

ABSTRACT

Delay in completion of construction projects is a worldwide issue with serious social and economic implications, inflicting significant financial losses to the involved parties. Consequently, disputes are generated and, therefore, costly and time-consuming judicial processes are invoked, which can be detrimental for the industry and the government. Especially for Cyprus, where its financial recovery is closely linked to the construction industry, and its burdened judicial system suffers to deliver justice on-time, delays have a significant impact. To effectively deal with this problem, one has to unveil its causes, and apply effective mitigation measures and practices. To date, the causes of delay in the Cypriot construction industry have yet to be determined using a consistent, scientific approach. The purpose of this thesis is to determine the most important causes of delay, and to detect the most applicable measures for delay mitigation, using a dataset derived from the construction industry of Cyprus. As a secondary objective, this thesis proposes a novel methodology for effective construction project control using state-of-the-art geospatial and ICT technologies. The determination of delay causes, and mitigation practices is carried out by means of an integrated statistical approach that considers the perception of the main stakeholders (i.e. owners, contractors and consultants) to identify commonly-accepted practices. Qualitative and quantitative data regarding the perception of professionals on the causes of delay and the optimal mitigation measures were collected via a voluntary sampling questionnaire process. The dataset was analyzed using an integrated statistical workflow that addressed the reliability of the sample, ranking of the most important delay causes and measures, and the determination of the perception of the involved parties via both non-parametric and parametric correlation tests. Concordantly, critical statistical indices were derived unveiling the significance of each delay cause and mitigation measure as perceived by each major stakeholder of the industry. The results illustrate that, although there is an a-priori disagreement in the perception of each stakeholder with respect to delay liability, commonly-accepted delay mitigation practices can be successfully identified and applied directly, promoting dispute avoidance.

Keywords: construction, project management, control, delay, causes, measures