

Research on Autonomous Controllability of BeiDou Navigation Satellite System Based on Knowledge Transformation

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Abstract : The development level of the BeiDou Navigation Satellite System (BDS) can strongly reflect national defense strength as an important spatial information infrastructure. BDS can be not only used for military purposes, such as intelligence gathering, nuclear explosion monitoring, emergency communications, but also for location services, transportation, mapping, precision agriculture. In order to ensure the national defense security and the wide application of BDS in civil and military areas, BDS must be autonomous and controllable. As a complex system of knowledge-intensive, knowledge transformation runs through the whole process of research and development, production, operation, and maintenance of BDS. Based on the perspective of knowledge transformation, this paper expounds on the meaning of socialization, externalization, combination, and internalization of knowledge transformation, and the coupling relationship of autonomy and control on the basis of analyzing the status quo and problems of the autonomy and control of BDS. The autonomous and controllable framework of BDS based on knowledge transformation is constructed from six dimensions of management capability, R&D capability, technical capability, manufacturing capability, service support capability, and application capability. It can provide support for the smooth implementation of information security policy, provide a reference for the autonomy and control of the upstream and downstream industrial chains in Beidou, and provide a reference for the autonomous and controllable research of aerospace components, military measurement test equipment, and other related industries.

Keywords : knowledge transformation, BeiDou Navigation Satellite System, autonomy and control, framework

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