

# UML : MODEL

## What is a Model?

Models are often built in the context of business and IT systems in order to better understand existing or future systems. However, a model never fully corresponds to reality. Modeling always means *emphasizing* and *omitting*: emphasizing essential details and omitting irrelevant ones. But what is essential and what is irrelevant? There is no universal answer to this question. Rather, the answer depends on *what* the goals of the model are and *who* is viewing or reading it.

Think about what is emphasized or omitted in the following models:

- A wind tunnel model of a car
- A model of a building scaled at 1:50
- A route plan of the subway
- A map
- An organization chart

The more information a model is supposed to give, the more complex and difficult it becomes. A map of Europe, for example, that simultaneously contains political, geological, demographic, and transportation-related information is hardly legible. The solution to this problem is to convey the different types of information on individual maps.

*Different views* are formed of the objects under consideration. These views are interconnected in many ways. Generally, if one view is changed, all other views have to be adjusted as well. If, for instance, in the Netherlands new land is reclaimed from the North Sea, all views—meaning all maps—have to be updated.

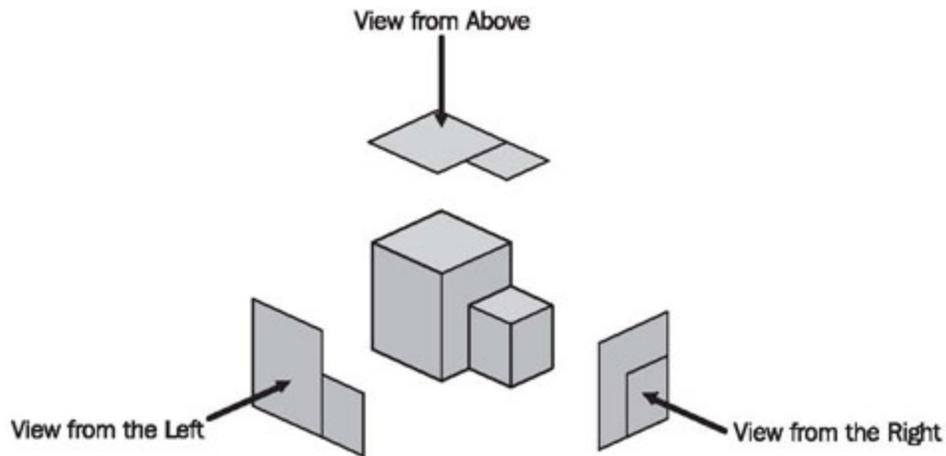


Figure 2.3 Different views of an object

The same is true for the model of a building. If a new wing is added to an existing building various views are affected, including the floor plan, the different exterior views, and the 3D-model made from wood. Figure 2.3 illustrates this in a schematic manner. In *The Models of our Case Study*, we specifically address the relationships between the models we use in this book. The different views within each model are described in more detail in *Modeling Business Systems*, *Modeling IT Systems* and *Modeling for System Integration*.

## Why do we Need Models?

As a general rule, a model of a system has to perform the following tasks:

- **Communication** between all involved parties: In order to build the right system, it is essential that all involved parties think along the same lines. It is particularly important that everyone understands the terminology used, that customers agree upon the same requirements, that developers understand these requirements, and that the decisions made can still be understood months later.
- **Visualization** of all facts for customers, experts, and users: All accumulated facts relevant to the system need to be presented in such a way that everyone concerned can understand them. However, according to our real-life experience, we often hit a wall of resistance when we want to communicate with diagrams instead of text.

- It is necessary to overcome this resistance. Behind it is often a fear of the unknown; and the diagrams might look a bit complicated at first. Therefore, this book contains directions on how to read each diagram.
- **Verification** of facts in terms of completeness, consistency, and correctness: A (more or less) formal model makes it possible to verify the facts obtained for completeness, consistency, and correctness. In particular, the clear depiction of interrelationships makes it possible to ask specific questions, and to answer them. We will list these questions with each diagram.

Answer the following questions for yourself:

- When was the last time you felt that you were at cross-purposes when you discussed a system?
- When was the last time you felt that you were discussing the same issue over and over again?
- When was the last time you wished that the consensus you reached during a discussion had been recorded?

Source : <http://sourcemaking.com/uml/basic-principles-and-background/models-views-and-diagrams>