

Title	ロジスティクス・マネジメントへのシステム方法論の適用
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Citation	
Issue Date	2001-03
Type	Thesis or Dissertation
Text version	author
URL	http://hdl.handle.net/10119/736
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An Application of Systems Methodology to Logistics Management

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March 2001

Keywords: Logistics Management, Systems Methodology, Soft Systems Methodology, Unified Modeling Language, Use Case

In this research, the methodology to propose the improvement in the logistics management that includes the construction of the information system is considered. The logistics management aims to control the flow of goods (raw material, half-finished goods, and finished goods, etc.), service, and the information and keeping in the distances between the generation point and the consumption point to satisfy the customer. However, in many cases, the supply process of goods and service is analyzed, and improved by each individual subject to satisfy the demand of the customer. Because, the subject like two or more company and public organization, etc. exists in the supply process of goods and service.

Moreover, we should adapt ourself to the change in the environment by Electronic Commerce (EC) now. And, we should immediately construct the business model that can adapt ourself to the change. And, our logistics management should adapt itself to the change. However, we don't have an effective measure for this problem.

Thus, the purpose of this research is as follows.

- This research proposes the methodology to propose the improvement plan in the logistics management that includes the introduction of the information system.
- In this research, the possibility of the application of the methodology to this problem was

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analyzed, and considered by the case study.

In this research, the effectiveness of an application of the Soft Systems methodology (SSM) to the logistics management that included the introduction of the information system was verified by the case study. This case is the problem of restructuring EDI executed in 1993 according to JUSCO Co., Ltd.. Actually, JUSCO Co., Ltd. restructured EDI in 1993. And, in this research, UML, Especially Use Case, was used to apply SSM to write the business model.

An application of SSM to this problem showed two root definitions.

- JUSCO Co., owned and operated system to win the price competition by making the business efficiency to minimize the cost with the supplier.
- Reducing the stock JUSCO Co., owned and operated system to satisfy the customer by controlling single goods to reduce stockout rate in the shop with the supplier.

These two root definitions proposed the improvement for restructuring EDI. This improvement is the same as the one which company JUSCO Co., Ltd. and Kao Co., Ltd. executed in the past. And, restructuring EDI by JUSCO Co., Ltd. and Kao Co., Ltd. has improved the dealings business of both companies. This result shows that SSM is effective to the logistics management that includes the construction of the information system.

Moreover, the effectiveness of the using UML on SSM is the following two.

- The using UML on SSM show relation between activity and actor, but only the conceptual model doesn't show it.
- The using UML on SSM express the whole of business model, but only the Use Case doesn't express it.

The conclusion of this research is as follows.

- This research proposed an application of SSM to the logistics management that included the introduction of the information system.
- This research showed possibility an application of the methodology to the logistics

management that included the introduction of the information system by the case study.

The research topic in the future is a study of a logical rule to examine the root definitions.