

SUPPLY CHAIN MANAGEMENT FOR THE PROCESS INDUSTRY

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Abstract

A supply chain is defined as “a network of organisations that are involved, through upstream and downstream linkages in the different processes and activities that produce value in the form of products and services in the hand of the ultimate consumer.” Successful supply chains can significantly benefit the competitiveness of the firms. Thus, the supply chain management (SCM) is a crucial problem in the process industry. This thesis aims to address some key problems in the process industry SCM by developing optimisation-based models, approaches and solution procedures using mathematical programming techniques.

Key words: marketing information system, management system, control system, subsystem, implementation.

INTRODUCTION

A supply chain may contain all activities that transform raw materials to final products and deliver them to the customers. A number of stages are involved in a supply chain, typically including suppliers, manufacturers, warehouses, distribution centres, retailers, and customers. In today's highly competitive and complex marketplace, a company with a more effective and efficient supply chain can have more advantage than its competitors. Thus, supply chain management, as a source of competitive advantage has become a big challenge for the companies in different industries.

Supply chain management encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and all logistics management activities. Importantly, it also includes the coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies. Supply chain management is an integrating function with primary responsibility for linking major business functions and business processes within and across companies into a cohesive and high-performing business model. It

includes all the logistics management noted above, as well as manufacturing operations, and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology [5].

SUPPLY CHAIN MANAGEMENT IN THE PROCESS INDUSTRY

In the process industry, raw materials are transformed into finished products on a commercial scale using a sequence of physical and chemical conversions and changes. The process industry includes the “manufacturers that produce products by mixing, separating, forming, and/or performing chemical reactions” such as the chemical, pharmaceutical, petrochemical, food and beverages, pulp and paper, textiles, rubber and plastics, glass, metal, cement, electricity, coal, tobacco, wood, water treatment, and associated industries. All these industries provide primary products and commodities that are fundamental and essential to our everyday life.

Different from discrete industry (e.g., automotive, construction, engineering, and high-tech industry.) and service industry (e.g., media, communication, financial, and education industry), the process industry is characterised by the production in process that can be convergent and divergent as well. The products of the process industry can be the intermediate and final products at the same time, which can be sold to ultimate customers or used to produce other products [6].

Marketing intelligence brings mainly external sources, based on which we can monitor a volume of production, price movements, sales methods, or even ways to promote a company. Impact of data from objective facts about a market situation, a behavior of a client or potential hazards can be obtained from marketing research. This is a subsequent analysis and interpreting the data obtained enabling understanding of specific solutions.

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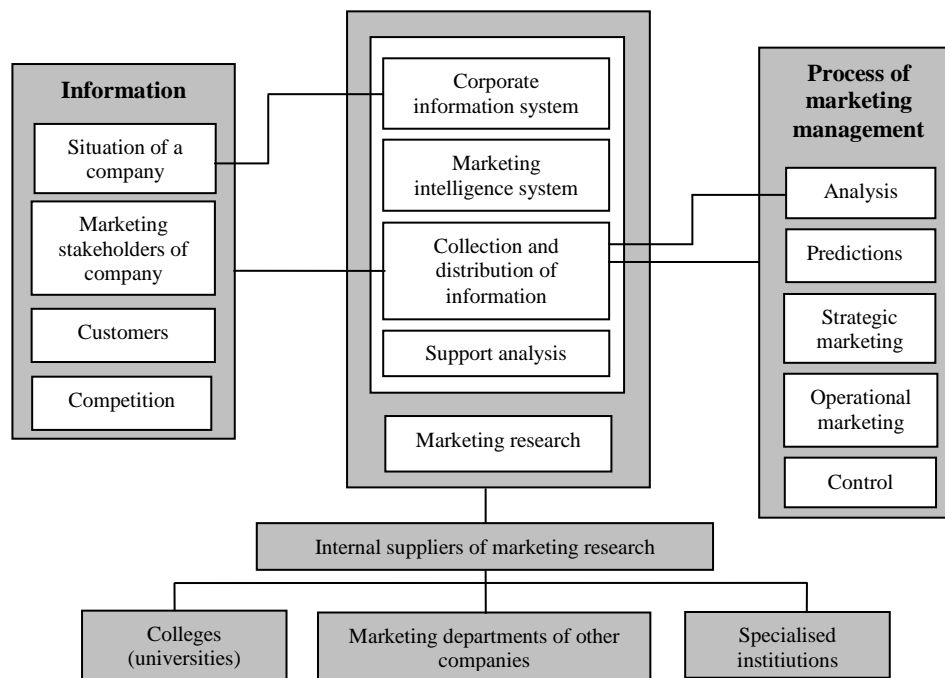


Fig. 1 Corporate information system (CIS)

USE OF MARKETING INFORMATION SYSTEM IN THE COMPANY

The company must determine an extent of implementation in establishing or upgrading systems used in the company at the beginning. Sometimes large and very complex implementation is not the best choice in the market environment, and therefore care should be taken to factors affecting the decision making. One factor is an existence of, or a lack of use of marketing information systems or modules and their degree of interconnection. A starting position is easier if the company does not use an integrated complex application, hence there is no need to decide on how it will affect a new system to existing systems and their degree of substitution, or subsequent elimination. A common problem can be duplicated data, however, due to simple positions, this problem is eliminated. If the company starts from the beginning, the overall final decision of implementation is within the scope of management and subsequent budget and it is largely influenced by a purposefulness and flexibility. The company may be opinion, when it considers replacing the used computer system when limitations and complications at the time which provides data transfer between the two systems. Most often a company encounters situations where more or less sophisticated partial systems are used for individual activities. There tabular data are used, real database application using database applications, or on-line database systems. Importance should be given here to in-depth audit of systems used and the assessment of extent of their contribution to an overall positive effect of marketing in the company.

Another factor influencing the decision-making on implementation issues which plays an important role in a selection of modules for a new system and a complexity of a decision of package of selected marketing information system, is the complexity of implemented marketing and sales activities. Companies that apply this marketing-oriented management principle oriented not only inside the corporate communications but also external communications, usually prefer a comprehensive solution. Advantages of complex solutions are such as data consistency and clear data model of solution, complete linkage within the subsystems, centrally dealt application of availability for users, unified updates, and so on. Marketing information system has its four major subsystems:

1. **Subsystem:** decision on substitution marketing system says a cancellation, the data connection is not necessary to be solved.
2. **Subsystem:** says letting decisions regarding the subsystem in a modified form, to innovate selected data structures, it is necessary to establish a link in other subsystems.
3. **Subsystem:** is necessary and effective for the company, it addresses a retention of system in its original state. To support the marketing subsystem is designed an export of subsystem that addresses data presentation.
4. **Subsystem:** says an old system cancellation and new system functions transpose, taking to implement data backup and transforming them into the new data structure.

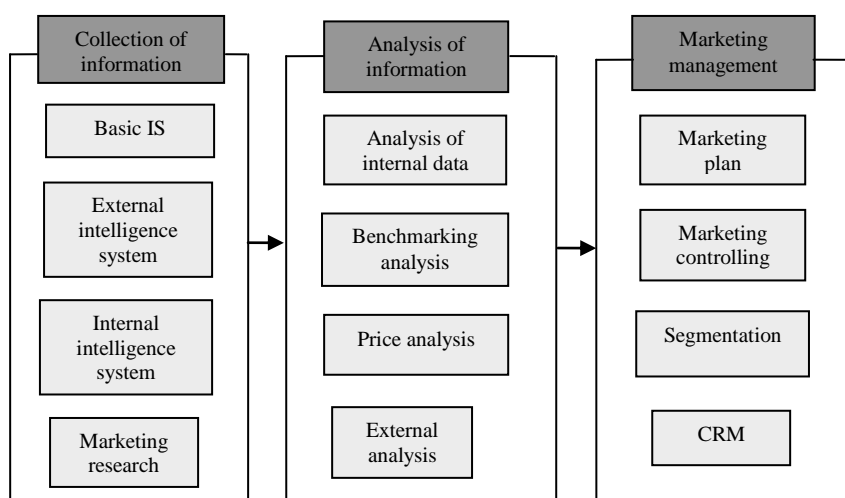


Fig. 2 Structure of the marketing information system

Most needed subsystem of marketing information system to identify market opportunities and their decision on typically most needed marketing information system describes preferably an implemented model of MkIS that consists of people, equipment, procedures, collection, sorting, analysis, interpretation and distribution of timely and accurate information for marketing decisions, which activity is described in the Tab. 1.

Tab. 1 Module of marketing information system under a scope of a sector and its use in practice

Type of company (MkIS module is implemented as a priority)	Company's activities description	A main use
Wholesale computers	It distributes computer components and full range of computing from a level of retail customers	Integration of suppliers of products, mainly manufacturers of finished devices and components in order to optimize the delivery time for its customers, minimize costs to purchase products, minimize conflicts for realized purchases, evaluating the reliability of suppliers and deepening customer-supplier relationships.
Real estate agency	Active acquiring new customers, building a database of contacts, reaching out through active	Capturing all contacts and monitoring phases of development of business relationship before, during and after conclusion of the negotiations

	telephone and via electronic communications	cycle, further addressing existing customers, avoids duplication of addressing, increases effectiveness and targeting of communication.
Manufacturer of electronic components	Manufacture of electronic components supplied to car manufacturers, service stations and other customers primarily distribution link at wholesale level	Production planning, new product development, monitoring a status and position in the market for existing product portfolio, acquiring new incentives for future development, process optimization when placing products on the market.

CONCLUSION

Regarding to customer service and ensuring the satisfaction during and after consumption of the product, an important role plays marketing information system of company. Companies that did not use the marketing information system, they introduce gradually, the companies, which have some of the system, or separate units, used, try to increase a rate of added value. This chapter shows a basic implementation processes and factors that determine these processes.

The aim is to provide a usable template when deciding on the introduction of a marketing information system in the company with an emphasis on maximum process efficiency. When introducing or innovating systems used in the

company, it is needed to decide on the extent of implementation at the beginning. The best solution is not always a vast and complex implementation of the comprehensive system in some market situations and conditions.

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