

USING DATA MINING TO IMPROVE THE BUILDING LIFE CYCLE

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The building life cycle process is complex and prone to fragmentation as it moves through its various stages. The number of participants, and the diversity, specialisation and isolation both in space and time of their activities, have dramatically increased over time. The data generated within the construction industry has become increasingly overwhelming. Most currently available computer tools for the building industry have offered productivity improvement in the transmission of graphical drawings and textual specifications, without addressing more fundamental changes in building life cycle management. Facility managers and building owners are primarily concerned with highlighting areas of existing or potential maintenance problems in order to be able to improve the building performance, satisfying occupants and minimising turnover especially the operational cost of maintenance. In doing so, they collect large amounts of data that is stored in the building's maintenance database. The work described in this paper is targeted at adding value to the design and maintenance of buildings by turning maintenance data into information and knowledge.

Data mining technology presents an opportunity to increase significantly the rate at which the volumes of data generated through the maintenance process can be turned into useful information. This can be done using classification algorithms to discover patterns and correlations within a large volume of data. This paper presents how and what data mining techniques can be applied on maintenance data of buildings to identify the impediments to better performance of building assets. It demonstrates what sorts of knowledge can be found in maintenance records.

The benefits to the construction industry lie in turning passive data in databases into knowledge that can improve the efficiency of the maintenance process and of future designs that incorporate that maintenance knowledge.

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