

R. Jardim-Goncalves, C. Agostinos, A. Steiger-Garcao, *A reference model for sustainable interoperability in networked enterprises: towards the foundation of EI science base.*

The authors analyse neighbouring scientific domains for their potential contributions for interoperability in enterprises. Based on this elaborate analysis a reference model and an interoperability framework (CAS-SIF: Complex Adaptive Systems – Sustainable Interoperability Framework) are proposed.

The reference model identifies four layers of interoperability practice (slack, unregulated, standard-based and semantic interoperability). The authors use mathematical models to analyse the time behaviour of the information exchange in the different layers taking into account the amount of time needed for the clarification of the information meaning. The latter includes human intervention as well. The proposed framework (CAS-SIF) consists of four layers (monitoring, integration & interoperability intelligence, decision support and communication). It has been validated in supply chain and collaborative design network case studies.

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