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Main functions of operation management

Radosław Wolniak¹

¹ Silesian University of Technology, Organization and Management Faculty, Economics and Informatics Department, 41-800 Zabrze, Roosevelta str. Poland
Corresponding author e-mail: rwolniak@polsl.pl

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Abstract

Presented paper concentrate on problems connected with the function of operation management within the company. Operation function is responsible for producing products and delivering services. But it needs support and input from others areas of the organization. The aim of the paper it to analyze on the basis on inter-national the main functions of operation management. We can distinguish seven main functions of operation management in the industrial enterprise: planning, scheduling, purchasing, controlling, quality control and inventory control. In each of those fields operations managers should conduct many decision affecting of-organization effectiveness.

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1. Introduction

Operation function is responsible for producing products and delivering services (Wolniak, 2019; Wolniak and Skotnicka-Zasadzień, 2014; Wolniak et al., 2017). But it needs support and input from others areas of the organization. In the standard business organization we can distinguish three basic functional areas where we can include (fig. 1): finance, marketing and operations. Regardless of type of the business there are three mentioned functions within (Pacana et al., 2014; Skotnicka-Zasadzień et al., 2017a; Skotnicka-Zasadzień et al., 2017b; Szczucka-Lasota and Wolniak). In the Table 1 we described basic function of mentioned areas.

The aim of the paper it to analyze on the basis on international the main functions of operation management.

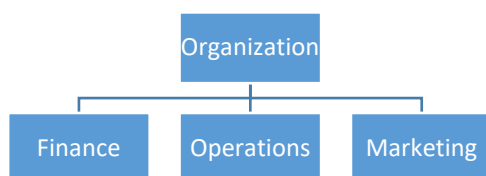


Fig. 1. Three basic functions of business organization, (Knod and Schonberger, 2000).

Table 1. Basic functional areas of the business organization

Functional area	Description
Finance	Is responsible for securing financial resources at favorable prices and allocating those resources throughout the organization, as well as budgeting, analyzing investment proposals, and providing funds for operations.
Marketing	Is responsible for assessing consumer wants and needs, and selling and promoting the organization's goods or services. Marketing's focus is on selling and/or promoting the goods or services of an organization. Marketing is also responsible for assessing customer wants and needs, and for communicating those to operations people (short term) and to design people (long term). Marketing, design, and production must work closely together to successfully implement design changes and to develop and produce new products. Marketing can provide valuable insight on what competitors are doing. Marketing also can supply information on consumer preferences so that design will know the kinds of products and features needed; operations can supply information about capacities and judge the <i>manufacturability</i> of designs.
Operations	Is responsible for producing the goods or providing the services offered by the organization.

Source: Own work on basis: (Knod and Schonberger, 2000).

2. Operation management – definition

Operation management has long history that can be dated to the XVIII century. In the Table 2 there is a presentation of main steps of the operation management.

Table 2. Main historical concepts of operation management

Date	Contribution	Contributor
1776	Specialization of labour in manufacturing	Adam Smith
1799	Interchangeable parts, cost accounting	Eli Whitney & others
1832	Division of labour by skill; assignment of jobs by Skill; basics of time study	Charles Babbage
1900	Scientific management time study and work study Developed; Frederick W.Taylor dividing planning and doing of work	Frederick W.Taylor
1900	Motion of study of jobs	Frank B. Gilbreth
1901	Scheduling techniques for employees, machines Jobs in manufacturing	Henry L. Gantt
1915	Economic lot sizes for inventory control	F.W. Harris
1927	Human relations; the Hawthorne studies	Elton Mayo
1931	Statistical inference applied to product quality: quality control charts	W.A. Shewart
1935	Statistical Sampling applied to quality control: inspection sampling plans	H.F. Dodge & H.G. Roming
1940	Operations research applications in world war II	P.M. Blacker & others
1946	Digital Computer	John Mauchlly and J.P. Eckert
1947	Linear Programming	G.B. Dantzig, Williams & others
1950	Mathematical programming, on-linear and stochastic processes	A.Charnes, W.W. Cooper & others
1951	Commercial digital computer: large-scale computations available	Sperry Univac
1960	Organisational behaviour: continued study of people at work	L. Cummings, L. Porter
1970	Integrating operations into overall strategy and policy Computer applications to manufacturing, scheduling, and control, Material Requirement Planning (MRP).	W.S kinner J. Orlicky & G. Wright
1980	Quality and productivity applications from Japan: robotics, CAD-CAM	W.E. Deming & J. Juran
1990	Internet Post mass production philosophy Lean management	Wormack, Jones
2000	Mobile devices in operation management	
2010	Worldwide communication Internet of Things	

Source: (Kumar and Suresh, 2009).

We can define operations management as (Bellgran and Säfsten, 2009; Galvin, 2009; Gunether, 2018; Stevenson, 2002):

- the management of systems or processes that create goods and provide services,
- an area of management concerned with designing and controlling the process of production and redesigning business operations in the productions of goods and services,
- operation management involves planning, organizing, coordinating, and controlling all the resources needed to produce a company’s goods and services, it involves managing people, equipment, technology, information, and all the other resources needed in the production of goods and services,
- the business function responsible for managing the process of creation of goods and services, is the central core function of every company,
- is the process, which combines and transforms various resources used in the production/operations subsystem of the organization into value added product/services in a controlled manner as per the policies of the organization,
- it is that part of an organization, which is concerned with the transformation of a range of inputs into the required (products/services) having the requisite quality level,.
- is the process which transforms the input resources of an organization into final goods (or services) through a set of defined, controlled and repeatable policies,
- the process whereby resources, flowing within a defined system, are combined and transformed by a controlled manner to add value in accordance with policies communicated by management.

3. Operation management functions

The basic role of operation management in the company is its transformation role in the process of converting inputs such as raw materials into finished goods and services (Domingues and Machado, 2017; Fiorentino, 2018). The transformation role of operation management makes this function very important part of the whole organization. As a result it is directly responsible for many decision within the company and activities that give rise to product design and delivery problems (Peinado et al., 2018). The design and management of operations strongly influence how much material resources are consumed to manufacture proper goods or deliver a service to customer. This way we have to make sure that there is enough inventory to produce the quantities that need to be delivered to the customer, and ensuring that what we made is what our customers want (Wilson, 2018) The characteristic of main function of operation management we assumed in the Table 3.

Table 3. Main functions of operation management

Function	Characteristic
Planning	Includes choosing a location for the business and scheduling production. Where a business is located is directly related to how successful the business will be. This fact is as true for a company that is opening its first factory or store as it is for an older business that is expanding into a new area. Among the factors to consider are nearness to markets, raw materials, labor supply, and transportation facilities.
Scheduling	Operations involves setting beginning and ending times for each step in the production process. It includes planning and checking the use of labor, machinery, and materials so that production moves smoothly. Scheduling ensures that work will be finished on time whether it is manufacturing automobiles or books or dry cleaning a blouse or shirt.
Organizing	IS the activities that establish a structure of tasks and authority. Operation managers establish a structure of roles and the flow of information within the operations subsystem. They determine the activities required to achieve the goals and assign authority and responsibility for carrying them out.
Purchasing	In order to do business, a company needs the raw materials to produce its goods or offer its services. It also must have machinery, office supplies, and any other supplies it uses. Obtaining raw materials, machines, and supplies is the purchasing function of the production process and involves getting the best deal for the company. The people who buy goods for a business have to decide what to buy, from whom, and at what price.
Controlling	Is the activities that assure the actual performance in accordance with planned performance. To ensure that the plans for the operations subsystems are accomplished, the operations manager must exercise control by measuring actual outputs and comparing them to planned operations management. Controlling costs, quality, and schedules are the important functions here.
Quality control	Quality control is checking the quality of the goods produced. It involves overseeing the grade or freshness of goods, their strength or workability, the workmanship or design, harmlessness, adherence to federal or industry standards, and many other factors. Quality control systems may be as simple as testing the thousandth item produced or testing each product as it is finished.
Inventory control	Almost all manufacturers and many service businesses, such as dry cleaners, need inventories, or stockpiles, of the materials they use for making their products or offering their services. Manufacturers and businesses, such as supermarkets, also keep inventories of finished goods on hand for sale, but inventories are costly. The more inventory a busi-

	ness has, the less capital it has for other activities. In deciding how much inventory to keep on hand, those in charge of inventory control also have other costs to consider. If the price of a raw material is expected to rise, a business may stockpile it to keep future costs down. Often a supplier will discount large orders. Some businesses may decide that the discounts outweigh the other costs of maintaining a large inventory.
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Source: On basis: (Rodionova and Shashnikova, 2008; Kumar and Sures, 2009)

This decision are not easy and sometimes can be costly. This is the reason why operation management is a function implemented within the particular firm to improve performance and financial bottom line (Gembalska-Kwiecień et al., 2018).

The process of creation of goods and services involves transforming or converting inputs into outputs. We can distinguish various types of input and output. Also we should to use one or more transformation processes (for example: storing, transporting, repairing). To ensure that desired output are obtained we should take into account various measurements et various points of transformation process (feedback) and then compare them with previously established standards to determine whether corrective actions is needed (control of the production processes) (Olkiewicz et al., 2019; Wolniak et al., 2019).

Finance and operation management should cooperate in some fields by exchanging information's and expertise to achieve its goals. Especially those activities are connected in following fields (Gupta et al., 1994; Knod et al., 2000):

- Budgeting. Budgets must be periodically prepared to plan financial requirements. Budgets must sometimes be adjusted, and performance relative to a budget must be evaluated.
- Economic analysis of investment proposals. Evaluation of alternative investments in plant and equipment requires inputs from both operations and finance people.
- Provision of funds. The necessary funding of operations and the amount and timing of funding can be important and even critical when funds are tight. Careful planning can help avoid cash-flow problems.

Despite finance and marketing operation management also interacts with other functional areas of the organization like:

- legal,
- accounting,
- management information systems,
- human resources,
- public relations.

4. Conclusion

Nowadays operation management plays important role in organizational management in production enterprise. We can distinguish many activities that can be seen as operation management scope of interest. Year by year from first part of XX century up till now the role of those type of activities has been

rising. Now we can distinguish seven main functions of operation management in the industrial enterprise: planning, scheduling, purchasing, controlling, quality control and inventory control. In each of those fields operations managers should conduct many decision affecting organization effectiveness.

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运营管理的主要功能

關鍵詞

运行管理,
工业企业
产业管理
质量管理
组织

摘要

发表的论文集中于与公司内部运营管理功能有关的问题。运营部门负责生产产品和提供服务。但是它需要组织其他领域的支持和投入。本文的目的是在国际上对运营管理的主要功能进行分析。我们可以区分工业企业中运营管理的七个主要功能：计划，计划，采购，控制，质量控制和库存控制。在每个领域中，运营经理都应做出许多影响组织有效性的决策。