

The International Graduate School (IGS) is concerned with research questions regarding all aspects of dynamics in logistics. The following research topic for a dissertation project is of particular interest for the IGS.

Formalisation of Knowledge in Complex Logistics Processes

Abstract

Complex logistics systems are characterised by a multitude of processes in which decisions of the executive entities are often driven by implicit knowledge, such as experiences and estimates.

However, due to the high fluctuation of personnel in the logistics sector – especially in the range of low to medium qualification – logistics service providers are faced with the challenge of codifying and making sustainable the process relevant knowledge. The current development towards globally distributed logistics only intensifies this problem.

This knowledge drain, however, poses a serious challenge towards the effectiveness, sustainability and profitability of complex logistics systems.

Research question

How and to what extent can knowledge about complex globally distributed logistics processes be formalised and applied to improve their effectiveness, sustainability and profitability.

Expected methodologies

- Application of model transformation methodologies for the identification of relations between processes and knowledge items.
- Application of methods of knowledge extraction such as structured questionnaires or interview techniques.
- Use of semantic approaches to formalising and modelling domain specific knowledge.

References

- Weber, Frithjof; Dauphin, Eva; Fuschini, Renata; et al: Expertise Transfer: A Case Study about Knowledge Retention at Airbus. In: Pawar, Kulwant S; Thoben, Klaus-Dieter; Pallot, Marc (Eds.): Concurrent Innovation: An Emerging Paradigm for Collaboration & Competitiveness in the Extended Enterprise. Proceedings of the 13th International Conference on Concurrent Enterprising (ICE 2007), Sophia-Antipolis, France, 4-6 June 2007, pp. 329-338.
- Langer, H.; Gehrke, J. D.; Hammer, J.; Lorenz, M.; Timm, I. J.; Herzog, O.: A Framework for Distributed Knowledge Management in Autonomous Logistic Processes. In: International Journal of Knowledge-Based & Intelligent Engineering Systems, 10(2006)4, pp. 277-290
- Haarmann, Anne-Rose; Burski, Lucie: Wenn das Wissen geht – Die Wissenstafette bei Volkswagen. In: Wissensmanagement, 8 (2003), pp. 39-41.
- Hans, C., Hribernik, K., Thoben, K.-D.: An Approach for the Integration of Data within Complex Logistics Systems. In: Haasis, H. D., Kreowski, H.-J., Scholz-Reiter, B.: Dynamics in Logistics. First International Conference, LDIC 2007, Bremen, Germany, August 2007. Proceedings. Springer, Heidelberg, 2008, pp. 381 – 389 (ISBN: 978-3-540-76861-6).
- Scholz-Reiter, B.; Windt, K.; Freitag, M.: Autonomous logistic processes: New demands and first approaches. In: Monostori, L. (ed.): Proceedings of the 37th CIRP International Seminar on Manufacturing Systems. Budapest, Hungaria, 2004, pp. 357-362..

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