Document Control Sheet

1. ISBN or ISSN	2. type of document (e.g. report, publication) Final Report

3. title

Final Report – Collaborative Project

KISS – AI-Supported Rapid Supply Network –
An AI-Based Semantic Platform for the Rapid Establishment of Value-Creation Networks

4. author(s) (family name, first name(s)) Zinke-Wehlmann. Christian, Jung, Hagen; Grzona, Pierre; Riedel, Ralph; Huber, Harald; Liebert, Marco; Frohs, Pascal; Müller, Bernhard; Reinhardt, Heiner; Zumpe, Florian; Salomon, Laura; Tillmann, Linus; Boppert, Julia; Durchholz, Janina; Friedrich, Ina; Weißflog, Michael	5. end of project 05/25
	6. publication date
	7. form of publication Report
8. performing organization(s) (name, address) Institut für Angewandte Informatik e.V. Goerdelerring 9 04109 Leipzig	9. originator's report no. 01MK22001
	10. reference no.
	11. no. of pages 77
12. sponsoring agency (name, address) Bundesministerium für Wirtschaft und Klimaschutz (BMWK) 53107 Bonn	13. no. of references 42
	14. no. of tables 8
	15. no. of figures 23

16. supplementary notes

17. presented at (title, place, date)

18. abstract

The KISS project aimed to strengthen the resilience of the manufacturing industry—particularly in the field of additive manufacturing—by developing an AI-based semantic networking platform (SEMPER-KI). By digitally connecting demand analysis, supply, production, quality management, and logistics, the project sought to enable companies as well as actors in the medical and social sectors to act more quickly and in a more coordinated manner during crisis situations. The nine project objectives included, among others, the development of the SEMPER-KI platform, an AI-supported assistance system for demand capture, a semantic meta-model in the form of an ontology or knowledge graph, and AI-based concepts for networking and service provision. In addition, logistics, quality, and maturity assessment models were integrated to support the formation and evaluation of new value-creation networks.

The initiative emerged in response to the COVID-19 pandemic, which revealed significant shortcomings in industrial and societal supply systems. Existing digital solutions lacked both semantically structured data and AI mechanisms for adaptive network formation. KISS addressed this gap by developing an open platform that combines ontologies, AI-based matching logic, and an interactive assistance system. Within the work packages, processes were analyzed (WP1), concepts and ontologies were developed (WP2), the platform was piloted (WP3), its effectiveness was evaluated (WP4), and the results were disseminated (WP5). In doing so, the project established an integrated foundation for digitally supported, resilient value-creation networks in additive manufacturing and related industries.

19. keywords
Additive Manufacturing; Knowledge Graph; Platform

20. publisher -	21. price -