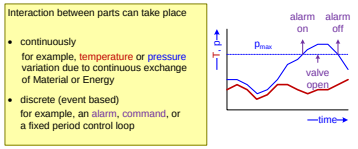
SEFS Dynamic Behavior

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.

November 7, 2020
status: preliminary draft
version: 0.3

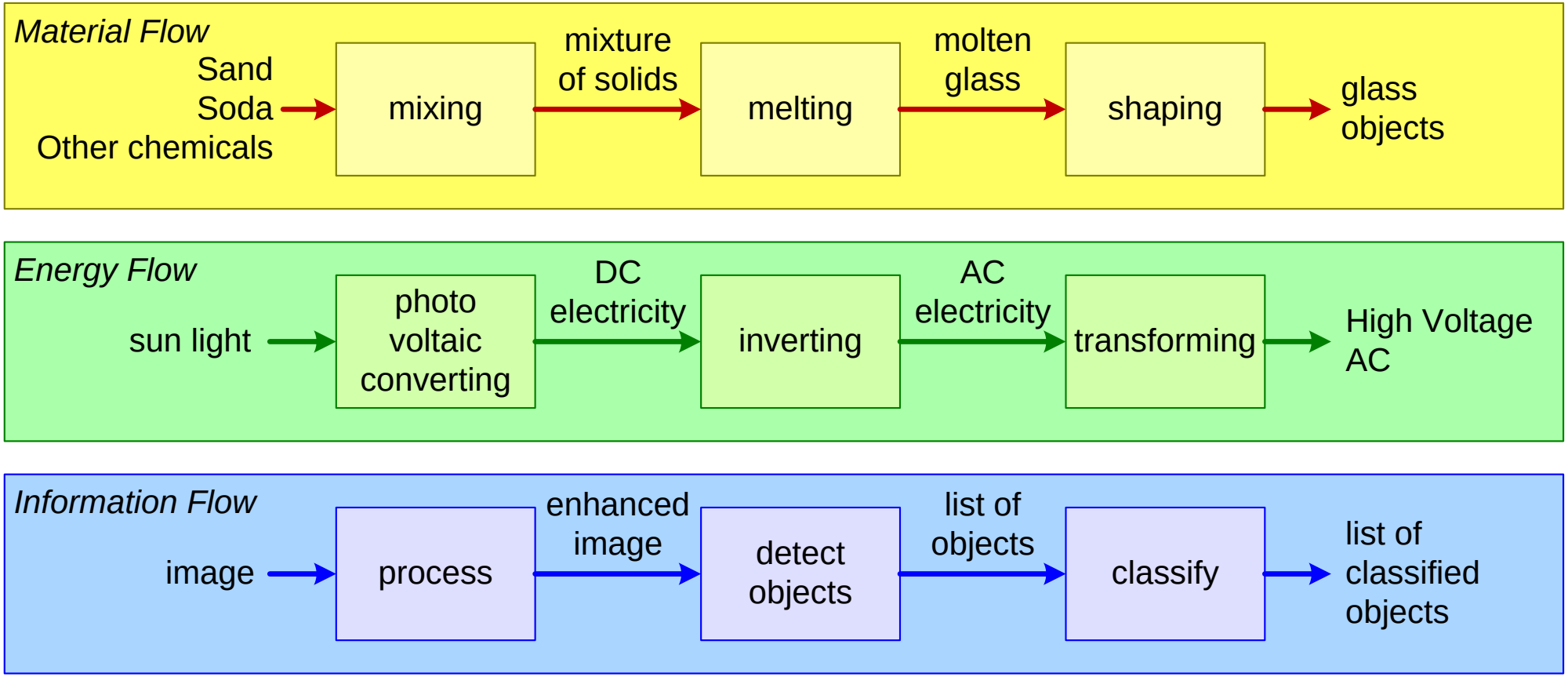


Interaction Results in Dynamic Behavior

Interaction between parts takes place via exchange of

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

Simple Examples of MEI Flows



Dynamic Behavior and Time

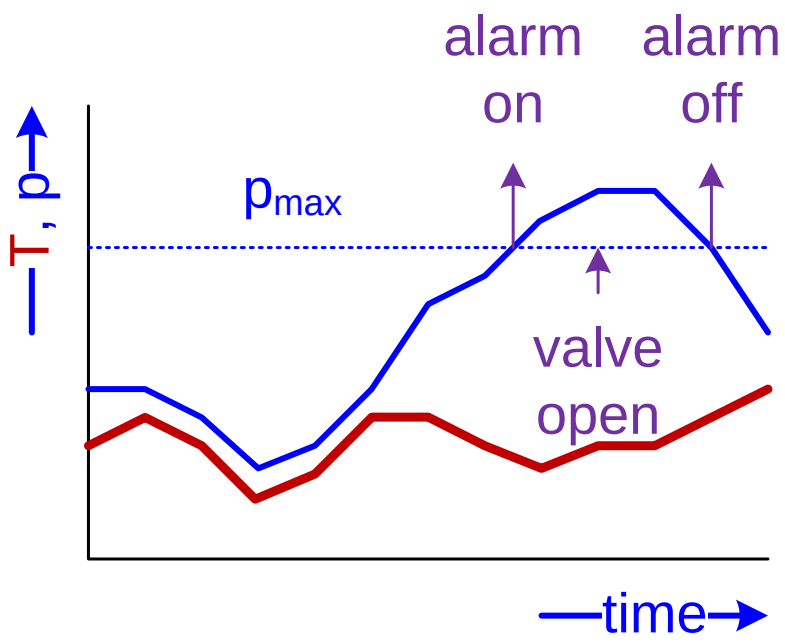
Interaction between parts can take place

- 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**)