Exploring the C-K Theory and Its Possible Application in Planning Processes

The role of a planner is multifaceted, requiring expertise in politics, creativity in envisioning the future of the city, a deep understanding of history, and the ability to reflect on their practice (Rabino et al., 2014). In the context of planning, social dynamics are shaped by institutions with conflicting interests. Planners no longer adhere to a centralized planning model, but instead engage with a diverse array of stakeholders and control systems. This shift has led to the emergence of new or transformed roles for planners, such as spokespersons, strategists, consultants, and technicians. The professional role demands specific behaviors, yet each individual develops a unique approach that is influenced by problem setting, adopted strategies, and interpersonal theories of action, showcasing a form of creativity.

Developed in the scientific field of the Design Theory, the C-K theory was born in the environment of the design engineering and innovation. This is a methodology developed at the chair of Théorie et Méthodes de la Conception Innovante (Chaire TMCI) at ParisTech Ecole des Mines in the late 1990s, faces the above problems by modelling the generation of original alternatives and the evolution of the identity of objects. It elucidates that innovative design reasoning operates on two distinct but interdependent spaces of thought: a space of concepts (C) containing undecidable propositions, and a space of knowledge (K) containing established propositions. The joint expansion of these two spaces drives the generation of unknown objects from known facts.

In the C-K theory and its applications, two spaces are identified: one of concepts (C) and the other of knowledge (K). A concept is defined as a proposition without logical status in the space of knowledge, while the space of knowledge is a set of propositions with a logical status based on the available knowledge.

The design process is characterized as a co-evolution of C and K through a logic of processes of expansion of the two spaces. Furthermore, a new version of the C-K theory, known as the C/K/E theory, has been proposed, incorporating an environment (E) that is integral to the creation of adaptable design tools. This theoretical framework offers a creative and adaptable design tool utilizing constitutive memories and foundational references.

The C-K theory emphasizes the continuous cooperation between the set of concepts and the set of knowledge, resulting in the creation of new objects previously unknown. This process enriches the knowledge space with new properties encountered in the concept space, culminating in the acceptance of the new object with its own logical properties.

The workshop will encompass two segments: an initial lecture elucidating the concept of creativity and the C-K theory, followed by the practical application of this technique to a specific task.

For instance, in the planning context, future scenarios are derived from the knowledge framework. When envisioning a scenario, planners construct 'memories of the future' based on the specific future image of the community, drawing from their wealth of experience and involving stakeholders at various levels. This process, known as 'visioning,' also entails defining the actions necessary to realize the future image of the city. Creativity in the planning process may manifest during the analysis, knowledge gathering, and scenario building phases, and the application of the C-K theory can be exercised in these actions.

The C-K theory concerns a continued cooperation between the set of concepts and the set of knowledge, through continuous movement between these two spaces. The result is a new object previously unknown, something that existed in a different form in the K space, which is enriched with new properties encountered in the C space. It returns to the knowledge space as something 'accepted,' with its own set of properties which have logic. During the workshop, there will be two moments: the first as a frontal lecture with explanations of the concept of creativity and the C-K theory, and the second as an application of this technique to a given task.

As an example, future scenarios are generated from the knowledge framework. When the planner prospects a scenario, they build 'memories of the future,' i.e., the specific future image of the community, starting from their wealth of experience and memories, thanks to the participation of stakeholders at every possible level. This process, called 'visioning,' also includes the definition of actions required to achieve this future image of the city. The creative path in the planning process can lie in the analysis phases, in the knowledge gathering phases, and in building scenario phases. We will exercise these actions by looking at a possible application of the C-K theory.

Main references

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