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The Evolution of National Technological Capability Roles From the Perspective of Researcher’s Transfer: A Case Study of Artificial Intelligence

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Abstract : Technology capability refers to the comprehensive ability that influences all factors of technological development. Among them, researchers’ resources serve as the foundation and driving force for technology capability, representing a significant manifestation of a country/region's technological capability. Therefore, the cross-border transfer behavior of researchers to some extent reflects changes in technological capability between countries/regions, providing a unique research perspective for technological capability assessment. This paper proposes a technological capability assessment model based on personnel transfer networks, which consists of a researchers' transfer network model and a country/region role evolution model. It evaluates the changes in a country/region's technological capability roles from the perspective of researcher transfers and conducts an analysis using artificial intelligence as a case study based on literature data. The study reveals that the United States, China, and the European Union are core nodes, and identifies the role evolution characteristics of several major countries/regions.

Keywords : transfer network, technological capability assessment, central-peripheral structure, role evolution
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