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ОЦЕНКА ЭФФЕКТИВНОСТИ СИСТЕМЫ ПРОДАЖ В РОЗНИЧНОМ БИЗНЕСЕ

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EFFICIENCE EVALUTION OF SELLING SYSTEMS IN RETAIL BUSNES

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Abstract: efficiency evaluation in retail business is important indicator of competitiveness. This article presents efficiency evaluation of a selling system of a Supermarket, explains the obtained results and suggests ways to improve it.

Efficiency evaluation is one of the key activities of a manager in retail business. High numbers of companies in retail business create strong levels of competition which puts emphasis on price and cost competition. It results in greater focus on creating more efficient operations systems. Efficiency evaluation is part of the control function and provides important input for planning function in company's management cycle.

The purpose of this article is to evaluate efficiency of an existing selling system in retail business, using the example of Lama Supermarket in Trade Center "Smile City". To achieve this goal the following tasks had to be accomplished: 1) Development of a system of efficiency indicators for evaluation. 2) Obtaining factual, relevant data on the selling system of Lama Supermarket through monitoring 3) Efficiency evaluation based on obtained monitoring results.

Efficiency of operating systems should not be confused with their productivity. Efficiency is a narrower concept that pertains to getting the most out of a fixed set of resources; productivity is a broader concept that pertains to effective use of overall resources [1].

System of efficiency indicators for any particular system is developed in accordance with the following basic principles. It should specific, measurable, adequate, transparent, representative, stable, cost-efficientetc.

In accordance with the purpose we decided to conduct a study of efficiency evaluation applied to selling systems in retail business. For that purpose as an object under consideration Lama Supermarket was selected. This store is situated in the city of Tomsk, in trade center "Smile City".

The system of efficiency was formed to include the following indicators [1].

Design Capacity–is the maximum output rate or service capacity an operation, process, or facility is designed for.

Effective Capacity – is a design capacity minus certain allowances such as personal time, maintenance, and scrap.

Design capacity is the maximum rate of output achieved under ideal conditions. Effective capacityis usually less than design capacity owing to realities of changing product mix, the need forperiodic maintenance of equipment, lunch breaks, coffee breaks, problems in scheduling andbalancing operations, and similar circumstances.

Actual Output–is a rate of output actually achieved by the system. It cannot exceed effective capacity.

Efficiency isthe ratio of actual output to effective capacity.

$$Efficiency = \frac{ActualOutput}{EffectiveCapacity}$$

*Utilization*is the ratio of actual output to design capacity.

$$Utilization = \frac{ActualOutput}{DesignCapacity}$$

To obtain relevant data on the selling system of Lama Supermarket the following procedures were planned and carried out.

First, the preliminary analysis of the selling system was accomplished. It revealed that the store operates 12 hours a day (from 10:00 am till 10:00 pm) 7 days a week. The selling system of Lama Supermarket consists of 22 Cash desks. Each cash desk can effectively operate 10 hours a day due to the need for service time (cash reporting and processing, maintenance and break).

Second a series of three observations (morning, afternoon and evening) was carried out. In each observation a number of operating cash desks were counted. Then total sales per one cash desk for 10 customers serviced were calculated. The time of the beginning and the end of observation was recorded.

Based on the obtained statistical data productivity of observed cash desk was calculated. This productivity was assumed to be the average productivity of each open cash desk in the period under consideration. Then the actual output of the selling system for each period time was calculated and average actual daily output was estimated.

Based on the input data effective and design capacity of the selling system were assessed. Finally selling system efficiency and utilization was calculated.

All statistical and analytical data is summarized in tables below (tables 1–3)

Table 1

Input data

Name of the organization	Lama Supermarket
Opening time	10:00
Closing time	22:00
Work Hours	12:00
Number of cash desk in the checkout system	22
Cash desk effective work time	10:00

Table 2

Statistical and analytical data

Indicators	Measurement	Morning	Afternoon	Evening	Average
Beginning time	hh:mm	10:00	14:30	18:15	
Ending Time	hh:mm	10:27	14:43	18:35	
Period	hh:mm	0:27	0:13	0:20	0:20
Number of Cash Desks Open	Units	5	8	11	8
Number of Customers served	Units	10	10	10	10
Total Sales for the period	rubles per day	8 734,91	5 126,03	13 243,92	9 034,95
Productivity of a cashdesk	rubles per day	19 410,91	23 658,60	39 731,76	27 600,42
Actual Output	rubles per day	1 164 654,67	2 271 225,60	5 244 592,32	2 893 490,86
Effective Capacity	rubles per day	8 740 987,20			
Design Capacity	rubles per day	10 489 184,64			
Efficiency	%	13 %	26 %	60 %	33 %
Utilization	%	11 %	22 %	50 %	28 %

The results of Lama Supermarket efficiency estimation brings us to the following conclusions:

1. The Supermarket generates on average about 2.9 million rubles of salesa day.

2. Average daily efficiency of the selling system is 33 %. At first it may seem low, yet it should be noted that for service sector with high degree of customer fluctuations and inability of accurate forecasting, this level of efficiency is acceptable. Moreover it is more important to monitor the dynamics of this indicator, rather than its relationship to a 100 %. Positive dynamics of average daily efficiency will indicate improvements in selling system operation.

3. Highest level of efficiency is achieved during the evening time. It equals to 60 %. This is fairly high for service systems.

4. Lowest efficiency (13 %) characterizes the morning period. It seems logical, because most customers go to stores in the second part of the day and after work.

5. Variability analysis of efficiency shows that coefficient of variation equals to 59,5 % from the average efficiency. It's fairly high, yet acceptable for service sector companies.

6. There is a fairly small difference (about 5 %) between average efficiency and average utilization of the selling system. One way to decrease it is to improve the effective work time of each cash desk, by decreasing money processing time and maintenance time.

7. There is one potential way to improve efficiency dynamics in the Supermarket. It is connected with maximum number of cash desks. Additional statistical study of cash desks utilizationin connection with fluctuations of demand needs to be carried out in order to justify the best suitable number of cash desks for the store.

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КИБЕРАТАКИ НА ИНДУСТРИАЛЬНЫЕ СИСТЕМЫ УПРАВЛЕНИЯ

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CYBER ATTACKS ONPROTECTION OFINDUSTRIALCONTROL SYSTEMS

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Industrial control systems referred to as a system of interrelated elements that characterize the production, its organization, maintenance, and management of on-line production, production of material support, product quality, pricing, costs. Cyber attacks in these conditions become a real problem as a serious loss can be caused by remotely without physical access to facilities.

The cyber attack – an attempt to make changes to the computer systems or networks, disable them, destroy, or even destroy data or programs that are stored in them or what they convey (the National Research Council of the USA).

Введение. В современном мире постоянно повышается роль информации. Если рассматривать информацию в сфере деятельности, как управление в целом, то информация имеет большое значение для внутреннего управления учреждения и его внешних контактов, и особенно для принятия решений. Она является ограниченным и дорогим ресурсом производственной активности любого предприятия.

В прошлые века человек использовал орудия труда и машины для обработки материальных объектов, а информацию о процессе производства держал в голове. В XX столетии появились ма-