

Classifying the Role of Technology in Technology Development

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Abstract : Even though technology evolves and develops through interaction with each other, not all technologies contribute to the development of technology equally. While some technologies play a central role in developing technology, others play a secondary role. The role of the technological components can be classified as core or non-core (peripheral) technology. The core technologies have a considerable knowledge interaction with other technological components while the non-core technologies barely interact with others within the system. This study introduces the concept that classifies the technological components into core or peripheral technology according to their role and importance in the technology field. The study adapted the social network analysis to examine the relationship between technological components. Using a continuous core-periphery analysis, it identifies the technological network structure and classifies the core and peripheral nodes. Based on their knowledge inflow/outflow direction and their dependence/influence on core technologies, the technological clusters are classified into four categories: (1) high dependence and high influence on core technology, (2) high dependence and low influence on core technology, (3) low dependence and high influence on core technology, and (4) low dependence and low influence on core technology.

Keywords : core technology, periphery technology, technological components, technological role

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