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CHANGES IN THE STRUCTURE OF AI-RELATED INTER-ORGANISATIONAL COOPERATION NETWORKS

Abstract:

The purpose of this study is to empirically clarify the linkage relationships between organisations involved in AI research and development or practice. In particular, the study focuses on changes before and after the diffusion of generative AI. Although research and development of AI has been conducted for some time, the diffusion of generative AI triggered a rapid expansion of the practical use of AI in general companies and individuals. In AI research and development, diverse organisations such as hardware, software, networks, services and solutions work together. AI R&D requires huge resources and is therefore prone to economies of scale and network externalities. In other words, rather than one organisation carrying out all activities, it is more resource efficient for multiple organisations to divide labour, each concentrating on areas of specialisation, while collaborating with other organisations in other areas. Successfully expanding collaboration with other organisations is therefore a key challenge for the growth of AI-related organisations.

Therefore, the research question of this study is how the linkage network structure has changed by comparing the state before and after the diffusion of generative AI. Specifically, it is about the changes in the organisations that are expanding their collaboration and the characteristics of their collaboration networks. In the study, the branching point for comparing pre- and post-generational AI was the date of the release of OpenAI's Chat GPT4.

Data on AI-related inter-organisational relations were then collected based on Japanese economic newspapers and press releases for the year before and the year after the release date, respectively, to analyse the situation in Japan. The method of social network analysis was used to analyse the structure of the cooperation network.

The analysis revealed that the central organisations changed significantly before and after the diffusion of generative AI, and that AI-related inter-organisational cooperation expanded. In addition, the characteristics of the collaboration structure of the organisations that are expanding their collaboration were quantitatively clarified.