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Purpose and Benefit of Control System Training
What is the Problem?

Operator in Control Room

Accelerator

200 m
• The control system is the only connection between accelerator and operator
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What is the Problem?

- The control system is the only connection between accelerator and operator
Mental Models

• Simplify complex systems (not necessarily correct)
• Allow reason about behavior of complex systems
• Represent aspects we learn/know about
• Automatically constructed from experience

Complex System

Mental Model

Step 1

Step 2
Lay model foundation:

- Lectures: theoretical basis
- Hands-on training: learning by playing
- Hardware for every participant
- In native language of Operators (German)
- Small groups (4 participants)
Second Step: Experience for Operators

• SLS availability 99% (year 2010) = Experience decay
• Solution: special Operator training at SLS
• “sabotage” accelerator (cause beam loss)
• Real accelerator, real environment, real problems
• Operator solves problem while monitored by trainer
• Mental model refresh
A correct mental model of the control system enables Operators to

- Distinguish between accelerator and controls problems
- See through the control system blur
- Use the control system more efficiently

Control System Training is necessary to build correct mental models