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ABSTRACT

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Abstract

Characteristic of multi-project business is a large amount of interdependent, functionally specialized resources that are divided between different projects. To manage the chaos occurring when the optimum division of resources is sought after, project activities can be planned by the means of process planning. Both project man-hour consumption and the available resources can be cumulated to obtain multi-project manpower planning. Human resource utilization rates in the project industry never reach 100 per cent, but maintaining a certain balance between load-levels and maximum resources is necessary with regard to profitability implications. Plentiful project management-related, systems theory- based literature and computer applications are widely recognized and, -used by companies. Despite this, manpower planning is usually handled completely manually, and by embracing only the needs of one project.

This research develops a process model for aiding decisions about adjusting manpower to the contemporary order stock in a company that manages several projects simultaneously. The decision-model includes the essential background factors that affect the definition of sufficient utilization rates for project manpower, and a spreadsheet application for manpower requirements forecasting. The study also presents means for shortening project lead times, so it responds not only to the problem of adjusting manpower, but also to the problem of improving project manpower productivity.

Several research methods were combined to construct the presented decision model. Archival data analysis, mathematical modeling, and interviews were the most important devices in building the functional application. The research approach itself is constructive. It is inherent to constructive research that an innovative solution is created to solve a true-life problem and tested in connection with the research. The solution created here can be generalized to a certain degree, and contributes for its part to the theory of project management.

The central results of the research have to do with the resource consumption profiles of boiler plant projects and, with the manpower resource sufficiency in the case company. Based on the processed project data, it can be stated that the projects realized by the case company have remarkably high variance in terms of resource consumption profiles. The in-house project manpower resources in the surveillance period were found to be sufficient apart from one exception.

Key words	multi-project environment, resources, manpower, construction
Further information	