

AGORA Workshop

Hammamet, Tunisia, October 2nd, 2010

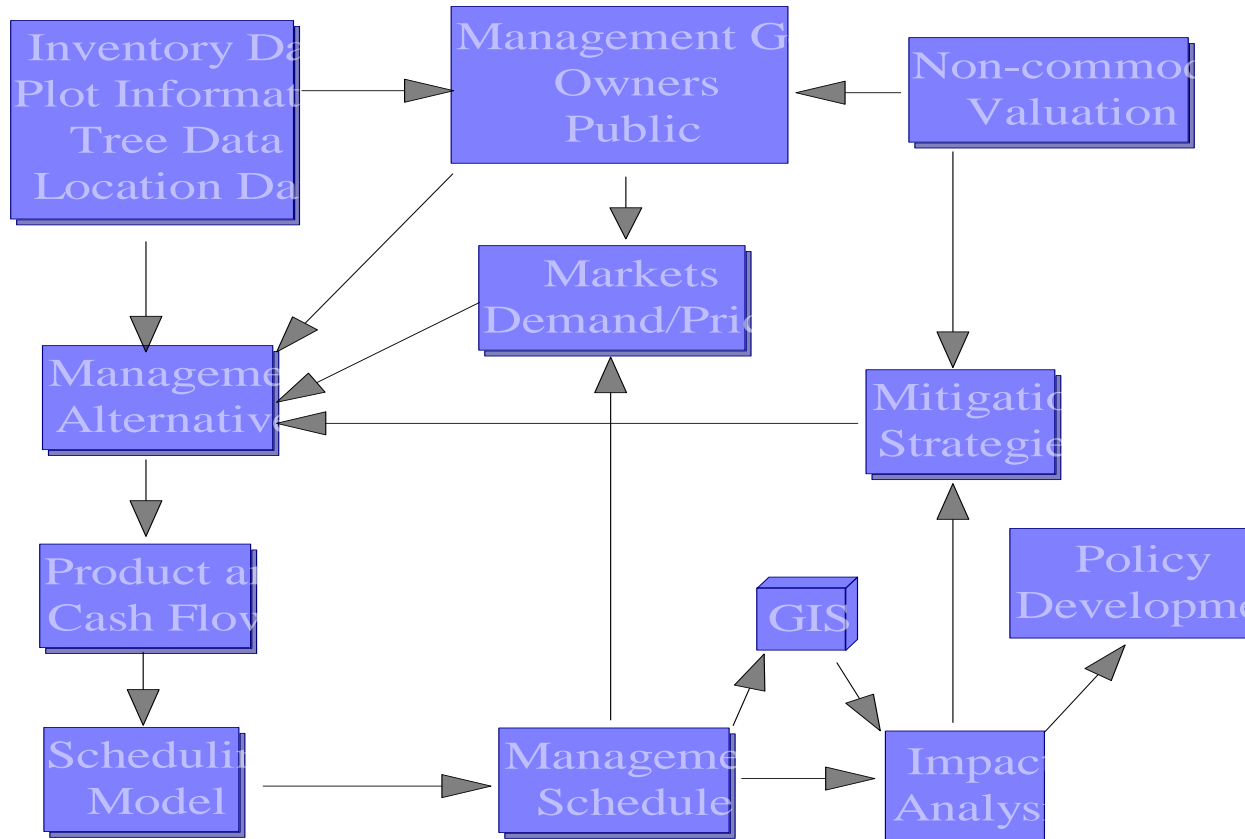
Using models within Decision Support Systems

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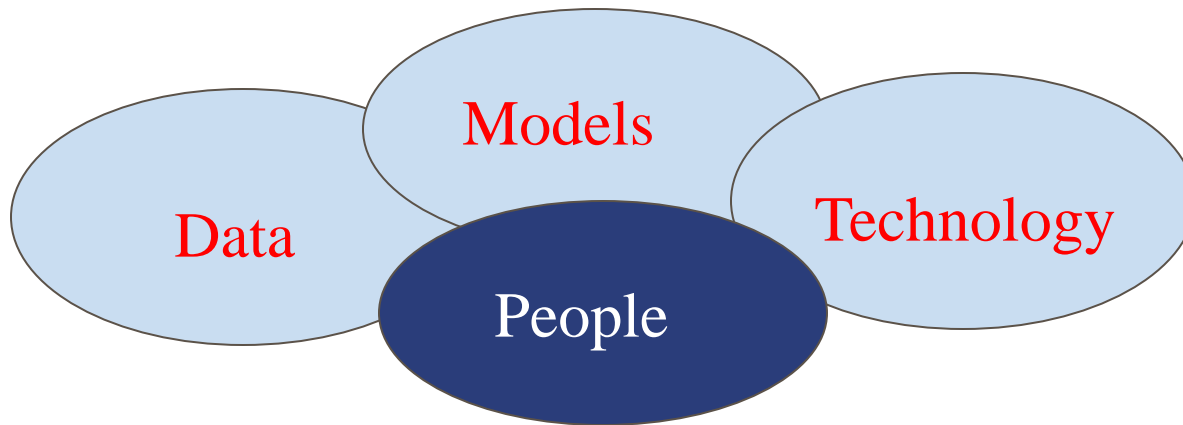


Decision support within a planning framework



Forestry Decision Support Systems

- A **decision system** is a system that stores data, produces information and generates knowledge through interpretation of information
- Every organization has a **decision system** more or less formal, more or less automated.



Forestry Decision Support Systems

Tipology of decision systems

- **Decision support systems**
- **Group decision support systems**
- **Expert systems**
- **Artificial neural networks**
- **Hybrid systems**

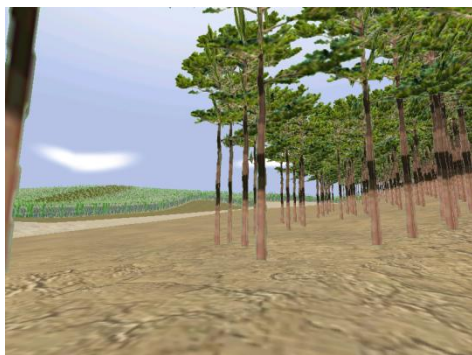
Forestry Decision Support Systems

- **Historical perspective**

- MAX – MILLION (1960s)
- RAM (1970s)
- FORPLAN (1970s, 1980s)
- SPECTRUM (1990s)
- MELA (1990s)
- MONSU, MONTE (1990s, 2000s)
- DTRAN – GISTRAN (1980s, 2000s)
- sagFlor – decFlor (1990s, 2000s)
- SADGEM (2000s)
- EMDSS, NED2 (1990s, 2000s)



Real-time 3-D decision support tools for non-market valuation in Central Portugal



Falcão, A. O., M. Próspero dos Santos and J. G. Borges. 2006. A real-time visualization tool for forest ecosystem management decision support. *Computer and Electronics in Agriculture* 53: 3-12 .

FORSYS



*COST Action FP0804
Forest Management Decision Support Systems (FORSYS)*

<http://fp0804.emu.ee/>

http://fp0804.emu.ee/wiki/index.php/Main_Page

The need of models

▪

- ✓ The management planning problem:
 - ✓ People are concerned about the sustainability of forest revenues and of product flows, the loss of forest habitat, the resistance of landscapes to fires, aesthetics,...
 - ✓ How can we layout in space and in time harvest, restoration,... operations to address those concerns?

The need of models

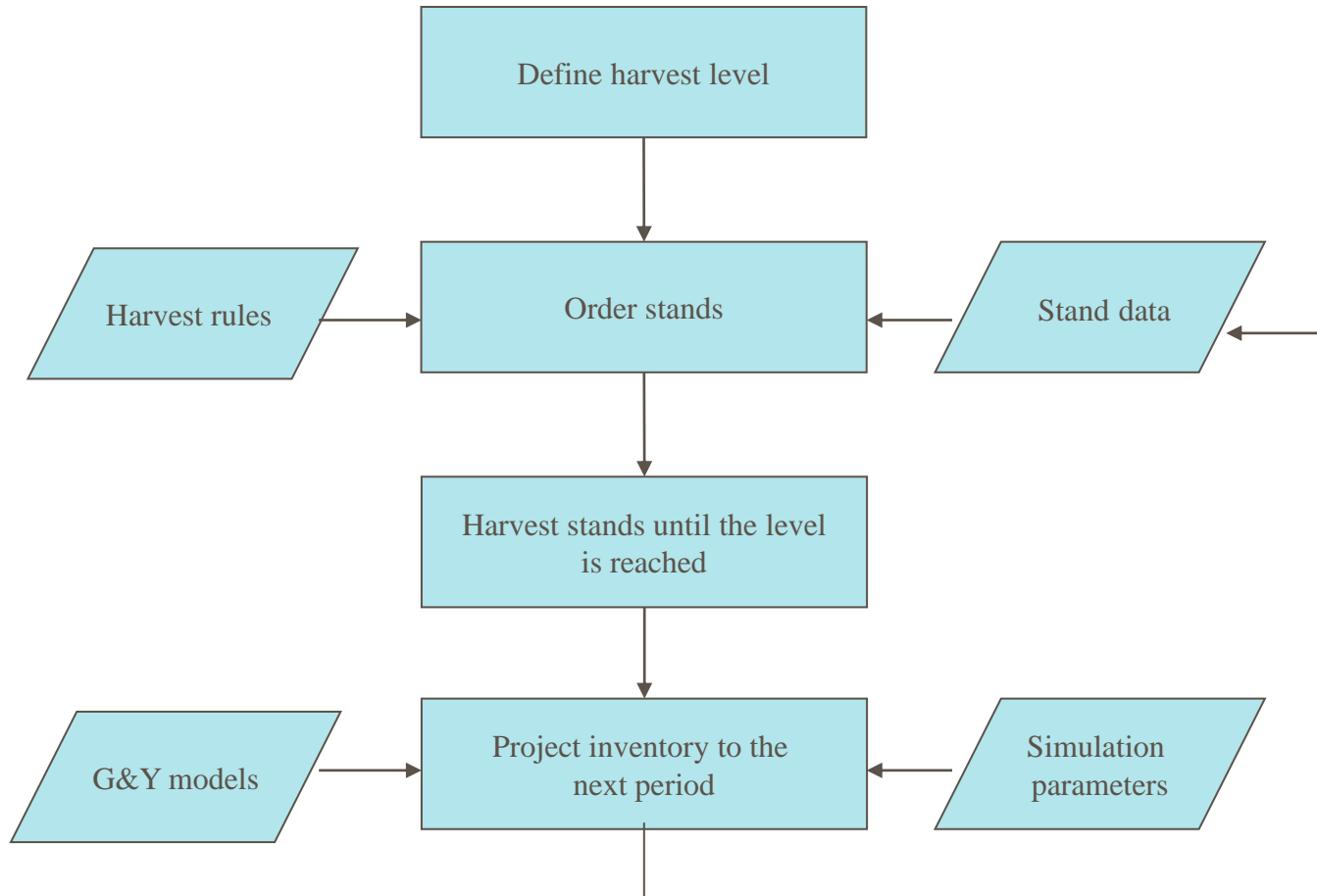
The question:

- ✓ Determine the timing, location and type of actions to do in *the forest over the planning horizon*
- ✓ Approximate or optimize a set of *management objectives* – *single or multiple related to goods and services that may or may not be traded in the market ...*
- ✓ ...Subject to resource constraints.

The answer ideally includes:

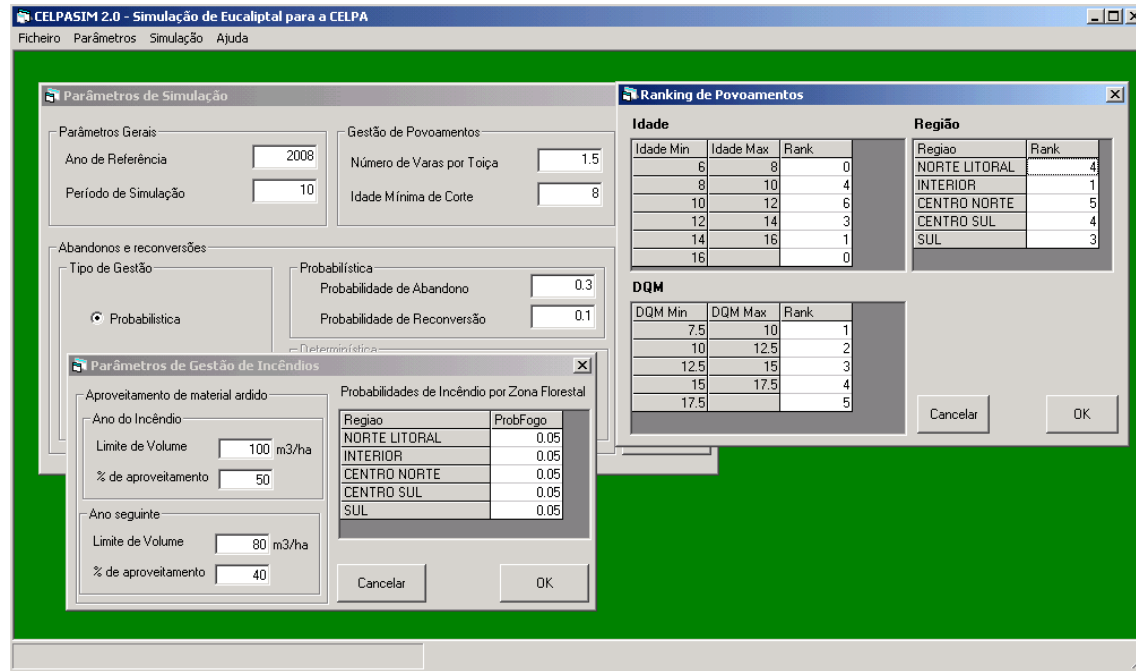
- ✓ Efficient set of actions
- ✓ Tradeoffs between management goals
- ✓ Impacts of changing uncertain parameters

The need of models in a simulation framework



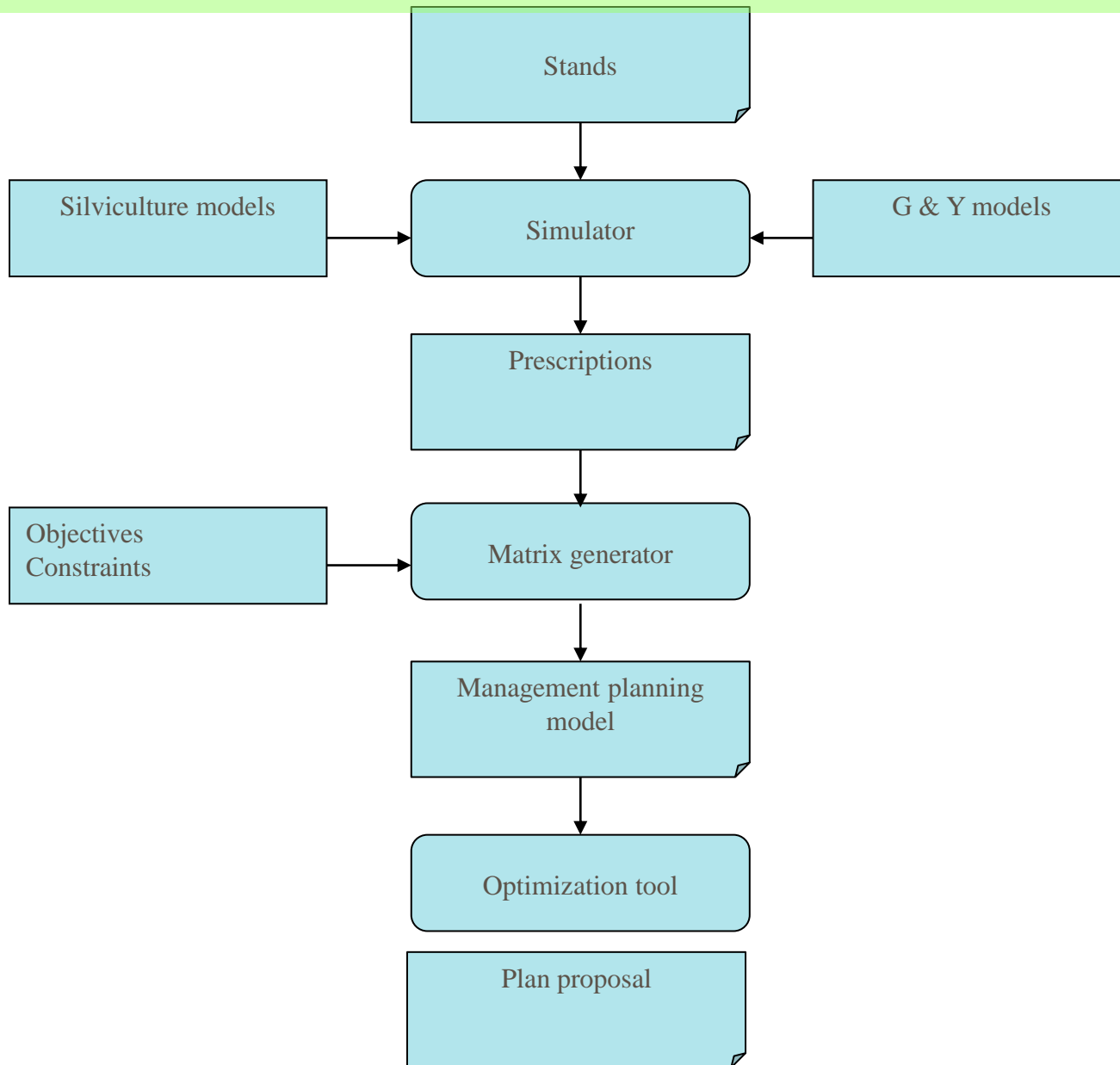
The need of models in a simulation framework

Example/Application: CELPASIM



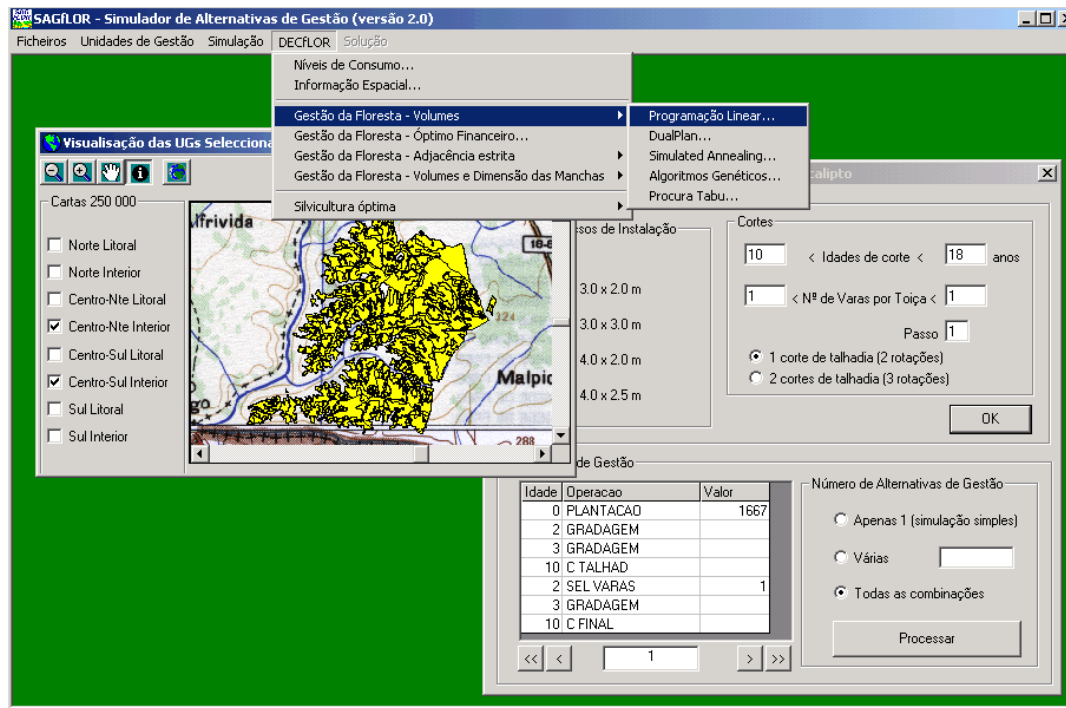
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The need of models in a optimization framework



The need of models in a optimization framework

Example/Application: SADfLOR



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Thank you