

# Efficient comminution operation (ECO)

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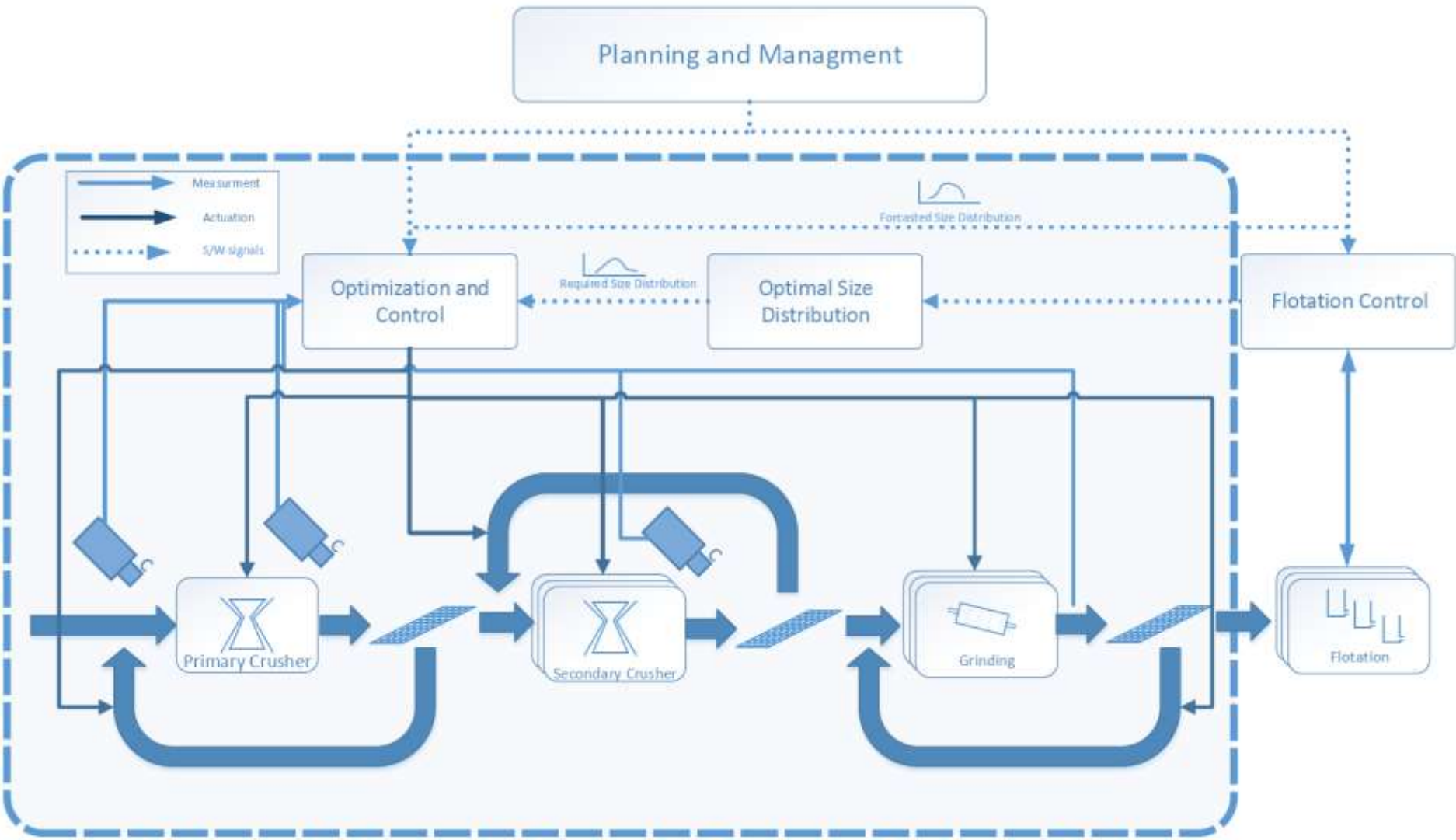


# Purpose and goal of the project

**Goal:** Improve efficiency (maximized production, minimized energy consumption and waste production) in comminution chains in the presence of changes in ore properties, product demands, wear etc.

Addressing the **strategic target:** Implementing modern digital technology for process control along the value chain

**Result:** Algorithms that optimize operation continuously by changing machine speeds etc. using online measurements of ore size distributions and other variables. Test implementations at Vale.



# The way forward

## Planned work:

- Modeling of a comminution chain (crushing, grinding, sieving etc.)
- Installing size distribution measurement equipment
- Defining optimization criteria
- Developing online optimization algorithms.
- Testing in simulation on the plant model
- Implementing and testing on-site at Vale

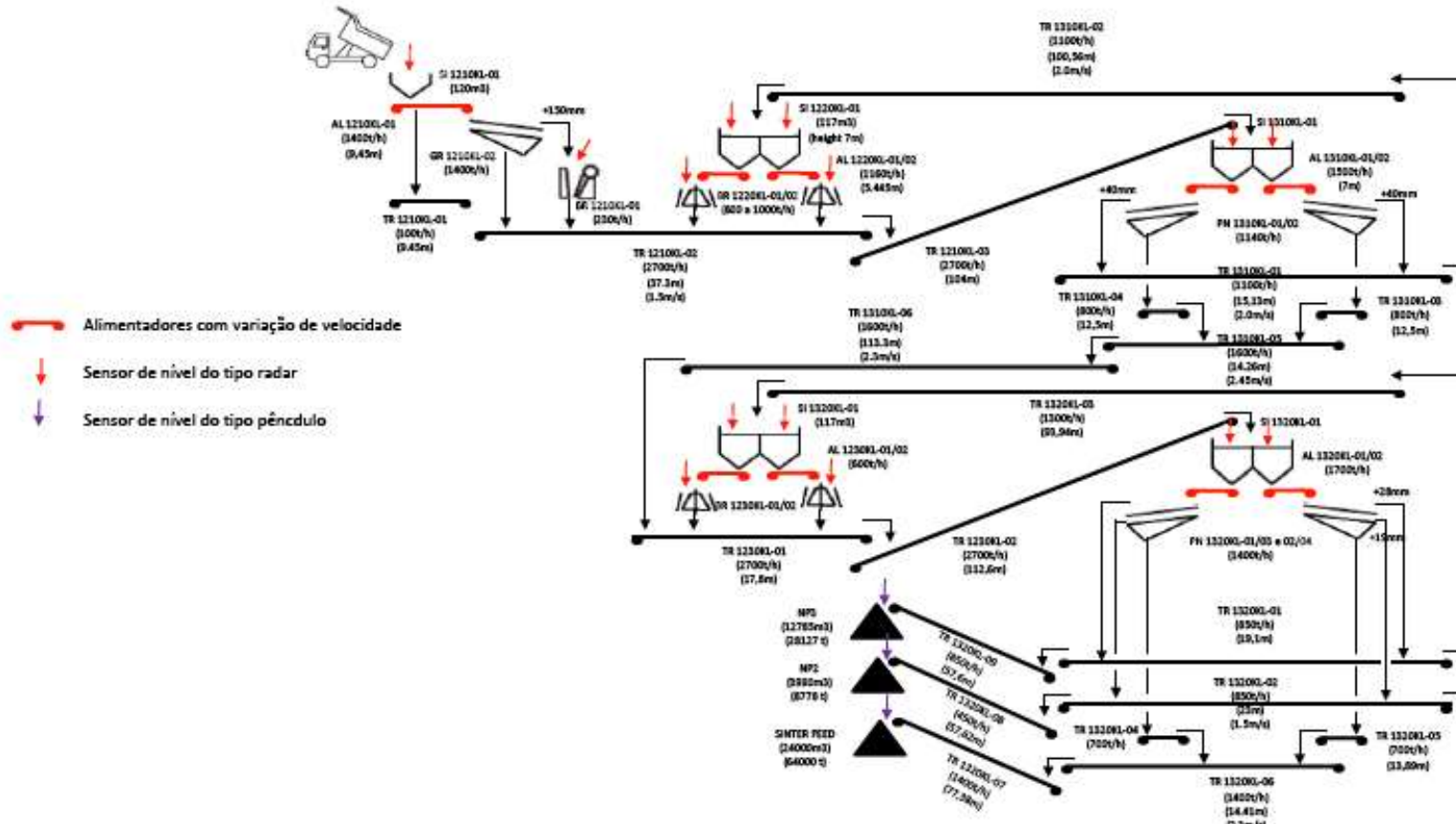
## After project end:

- Commercialization of results (Optimization and IMV)
- Include other parts of the mineral processing chain in the optimization

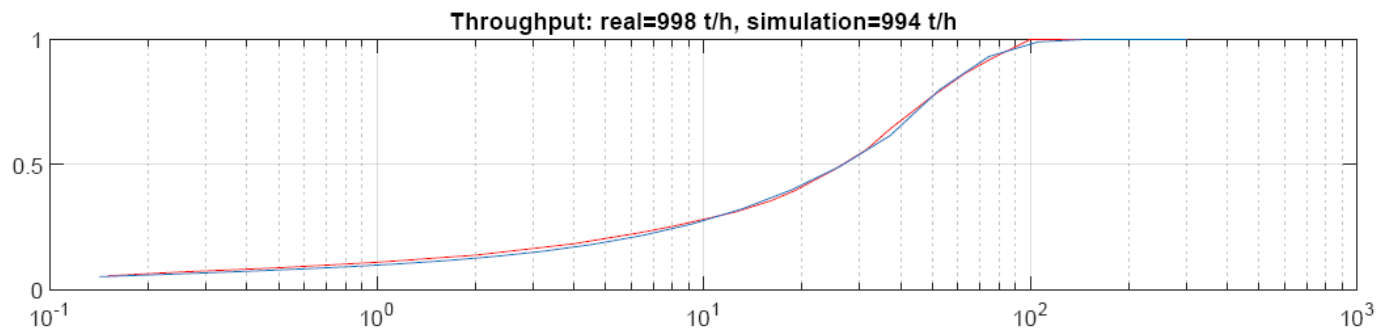
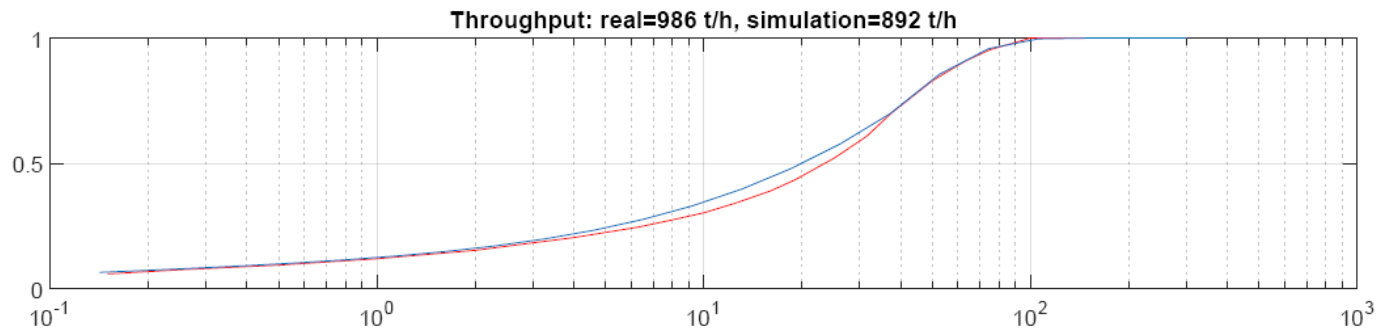
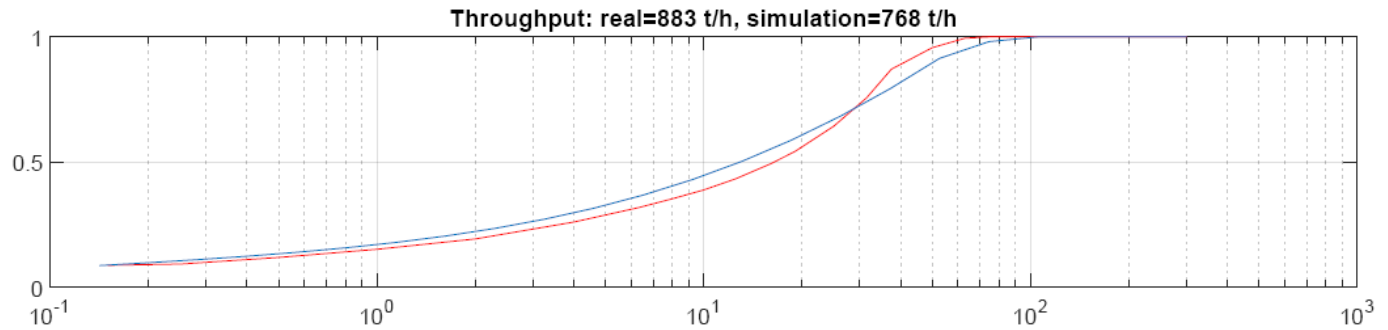
# The Pilot Plant: Serra Leste

GERÊNCIA DE PROGRAMAÇÃO, CONTROLE DE QUALIDADE,  
PROCESSO E LABORATÓRIOS

## FLUXOGRAMA USINA DE SERRA LESTE



# Crusher (HP400) model validation



**Thank you for your attention!**