

Framing the Design Task

Theoretical Principles

The basic generative discourses that configure the phenomenological domain in which the design task is undertaken. Every competent design practitioner knows in her/his heart that her capacity to bring forth valuable artifacts in a particular social world depends on the power of the theoretical discourses and practices that underlie the designing process.

Nanotechnology design is based in molecular biology, quantum physics, molecular chemistry, and mathematics.

Mechatronic design is based in electronics, mechanics, and IT.

Ontological design is based in phenomenology, philosophy of language, and biology of cognition.

Graphic design is based in color, composition, visual perception, and aesthetics.

Microprocessor design is based in mathematics and physics.

Ethical Principles

The basic values embodied in a particular culture and epoch. These historical values orchestrate the background out of which the design task is undertaken, and very often, guide the decision making process before any conscious or rational deliberation is possible. During the 50's, key ethical values guiding car design may be articulated as: nature is an infinite resource, power is good - the more power the better, and space is infinite. In the 21st century, those values have changed. Today, nature is not infinite, but scarce and vulnerable; the design must be **sustainable**. Today, innovation is faster; the design must be **adaptive**. Today, access to information and knowledge through digital media is massive; design must expand **networked collaboration** within the Open Source economy. Today, the world is smaller, faster, and more interrelated; design must **support diversity**, tolerance and inclusion.

Projectual Principles

The way in which a particular collective undertakes its design task, and deals with the four fundamental domains of concern of design: *conceiving, designing, building, using*. The design way, or the design approach, is often articulated in a few principles that derive from standards, procedures, methodologies, division of labor, and key roles. For instance, CMMI or Agile in software development, the Bauhaus in architecture, or the Modular Design in electronic and automotive domains. However, the most significant part of each approach evolves as a tacit know-how inside a tradition of practitioners: as a collection of habits, moods, and transparent networks of relations. For that reason, Projectual Principles, although relevant, are a minor expression of practices crafted over extended periods of time, and probed in multiple challenges.

