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ABSTRACTS

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spending comprises about 45%, substituting the public sector for the private, more market-oriented approach. Because of these inherent differences, we cannot specify a stochastic cost or profit function to capture their underlying technologies. Therefore, we opt to measure productive performance via data envelopment analysis (DEA), which results in the best practice frontier of our sample hospitals. By relaxing certain constraints of the model, we determine the substitutability of various inputs (which is relevant since French hospitals hire more physicians, whereas in the US, physicians are more apt to substitute their own time for hospital inputs) ; substitutability of outputs, particularly outpatient vs inpatient carem and negative marginal productivity (congestion) of some inputs, for example medical residents. It is our objective to determine the comparability of these two countries' hospital sectors that provides additional micro-economic information on underlying causes of differences in productivity.

T.C.24. BENCHMARKING OF ELECTRIC COMPANIES VIA DEA

Sinuany-Stern, Zilla
Friedman, L.

In this paper we perform benchmark analyses of electric companies from several countries. Based on a survey we received data on the inputs and the outputs of the electric companies.The data was collected for three years. We measured the relative efficiencies of the companies by using the Data Envelopment Analysis (DEA). The DEA provides as by products the peer group of each inefficient company and improvements each company needs to perform in its inputs/inputs. For each compay three sectors were considered:Generation, Transmission and Distribution. In assigning weights for the inputs and outputs of each sector they vary greatly among the electric companies, moreover, DEA resulted in many zero weights, to avoid this phenomenon we used constraints on the virtual variables (the multiplication of an input , for example, by its weight). The constraints on the virtual variables of the inputs/outputs were extracted from the heads of the companies. This research was partially supported by the Paul Ivanier Center on Robotics and Production Management, Ben-Gurion University of the Negev.

T.C.25. GROUP DECISION AND NEGOTIATION I

A COMPARISION OF SOCIAL PARTICIPATORY ALLOCATIVE NETWORKS WITH AHP IN GROUP DECISION MAKING ENVIRONMENTS: A CASE STUDY

Cil, Ibrahim
Cakar, T., Ipek, M.

This paper presents the results of a study in which two prominent groups decision-making methodologies were used to determine a new region for housing estate. The first is MacKinnon's SPAN process (Social Participatory Allocative Networks) and the second is Saaty's AHP. A case study designed to select the most suitable region for housing estate for reestablishing new City Adapazar because of terrible earthquake happened on 17 August in 1999, which destroyed approximately 82 percent of buildings. Three alternatives were identified and ultimately ranked using the two methodologies. The intent was to determine the strengths and weaknesses of each, and to characterize the conditions under which one might be more appropriate than the other. The evaluation team consisted of four engineers from discipline.

T.C.25. A METHODOLOGY TO DEVELOP EFFICIENT FUTURE HORIZONS IN CORPORATIONS

Ozen, Umit
Ulengin, F.

This study discussed the use of cognitive mapping as an aid to develop an exciting future state and strategy for a big Turkish corporation. The participants were invited to put themselves mentally into the desired future state of the organization and then asked what needed to happen today in two search conferences organized in the corporation. Individual insights of conference members were refined to reach a common sense by a word processing program, Textpack. This program assigned the strategic ideas into different topics. The working group evaluated each idea and compared their evaluations with others under each topic determined by Textpack. In the subsequent step, the most important ones, which had received high ratings from the group members, were chosen as future strategic ideas for the corporation. The ideas raised

were structured using cognitive mapping. The result was a visual representation of the corporate manager's thoughts in a form that made the structure of what he or she has said easily accessible, amenable to analysis and focused on key concepts. Cognitive mapping enabled the modeling team to capture the different understandings as networks of ideas which could then be put together to form a final map. After analyzing the map by Decision Explorer program, the important issues were determined for the corporation.

T.C.25. SOME OBSERVATIONS FROM AN APPLICATION OF A COMBINATION OF BRAINSTORMING AND AHP IN THE FORMULATION OF A STRATEGIC PLAN FOR AN ACADEMIC DEPARTMENT

Nepal

This paper reports on a field study of the use of a group support environment, Team Expert Choice in the formulation and prioritization of ideas related to the strategic planning of an academic department. Most of the existing literature in this area is on laboratory experiments and hence the contribution of this report. The paper reports on how the degree of detail on the tasks to be performed influenced the quality of the ideas generated. The process included also the prioritization of the ideas grouped in three areas: support. The paper reports on the opinions of the participants in this process with regard to their satisfaction with the facilitation process in this environment, satisfaction with the brainstorming sessions and the role of the prioritization facility within the electronic meeting systems environment.

T.C.26. MULTI-CRITERIA DECISION ANALYSIS III

MULTICRITERIA MODELISATION AND DECISION ENGINEERING OF AN CHEMICAL EXTRUSION PROCESS

Kiss, Laszlo Nandor
Zaras, K.

In the area of optimizing industrial process, decision makers are often confronted with multi-objective's problems. In manufacturing, for example, it is often necessary to optimize many conflicting objectives, subject to market constraints. This paper presents a multi-objective optimization procedure, which yields an optimal zone containing the solution under the concept of Pareto dominanance. Pair-wise points are compared, and non dominated points are collected in the Pareto region. Then a ranking is established, and the decision maker selects the first-best solution. Finally the procedure is applied to the chemical engineering process of cattle feed.

Keywords: multicriteria optimization, Pareto domain, Pareto domination, indifference thresholds, preference tresholds, veto tresholds, robustness, decision support system.

T.C.26. MULTICRITERIA ASSIGNMENT PROBLEM WITH GROUPING AND CAPACITY CONSTRAINTS

Slowinski, Roman

We consider a generalized assignment problem where processing units can process more than one task but for each processing unit there are given subsets of tasks from among which only one task can be assigned to the corresponding processing unit. For each task there is known a degree of satisfaction from an assignment to a processing unit and for each processing unit there is known a cost of usage that increases exponentially with the number of tasks being assigned, until a given limit. Three criteria are used for evaluation of feasible assignments: (G1) maximum dissatisfaction degree of a task, (G2) total dissatisfaction of all tasks, and (G3) total cost of processing units. If no feasible assignment exists, a blocking configuration is found and all possible actions of deblocking are proposed. We demonstrate some interesting properties of the blocking configurations as well as exhaustiveness of the proposed actions of deblocking. For an imposed value of criterion G1, we generate a set of supported and non-supported assignments with respect to criteria G2 and G3.

T.C.26. AUTOMATED AGGREGATION OF CORRELATING CRITERIA

Porkolab, Lorant
Pluhar, A.

It often happens in multicriteria decision making that the decision criteria are not independent from each