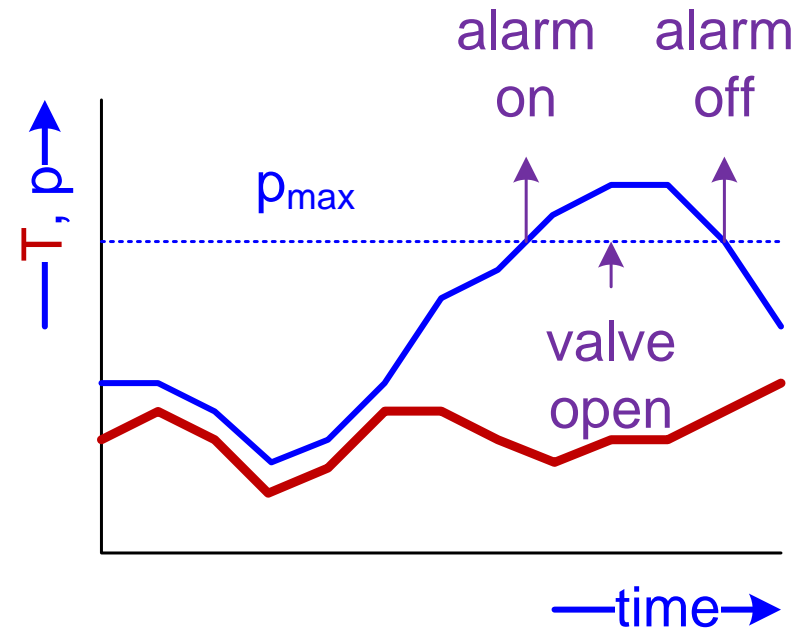
Simple Examples of MEI Flows



Dynamic Behavior and Time

Interaction between parts can take place

- continuously
for example, **temperature** or **pressure** variation due to continuous exchange of Material or Energy
- discrete (event based)
for example, an **alarm**, **command**, or a fixed period control loop



Simple Examples of Dynamic Behavior

Every second:

read **pressure**, **temperature**

evaluate situation (e.g., $p < p_{max}$)

determine action

(e.g., lower pressure by opening valve)

perform action (e.g. **open valve**)

