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Intelligent Digitized Design Systems for the Management of Design Knowledge Related to Nuclear R&D Institutes

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Nuclear R&D is highly knowledge-intensive. With the rapid advent and development of modern information technology, knowledge management in nuclear industry has been provided with new approaches and possibilities. This article introduces a framework of intelligent digitized design system in nuclear R&D phase and finds answer to knowledge application, internal process optimization, experience feedback and further innovation. This framework utilizing digitalization and informatization finds a way to incorporate the process of the 'Socialization, Externalization, Combination, Internalization' (SECI) model which include intelligent design process, integrated design software, smart verification and validation simulation platform, experiment data management platform, online monitoring platform and digital twin nuclear power plant, etc. The following case study gives a clear picture of what and how knowledge management has been performed under this framework. Furthermore, important lessons have been summarized.

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