

EXPLAINABLE ARTIFICIAL INTELLIGENCE (XAI): A GAME-CHANGER TO MANAGE RISKS IN COMPLEX PROJECTS

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Integrated project planning and scheduling is a popular study area that has offered a blueprint for project success based on on-time completion. However, in real-world production, the project environment changes constantly due to external and internal factors like machine breakdowns, sudden material shortages, and so on, causing process pauses. As a result of these disruptions, the best process plan and timetable may become less efficient or even impossible to implement. To avoid such shortcomings, this work proposes an eXplainable AI (XAI) technique to manage risks for a complex Supply Chain Embedded Project Scheduling Problem (SCEPSP) by considering both project management features and supply chain drivers, that can lead to an optimal decision support system for the whole business.

Introduction

Project scheduling has long been seen as one of the most important aspects of project management since it prioritises and allocates resources to project activities. A project manager for a complex project may calculate the timeframe, allocate resources, plan for money, and, most importantly, obtain a feel of the reality of delivering the project by using good project scheduling [1]. Traditional complex project management and scheduling are now marked by volatility, uncertainty, complexity, and ambiguity, owing to the COVID-19 pandemic

and its consequences. As a result, it is critical not to cancel but to optimise affected or susceptible project portfolios in order to maintain Australia's economic development and remain competitive in the new reality [2]. To do so, embedding business reforms, speeding the digital transformation of classical projects, and implementing advanced technologies and automation programs (e.g., artificial intelligence-based approaches) in supply chain and project management problems can encourage better business agility, which is potentially the shortcoming in the current literature [3]. Moreover, in practice, while scheduling the activities of multiple complex