Development of Design Algorithm for Delivery Center

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The delivery center is a facility for making shipment for customer directly or indirectly. A logistics network is necessary for the design of the center. As a delivery center should meet any customer various demand. When the system engineers design a delivery center, the number of product flows, storage size, kind and amount of the devices should be decided. The system engineers must satisfy all customer demands and meet budgetary and infrastructural constraints. At present, delivery center is designed by experimental and intuitional approaches. However this process is very complexed, in addition, the design mostly depends on the designers.

The target of this research is to propose an algorithm that will be useful to design the delivery center automatically and to realize a theoretical design tool that will contribute to making the design easier. In concrete terms, using real logistics object model, we propose how to decide the material flow that describes how many the products are transferred.

Fig.3 shows the transition of stock. The left of the figure shows the case that interval of order is constant, and changed lead time. The shorter lead time is, the amount of stock is larger. And the right one shows the case that is constant and changed lead time. This graph suggests that the shorter interval of order is, amount of stock comes aloce to constant value.

Keywords: Warehouse management, Material flow, Logistics

References

1) Takako Yasunaga, Jun Ota, Toyokazu Kobayashi, Tomio Ito, Toshimitsu Higashi, Hirofumi Tamura: “Development of Design Algorithm for Logistics Network”, submitted

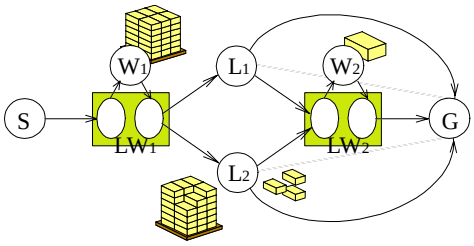

Fig. 1 mixed flow model

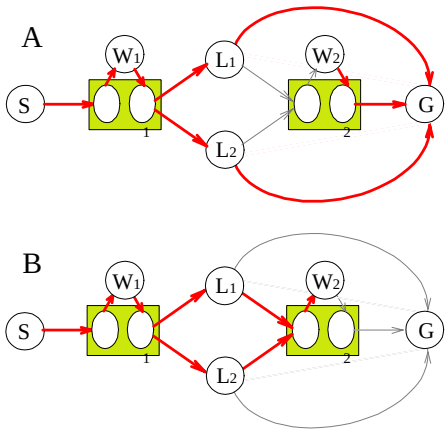

Fig. 2 material flow depending on time

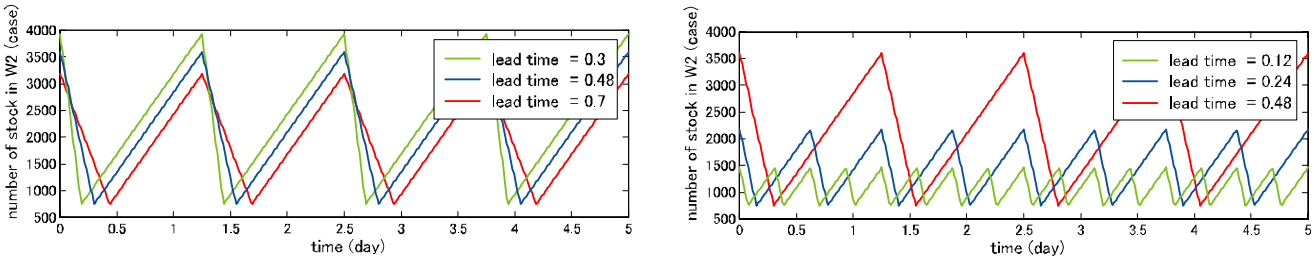

Fig. 3 amount of stock in W2