Facets of Forensic Design Strategy

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Abstract. With the aim of building an energy-efficient environment, the design and planning processes of buildings and cities become more and more complex. The current planning processes are even more multidisciplinary. If these are replaced by inter- and trans-disciplinary processes, new developments are taking place. In Forensic Design Strategy the effects of the various possible approaches of the individual planners are set as a function of one another in order to get the best overall solution and not the best single solution for each department.

Keywords. Forensic Design Strategy; Green Building design; environmental design; inter- and trans-disciplinary design process; energy

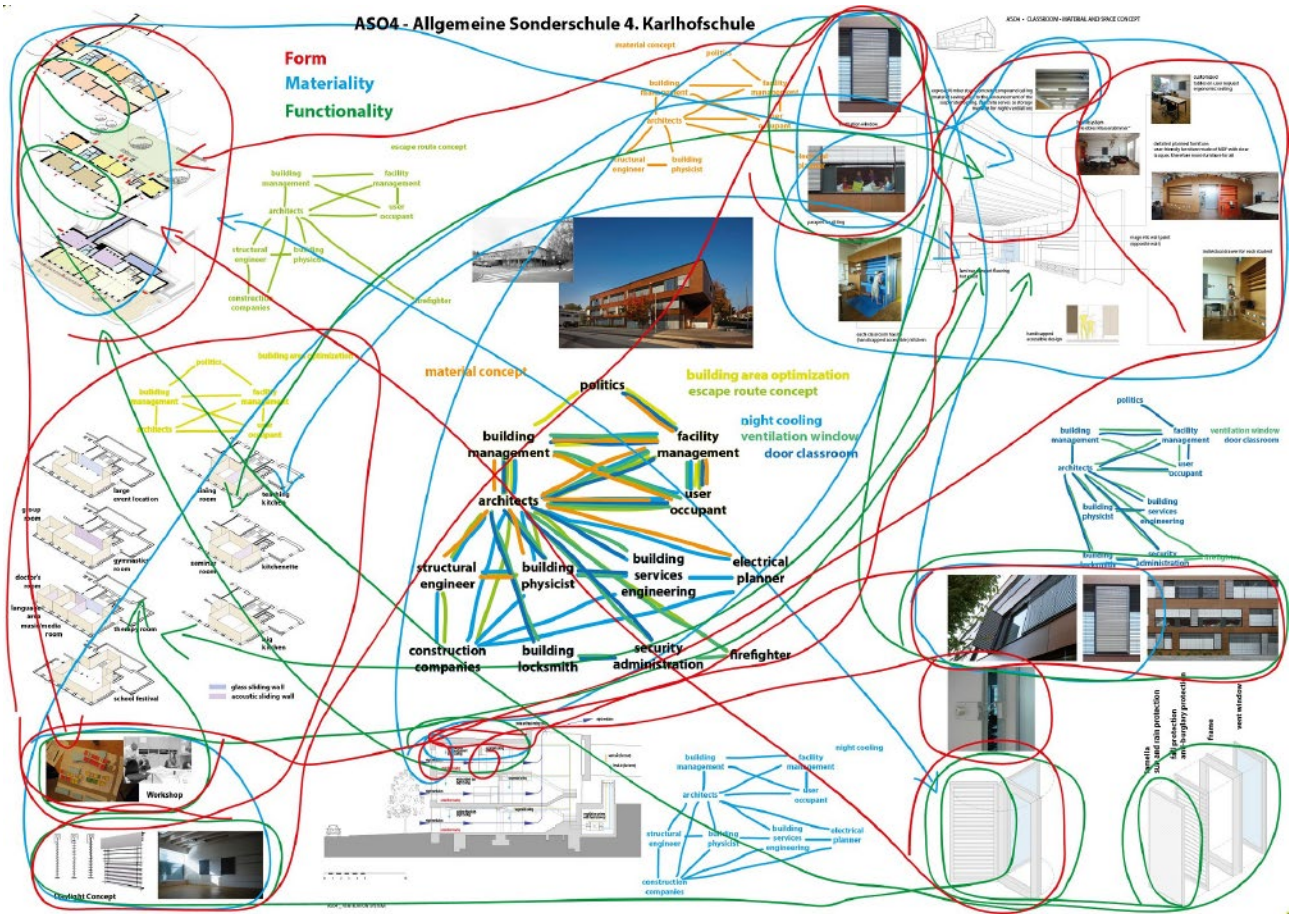
Within my research, which I am conducting as a PhD candidate and former ADAPT-r fellow at Sint-Lucas in Brussels, I am exploring an inter- and trans-disciplinary design process we (grundstein) call “Forensic Design Strategy” [Origin of forensic: Latin forēns (is) of, belonging to the forum, public (see forum, -ensis) + ic]. The term “forensic” is based on a form of political debate. "Forensics" is a word rooted in the Western worlds classical experience. The Greeks organized contests for speakers that developed and recognized the abilities their society felt central to democracy. These exercises acquired the title "forensics".

In our practice grundstein we are over and over confronted with the fact that the different technical experts propose solutions which only focus on their own fields. Often these solutions turn out to be counterproductive to solutions which have been suggested by experts of another field. By trying to solve these repeatedly emerging conflicts the whole design becomes more and more complex and expensive.

In examining our award-winning planning results, the way the individual involved participants collaborate stands out.

Common design practices come from analogous times. The planning processes are usually multidisciplinary [Max-Neef 2005] and the design process is based on knowledge acquired from experience.

In Forensic Design Strategy the effects of the various possible approaches of the individual planners are set as a function of one another in order to get the best overall solution and not the best single solution for each department. This design process in inter- and trans-disciplinary teams is process-oriented and has a common goal. Within these processes the traces of design decisions are inspired by various influences from different angles of different people from different disciplines. In the case of multidisciplinary decision-making processes, innovations are created only in the various specialist areas. Through inter- and trans-disciplinary working methods, all three types of knowledge (system knowledge, target knowledge and transformation knowledge) can be implemented in the development and design process. This increase in knowledge, the manifold inspirations of other disciplines, and the security provided by a coordinated approach by all relevant decision-makers lead to a development thrust for new solutions and developments through inter- and trans-disciplinary design and planning processes.



Visualization of the "Forensic Design Strategy" in the project ASO4

Most common definition of the single disciplines in the knowledg production comes from Manfred A. Max-Neef's "Foundations of Transdisciplinarity" based on Erich Jantsch's theories in "Inter- and Transdisciplinary University: A Systems Approach to Education and Innovation" [Max-Neef 2005] [Jantsch 1970]

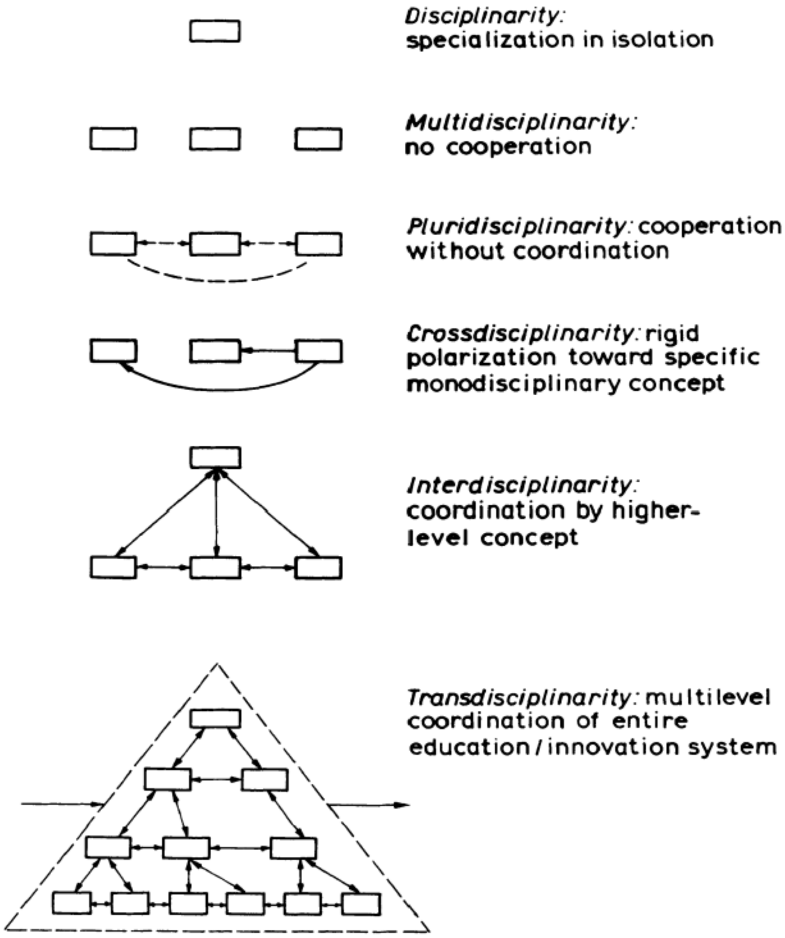


Figure 2. Steps toward increasing cooperation and coordination in the education/innovation system.

Figure from Erich Jantsch, Inter- and Transdisciplinary University: A Systems Approach to Education and Innovation, Policy Sciences [Jantsch 1970]

New technology enables new achievements in design production. These processes are accompanied by an increasing number of professional planners. It also requires new paths in the design production.

Individual planners can offer the best solutions for a job in their specific area of expertise. These solutions raise new problem areas in other areas, which in turn are solved by the responsible professional planners. This leads to a complicated, technically elaborate solution and is removed in small steps from the actual overarching goal (simply cost-effective to build ecologically). These new challenges with more sustainable requirements need new ways of knowledge production and decision-making. In inter- and trans-disciplinary teams one can find new solutions.

In order to meet this fast-growing and changing development, it is being resorted to more and more professional planners who keep their in-depth knowledge up to date. Today, there are a large number of different professional planners, and due to the tendency of further specialization, new sectoral planning areas are constantly being created.

Each planning task has a definition of a common goal that the planning team wants to achieve. The individual planning participants are specialists in their fields and also have the ability to find a solution in this field in the sense of the common goal. Their pronounced specialization only allows

them to roughly estimate the impact of their proposed (best) solutions on the other disciplines, and they are unaware of most of the implications.
The different approaches are also reflected in the different assessment of solutions. So most of the professionals involved in the design process are trained to find the right solutions while the designers are looking for the best solutions.

Rittel used the term "wicked problem" to describe the elusive problems of planning, comparing with relatively "tame" soluble problems in traditional science.
Horst Rittel and Melvin M. Webber describe "Wicked Problems" in there 1973 publication "Dilemmas in a General Theory of Planning" as problems that defied ready solution by the straightforward application of scientific rationality.
Rittel and Webber's 1973 formulation of wicked problems specified ten characteristics
1. There is no definitive formulation of a wicked problem.
2. Wicked problems have no stopping rule.
3. Solutions to wicked problems are not true-or-false, but good or bad.
4. There is no immediate and no ultimate test of a solution to a wicked problem.
5. Every solution to a wicked problem is a "one-shot operation"; because there is no opportunity to learn by trial and error, every attempt counts significantly.
6. Wicked problems do not have an enumerable (or an exhaustively describable) set of potential solutions, nor is there a well-described set of permissible operations that may be incorporated into the plan.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered to be a symptom of another problem.
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
10. The social planner has no right to be wrong (i.e., planners are liable for the consequences of the actions they generate). [Rittel 1973]

The design processes in architecture are still dominated by very traditional work processes between the individual disciplines, one still finds work divisions characterized by exact interfaces and planning boundaries. The decision-making structures also follow these boundary lines. Only 20 years ago, the architect and the structural engineer did not involve other planners in the design phase for smaller and medium-sized construction projects. This has changed dramatically today due to the sharp increase in legal and technical requirements.
Liability issues are one of the reasons why these old traditional structures of interfaces and planning boundaries still hold. However, the knowledge divides itself on more and more involved parties whereby also the decision structures get more and therefore narrower limits. Another important reason is the education and the professional training.
Every design problem is a "wicked problem", while the technical experts' problems are usually "tame" problems. The nature of the problem affects the approach to problems. Since every single decision in a planning process usually has an influence on the design, it will always be necessary for the designer to make decisions in the team, whereby "tame" problems naturally do not require the decision in group to find a solution. The technical experts are accustomed to work independently in the given conditions to develop a solution in their exact areas of responsibility.
In order to achieve the best possible result for the goals set, it is necessary to widen the traditional exact boundaries of these areas of responsibility so that they become flexible and overlap with other

areas. This requires a definition of fixed and flexible parameters with their exact requirements, importance and dependency.
The fixed parameters are immutable presets where it is important to weight and define any margins. Mainly these parameters result from laws, standards and the requirements, goals and wishes of the clients. Many of these fixed parameters only concern individual participants.
In the case of the flexible parameters, the definition of the dependency between the individual persons involved in the solution of this aspect is particularly important, as it also gives the participants of the individual team groups. Flexible parameters may also have dependencies on other parameters, which may increase the circle of stakeholders involved.

After the definition of the task, solutions are worked out together. Whereby all participants are equal and actively involved.
The decision-making processes in the team are on an equal footing. Each member participates.

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