



Original Contribution

Journal scientific and applied research, vol. 4, 2013
Association Scientific and Applied Research
International Journal

ISSN 1314-6289

ANALYSIS OF THE MANAGEMENT SYSTEMS OF LOGISTICS WAREHOUSE OPERATIONS

Andrey Bogdanov

NATIONAL MILITARY UNIVERSITY "V. LEVSKI", ARTILERY, AIR DEFENSE AND
COMMUNICATION SYSTEMS FACULTY
–SHUMEN, "K SKORPIL" STR №1

e-mail: anbog@abv.bg

Abstract: *The paper considers the application of ready – made integrated complex systems for logistic management of goods and information flows. It deals with the integration of the conceptual approach with the production and operational management. Thus the market situation analysis is done which helps proper decision making. Different structures of a computer based system for storage management are analyzed.*

Key words: *Logistic management, computer based system for storage, warehouse*

Modern business is extremely dynamic and the logistics tasks of goods and information management change constantly in accordance with the business requirements [15].

The market offers ready-made integrated complex systems, based on the analysis of many customers' experience, taking into account the requirements of the modern management [11]. They are developed by specialists in finance, manufacturing and trade management, etc. They meet the needs of many different users. But not all of them are sufficiently flexible and adaptable to the needs of different enterprises (companies) [3,5]. But even the best software complexes will not give the expected results if their implementation is not assigned to specialists in the organization. The

management body of the company should also work and cooperate with these specialists.

Storage techniques and management technology of different stocks make it possible to collaborate the logistics approach to goal setting with the whole production process on one hand, and the distribution activities - on the other hand. Combining the conceptual approach with the production and operations management practice makes it possible to use the analysis and prognosis of the market situation in taking strategic and operational management decisions as well as in planning and managing of all working processes in material flow, including the separate level of each operation [4,14].

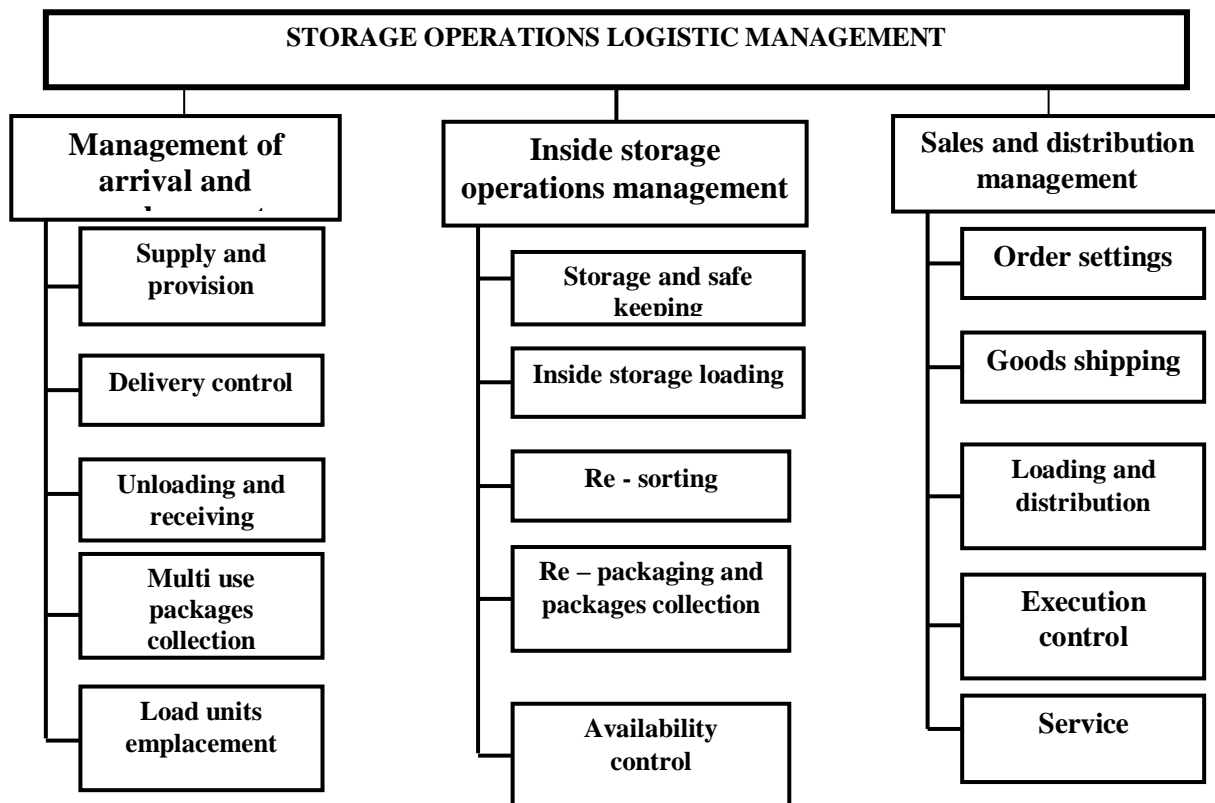


Fig. 1. Classification of storage operations logistic management

This unification of the logistic analysis with the entire production - distribution activity is called logistics management.

The management process of each warehouse, regardless of its structural features and of its automation and mechanization level, can be split into three management sub- processes (Fig. 1) [15]:

- managing the arrival and deployment of loading units (stocks supply, control of supply, unloading and receiving, returning reusable package, deploy cargo units);

- managing internal storage operations (storage, keeping internal displacement, reassortment, change of one package to another, collecting excessive package, stock control and status);

- sales management and dispatch (orders, arrangements preparation and shipping, loading and dispatch of orders, control of order execution, servicing).

Effective management of storage operations is possible only when there is an appropriate information level of all stages and types of these operations. Information assurance storage operations can be performed by the traditional methods using different structures and forms of documentation. This process is done mostly manually.

Nowadays various computer systems for information assurance are put into practice [4, 11, 12]. This requires appropriate equipment and software.

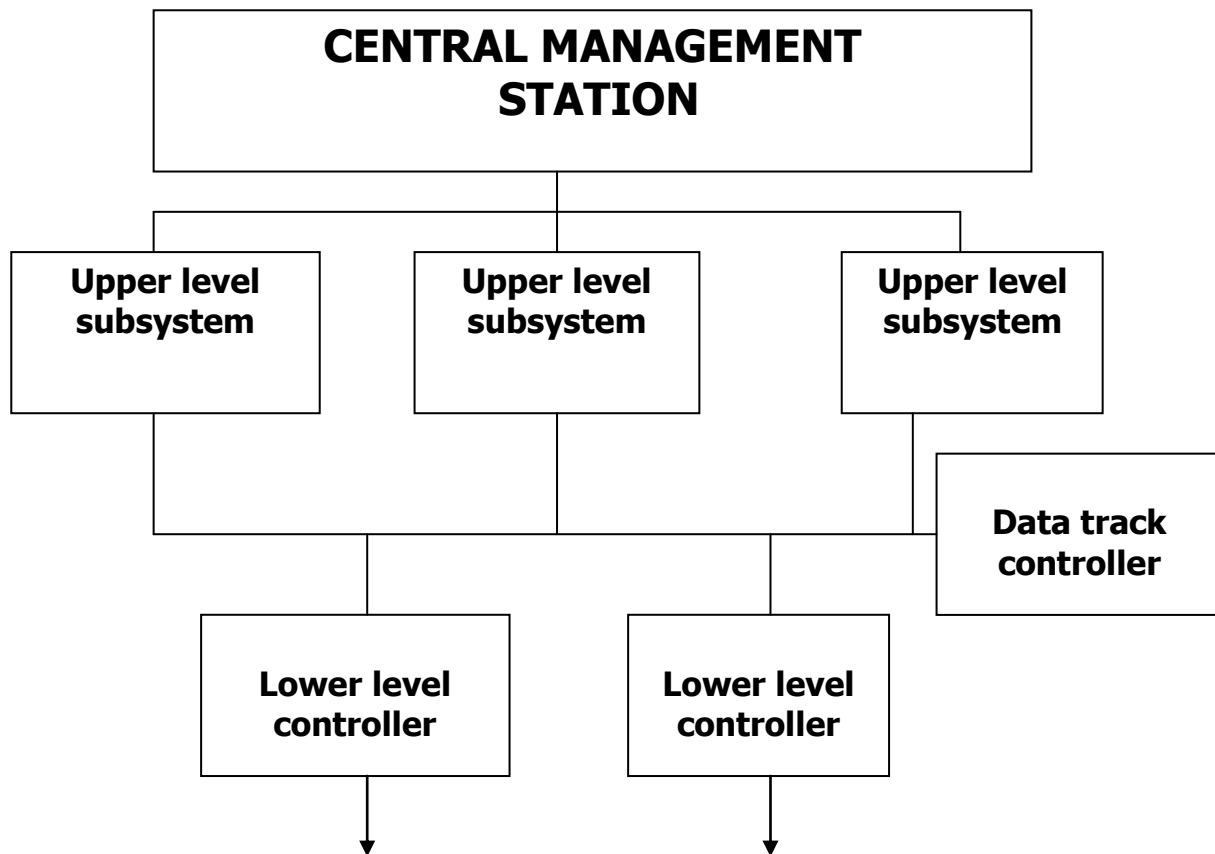


Fig. 2. Linear structure .of computerized system for storage operations management

As for the management structure the most important factors are hierarchy level of the storage system, its degree of decentralization and its "architecture" [10]. Here the term "architecture", means the construction of the managed system, in the way it is represented by the person in control.

From this perspective, the most basic is a structure representing a set of uncorrelated homogeneous structural elements. It possesses sufficiently high viability, but it is able to solve only relatively simple unrelated tasks.

The next step is a specialization of structural elements. A special element is planned which will perform coordinating functions. This

element, along with its own assigned tasks, will be responsible for the function of the other structure elements. The effectiveness of such systems increases, but their sturdiness depends on the sturdiness of coordinating element. Further complication of task and increased performance requirements cause the increased specialization of the structural elements, an increase in their quantity and well-developed interrelations [8, 9]. When the management tasks of a complex object are very complicated and require separation, multi - level management is applied.

At this stage, the following types of warehouse computer management structures are popular:.

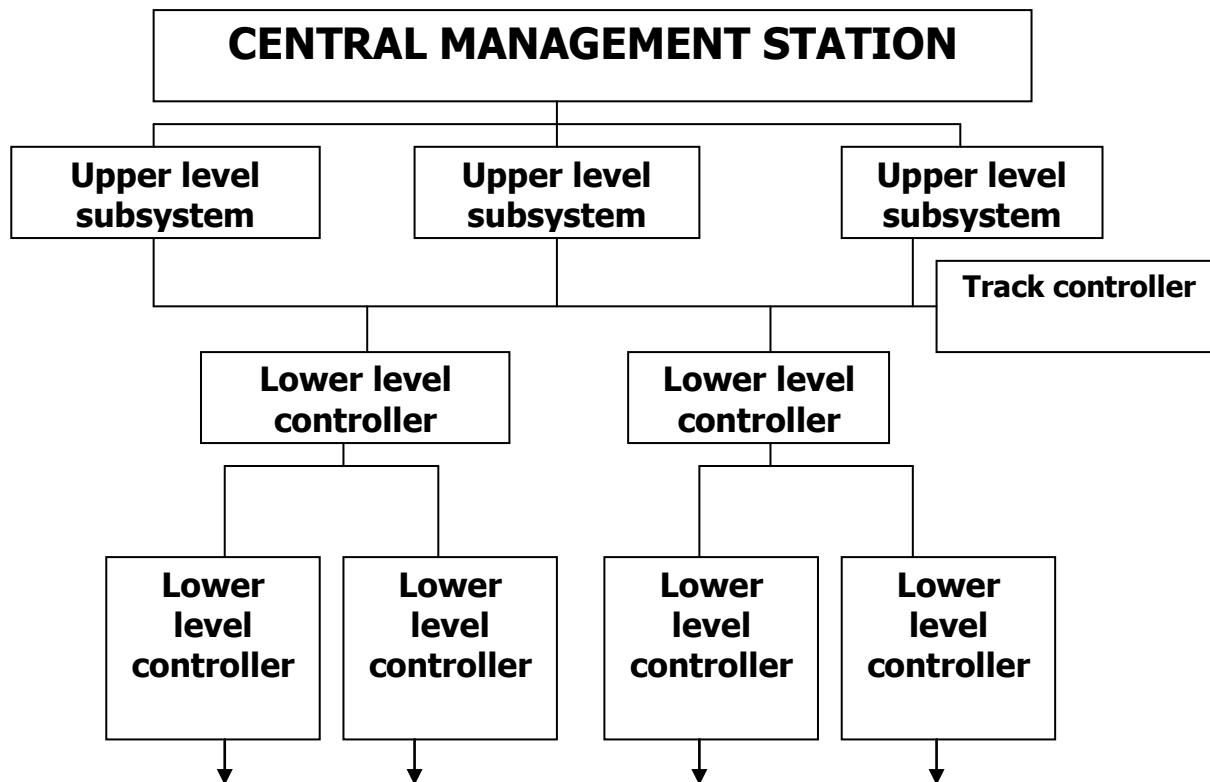


Fig. 3. Linear centralized structure of computerized system for storage operations management.

linear, linear-centralized, radial, network

These types of computer systems for warehouse management are given in Fig. 2,3,4

The general meaning of the term " low level controllers " is a set of technical resources, more or less computerized, providing a direct interaction with the controlled object (an equipment or personnel). In most cases, the low level management equipments are specific mass-produced control devices called Programmable Logical Controller – PLC [10].

The main feature of these devices are the same as those of the standard computer, but they are

produced in a protected version for use in industrial conditions. They are equipped with the necessary devices for interaction with the management objects and communication with the personnel. Being universal, they can control a specific object as soon as the user installs a management program in their memory [8]. They are constructed in such a way that for the implementation and installation of the management program the users are not required to have any special training in the field of computing and programming. What they need is to know how the controlling devices function.

The software for the warehouse management system is classified in two groups - basic and operational.

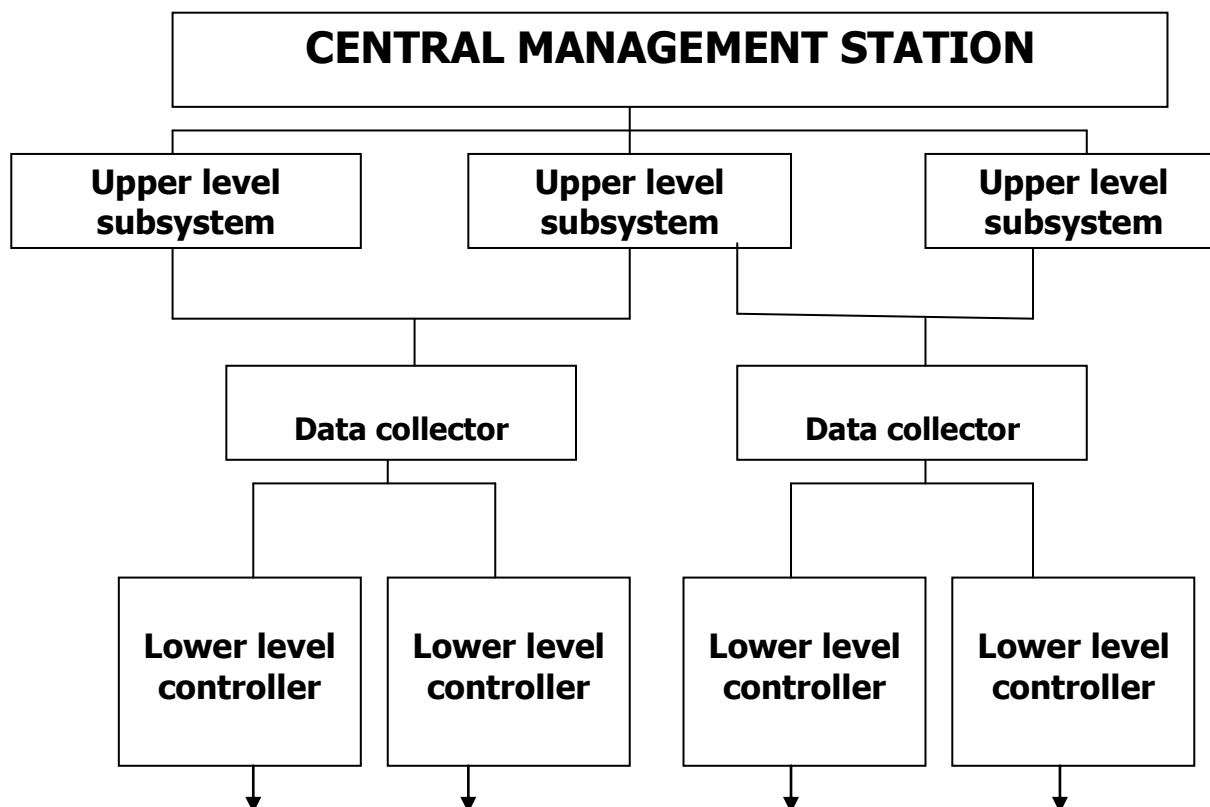


Fig 4. Radial structure of computerized system for storage storage operations management.

The basic software includes the dynamic models of the transportation and storage system, a list of order for the transport – storage operations, as well as information about the transport - storage system configuration. The transport operations are those which are performed inside the warehouse. The basic software could be provided before the working day or throughout

it. Operational software and information support system for warehouse management and its various levels contains information about the progress of the requested warehouse operations in real time. These include, for example, data about the beginning and end operations, about the cargo and their attributes, about breaks in work.

References:

1. Anikin B. s kolektiv. Logistika. M., izd. INFRA – Moskva, 2001.
2. Chudakov A. Logistika. Moskva, izd. RDL, 2001.
3. Ferni J., Sparks L. Logistika i upravlenie roznicnymi prodazhami

Sibirskoe universitetskoe izdatelstvo, 2007.

4. Vedomstvennye normy tehnologicheskogo proektirovaniya obstestvennykh skladov VNTP -95

5. Kovalev K, Uvarov S, Shcheglov P, Logistika v roznicnoy

torgovle. Kak postroit effektivnuyu set. Peterburg - 2006.

6. Moss, John. Victorian Manchester: Textile Industries & Warehouses (15/11/2011)

7. Hansen P., Gibson K., Supply and Demand Chain Executive. Accessed 2010.

8. Pell S., Research Statistics on Refrigerated Warehousing and Storage 2010.

9. Lambert D., Stock J., Strategic Logistic Management Chicago 1993

10. Lambert D., Stock J., Fundamentals of Logistic Management Chicago 1993

11. Wallenburg, C., Cahill, D., Michael Knemeyer, A., and Goldsby, T. Commitment and Trust as Drivers of Loyalty in Logistics Outsourcing

Relationships: Cultural Differences between the United States and German 2011

12. Hegering, Heinz-Gerd; Abeck, Sebastian; Neumair, Bernhard Integriertes Management ISBN 3-932588-16-9. (1999).

13. Pras A., Sprenkels R, Introduction to TMN, university of Twente, Enschede, The Netherlands, CTIT Technical Report 99-09, Apr. 1999.

14. Galis, A., Multi-Domain Communication Management CRC Press LLC, Boca Raton, Florida, USA, ISBN 0-8493-0587-X, 2000;

15. Network World.com: Business Service Management. Retrieved 2010.