Economics and Complexity

WORKSHOP ON CREATING CAUSAL MODELS

Creating a causal model is an iterative process that includes the model as well as the descriptive framework

CAUSAL MODELLING FOR FIRMS' DECISION MAKING

Schedule of the Workshop

Duration: eight hours
In presence (Location Genoa, Italy)
Price: 500 euros

Friday, January 24, 2025
Friday, February 14, 2025
Friday, March 21, 2025

A PRACTICAL WORKSHOP

The workshop will last 8 hours from 9:00 am to 18:00 pm with a lunch interval of an hour. The workshop starts with a short lecture of about an hour to recall the basic principles of causal modelling, to describe the firm we are going to analyze, and to state the objectives of the workshop. The first step is to discover the first causal model.

Next, in function of the management objectives that are stated at the beginning of the workshop, participants will discuss the changes/additions of variables that are needed and the relative observation processes. New data will be supplied if available. If not, participants will be asked to propose solutions. Then a new model will be developed, and eventual expert corrections will be implemented.

After lunch, participants will be asked to propose solutions. In the afternoon participants are allowed to propose their own solutions and to run their own models. Discussions will focus on a new set of variables, on data, on observation processes.

The workshop will close with a discussion of the main results obtained as well as problems left open.

CREATING CAUSAL MODELS FOR FIRMS

There are systems such as economies or firms, that are not described by a well-established theory. In these systems we cannot make experiments, and we can at most estimate probability distributions and correlations. Understanding causal links in these systems would be very useful for decision making. In fact, management needs to know if intervening on some variables is supported by true causal mechanisms. If yes, decisions are effective, if not decisions are ineffective.

In the last three decades philosophers and scientists have invented methodologies for inferring a causal structure from pure probabilistic inputs. The key point is making assumptions which imply that a causal structure exists. A discovery algorithm will then discover the causal structure eventually with additional input from expert knowledge.

Discovering a causal model is only one component of the global process of understanding causality. The other critical component is creating a descriptive framework for the firm. This is a complex iterative process that starts with a tentative causal structure and proceeds through progressive refinement that include at the same time adding and/or modifying-replacing variables and compute causal structures.