

Analyzing Data Protection in the Era of Big Data Under the Framework of Virtual Property Layer Theory

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Abstract : Data rights confirmation, as a key legal issue in the development of the digital economy, is undergoing a transition from a traditional rights paradigm to a more complex private-economic paradigm. In this process, data rights confirmation has evolved from a simple claim of rights to a complex structure encompassing multiple dimensions of personality rights and property rights. Current data rights confirmation practices are primarily reflected in two models: holistic rights confirmation and process rights confirmation. The holistic rights confirmation model continues the traditional 'one object, one right' theory, while the process rights confirmation model, through contractual relationships in the data processing process, recognizes rights that are more adaptable to the needs of data circulation and value release. In the design of the data property rights system, there is a hierarchical characteristic aimed at decoupling from raw data to data applications through horizontal stratification and vertical staging. This design not only respects the ownership rights of data originators but also, based on the usufructuary rights of enterprises, constructs a corresponding rights system for different stages of data processing activities. The subjects of data property rights include both data originators, such as users, and data producers, such as enterprises, who enjoy different rights at different stages of data processing. The intellectual property rights system, with the mission of incentivizing innovation and promoting the advancement of science, culture, and the arts, provides a complete set of mechanisms for protecting innovative results. However, unlike traditional private property rights, the granting of intellectual property rights is not an end in itself; the purpose of the intellectual property system is to balance the exclusive rights of the rights holders with the prosperity and long-term development of society's public learning and the entire field of science, culture, and the arts. Therefore, the intellectual property granting mechanism provides both protection and limitations for the rights holder. This perfectly aligns with the dual attributes of data. In terms of achieving the protection of data property rights, the granting of intellectual property rights is an important institutional choice that can enhance the effectiveness of the data property exchange mechanism. Although this is not the only path, the granting of data property rights within the framework of the intellectual property rights system helps to establish fundamental legal relationships and rights confirmation mechanisms and is more compatible with the classification and grading system of data. The modernity of the intellectual property rights system allows it to adapt to the needs of big data technology development through special clauses or industry guidelines, thus promoting the comprehensive advancement of data intellectual property rights legislation. This paper analyzes data protection under the virtual property layer theory and two-fold virtual property rights system. Based on the 'bundle of right' theory, this paper establishes specific three-level data rights.

Keywords : data protection, property right, intellectual property, Big data

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