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# THE IMPACT OF INTER-ORGANISATIONAL NETWORK STRUCTURES ON RESEARCH OUTCOMES FOR ARTIFICIAL INTELLIGENCE TECHNOLOGIES

## Abstract:

The purpose of this study is to empirically explore the impact of inter-organizational network structures, such as alliances, on the research outcomes of artificial intelligence technologies during the adoption and diffusion phases of their lifecycle.
The optimal inter-organizational network structure varies depending on the characteristics of the technology, industry and product. Artificial intelligence (AI) technology is rapidly being put to practical use, especially in the last few years, in a wide range of business domains, due to improvements in hardware performance and the increasing collection and use of big data. In collecting and using big data, collaboration among multiple organizations can be more advantageous than activities by a single organization, and the relationships among organizations are thought to have an impact on the expansion of research results. Nevertheless, the optimal structure of inter-organisational relations is thought to be influenced by the characteristics of the industry and products that use artificial intelligence technology, so we collected actual cases and carried out exploratory analysis.
As a research method, we collected information about the cooperation between organizations related to artificial intelligence from press releases and newspaper articles, and analyzed the network structure between the organizations by supporting the method of social network analysis. The number of registered patents on artificial intelligence was used as an index of the research results. As a result of the statistical analysis, the research results of the organizations with weak network ties were large, mainly in the basic technology area. On the other hand, in the practical technology, there were some areas where the strong network of ties led to high research results.

## Keywords:

Network Formation, Innovation Management, Partnership, Open Innovation Ecosystem, Vertically Integrated

**JEL Classification:** O32, M11, D85