**2 - MULTI-METHODOLOGY AND URBAN RENEWAL: Strategic Choice Approach and SRF for dealing a territorial conflict**
*Francesca Abastante, Isabella Lami*

The research proposes a multi-methodology approach for tackling a conflicting territorial decision problem, related to an ongoing research. There are several ways in which combinations of different methodologies, or part of it, can occur within a single intervention, each having different problems and possibilities. In particular, the multi-methodology here proposed is a combination of the first three phases of Strategic Choice Approach (SCA)- the shaping mode; the designing mode and the comparing mode- with a Multicriteria Decision Analysis, the Playing Cards called Simos-Roy-Figueira (SRF), applied in the third step for selecting the comparison areas. The proposed assessment framework is here applied to the identification of possible alternative strategies for Chiomonte (Italy). It is a small town located in the Susa Valley, which is the core of a huge territorial conflict, because it has been identified as the main Italian working site for the High Speed Train (HST) line from Turin (Italy) to Lyon (France). This territorial conflict can be interpreted in several ways: as the consequence of the imbalance between concentrated costs and distributed benefits; as the resistance of the places against the flows that invade or cross them; as a demand for a different model of development. In this conflicting situation, inevitably highly complex and multi-dimensional, multimethodology could contribute to deal effectively with the full richness of the real world.

**3 - Value-Focused Thinking versus Alternative-Focus Thinking approach. How to support design process by values**
*Marta DellOvo, Alessandra Oppio*

The design of quality alternatives is still considered as a crucial issue in many decision-making contexts. When the problem consists of creating different options for sustainable urban development, the decision is even more critical since there are several needs, values and objectives to be investigated in order to identify the most satisfactory alternative from among those available. Addressing decisions to the good enough solution rather than to the optimal one depends on many reasons, such as: the difficulty to access and process the information needed to take a good decision; the instance of achieving a balance among different dimensions of urban development, namely the economic, environmental and social ones; the not always consensual preferences of the stakeholders involved in these kind of processes. Starting from these premises, what deserves to be explored and represents a major challenge in the context of design is the modeling phase, when objectives are identified and alternative strategies and actions are defined. In order to provide a contribution to the empirical line of research on alternative generation, the paper compares within a design process the Value-Focused Thinking approach, based on values' elicitation, in contrast to the Alternative-Focused Thinking (AFT), based on the generation of alternatives. The results point out the relevance of a Hybrid Practical Value Model consistent to a cyclical notion of the evaluation instead of a linear one.

**4 - Developing hypothesis of reuse for abandoned urban areas: a combined application of Strategic Choice Approach and Analytic Network Process**
*Isabella Lami, Marta Levantesi*

The adaptive reuse of abandoned urban areas is a urban,economic and social challenge. In the case of dismissed hospitals, the problem is even exacerbated, mainly because of the peculiar characteristics of the buildings and the distribution of the spaces; and secondly because of the location and the connections in the urban fabric. The paper presents an innovative approach to the problem, with the integration of Strategic Choice Approach (Friend and Hickling, 2005) and Analytic Network Process (Saaty, 2005). The approach has been applied to a current case study, the Civil Hospital of Fermo (central Italy), which is going to be dismissed. The first two phases of SCA (Shaping mode and Designing mode) has been applied individually (by the authors) and in groups (with MSc students of Politecnico di Torino), to develop possible decision scenarios of transformation of the area. Decision schemes, based on architectural decision options, were used as alternatives in the ANP network. Considering architectural, urban, social and economic aspects as criteria, a questionnaire was realized and submitted to specialists (the Mayor of Fermo, two representatives of the Municipality and two representatives of the Public Health Company) to compare the alternatives. The preferred scenario was identified. This application shows how the combination of SCA and ANP could be a valid tool to support decisions in case of adaptive reuse of buildings at urban/architectonic scale.

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# ■ TD-51

*Tuesday, 14:30-16:00 - William Fry*

## Optimal Control Applications 4

Stream: Optimal Control Theory and Applications
*Invited session*
Chair: *Konstantin Kogan*

**1 - How to deal with Brexit: optimal policy responses in a noncooperative dynamic game**
*Dmitri Blueschke, Klaus Weyerstrass*

In this paper we apply the dynamic games framework to analyse policy reactions to an exogenous shock in the EU. At the end of March 2019 the UK will leave the EU. In a recent study, the Bank of England came up with estimates of possible impacts of this event on the UK economy in various scenarios differing in the assumptions about the form of the new relationship between the UK and the remaining EU. In the most drastic scenario, by 2023 real GDP in the UK could be between 4.75 and 7.75 percent lower than in the case with the UK remaining in the EU. This would also impact on the remaining EU countries. We use an estimated four-country macroeconomic model of an economic union. We call it EUMod, although it contains only the four countries Germany, France, Italy and the UK. For each country, the model contains behavioural equations for GDP, employment, wages, and prices. Furthermore, fiscal policy instruments of the countries are included and monetary policy conducted by the Bank of England for the UK and by the ECB for the three euro area countries is accounted for. We assume different shocks to real GDP in the UK and EU upon Brexit. Applying the OPTGAME algorithm, we then calculate solutions for two game strategies as reaction to this exogenous shock: one cooperative (Pareto optimal) and one non-cooperative game type (the Nash game). EUMod in combination with OPTGAME allows us to analyse interactions between the fiscal policy-makers and the central banks.

**2 - On the optimality of the yardstick regulation in the presence of dynamic interaction**
*Michele Bisceglia, Roberto Cellini, Luca Grilli*

This paper proposes a generalization of the Shleifer (RAND, 1985) model of yardstick competition, to a dynamic framework. Specifically, we consider a differential game and we show that the static yardstick rule is able to replicate the first best solution, only if players adopt open-loop behaviour rules and they are symmetric at the initial time; in the absence of initial symmetry, the social efficiency is reached only in the asymptotic steady state. If players adopt Markovian closed-loop behaviour rule, the static yardstick pricing rule is not able to achieve the first best solution along the equilibrium path of any stationary Markov Perfect Nash Equilibrium. Finally, we deal with the dynamic price regulation issue in a more realistic set-up with quality competition in a Hotelling framework (Brekke et al., JEMS, 2012).

**3 - Cheating or delighting customers on product quality?**
*Fouad El Ouardighi, Konstantin Kogan, Dieter Grass*

In this paper, we claim that, though based on different tradeoffs, cheating and delighting policies are the two faces of the same coin. Cheating relies on inflated goodwill and provides a cheating rent as long