

## The Evolutionary Game of Trust in Public-Private Partnership Project Networks

**Access to new resource related to PPP projects and project management added to PMWL**



Resource provided by [Diana Serikbay](#)

17 June 2022 – Almaty, Kazakhstan – Access to a new resource has been added to the PM World Library (PMWL) related to Public Private Partnerships. The new resource is titled “**The Evolutionary Game of Trust in Public-Private Partnership Project Networks**” is a paper by Xiangtian Nie, Kai Feng, Guoxiang Zhao, Tianyu Fan and Shengnan Wang published in 2021 in the journal *Mathematical Problems in Engineering*.

In this paper, the authors analyze trust between public and private sectors in PPP projects. An evolutionary game model was created based on game theory between two players to determine the point of strategic equilibrium. To determine this point, the authors use the replication dynamics equation (differential equations) and the Jacobian matrix.

This work models an evolutionary game with asymmetric information. The authors showed that there are four stable strategies, on which the initial matrix is built with a forecast for evolution in relations between the two sectors. As a result, it was found that the evolution of trust and ESS (evolutionary stable state) are closely related to the trust matrix. The relationship between the public sector and the private sector affects the effectiveness of the project and its possible failure in the future. The method that was proposed in this study can be used to predict the evolution of trust between two PPP players. And also, a reasonable payment scheme will help to control the evolutionary process of trust and a stable state of trust between the public and private sector will be achieved, which will lead to an increase in the effectiveness of the project.

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### For PMWL Post

Nie, X., Feng, K., Zhao, G., Fan, T., and Wang, S. (2021). **The Evolutionary Game of Trust in Public-Private Partnership Project Networks**. *Mathematical Problems in Engineering*, Volume 2021, Article ID 5514708, 11 pages. Available online at <https://doi.org/10.1155/2021/5514708> ([Serikbay](#))

PMWL Research Result

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