



## Artículo de investigación

## Modern tools of regulation and management of enterprise's assortment

Herramientas modernas de regulación y gestión del surtido de la empresa  
Ferramentas modernas de regulação e gestão do sortimento da empresa

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Escrito por:

**Aleksandra A. Nikolaeva**  
**Olga V. Proshkina**

Kazan Federal University  
e-mail: [ovproshkina.kpfu@mail.ru](mailto:ovproshkina.kpfu@mail.ru)

### Abstract

The article proposes a number of tools for managing the assortment of the multinomenclature enterprise; the method of forming the assortment policy is improved. The role and importance of forming the assortment which is adequate to the market requirements and production capabilities are disclosed. Based on the results of leading economists, the necessity to formulate a comprehensive methodology for managing the assortment is concluded.

The method of forming the assortment, proposed in the article, is adapted to the modern conditions of management. The assortment policy formation is proposed to be carried out step by step, with the using accounting data and primary information which is obtained through field research and modern Internet technologies. The indexes for estimating the assortment of the production enterprise are listed. The algorithm of an estimation of adequacy of an existing assortment to market requirements and to production possibilities is described. It is proposed to compare the stage of the product life cycle with the level of return of unrealized products and the level of production equipment loading.

The integration of modern Internet technologies into the mechanism of the assortment formation is offered. The main emphasis is on calculating the coefficients of adequacy of goods to the market, corrected in real time by statistical data of the firm's website. The using of the assortment list as an instrument of assortment control at points of sale is considered.

The article is of an applied nature.

### Resumen

El artículo propone una serie de herramientas para gestionar el surtido de la empresa multinomenclatura; el método para formar la política de surtido se mejora. Se describe el papel y la importancia de formar el surtido adecuado a los requisitos del mercado y las capacidades de producción. Con base en los resultados de los principales economistas, se concluye la necesidad de formular una metodología integral para administrar el surtido.

El método de formación del surtido, propuesto en el artículo, se adapta a las condiciones modernas de gestión. La formación de la política de surtido se propone llevar a cabo paso a paso, con el uso de datos contables y la información primaria que se obtiene a través de la investigación de campo y las tecnologías modernas de Internet.

Se enumeran los índices para estimar el surtido de la empresa de producción. Se describe el algoritmo de una estimación de la adecuación de un surtido existente a los requisitos del mercado y a las posibilidades de producción. Se propone comparar la etapa del ciclo de vida del producto con el nivel de retorno de los productos no realizados y el nivel de carga del equipo de producción.

Se ofrece la integración de las modernas tecnologías de Internet en el mecanismo de la formación del surtido. El énfasis principal está en el cálculo de los coeficientes de adecuación de los bienes al mercado, corregidos en tiempo real por los datos estadísticos del sitio web de la empresa. Se considera el uso de la lista de surtido como un instrumento de control del surtido en los puntos de venta.

**Keywords:** assortment, assortment policy, assortment management, the adequacy ratio of the product to the market, market demand, product, good.

El artículo es de naturaleza aplicada.

**Palabras clave:** surtido, política de surtido, gestión del surtido, la relación de adecuación del producto al mercado, demanda del mercado, producto, bien.

## Resumo

O artigo propõe uma série de ferramentas para gerenciar o sortimento do empreendimento multinomenclatura; o método de formar a política de sortimento é melhorado. O papel e a importância de formar o sortimento adequado às exigências do mercado e às capacidades de produção são divulgados. Com base nos resultados dos principais economistas, conclui-se a necessidade de formular uma metodologia abrangente para gerenciar o sortimento.

O método de formação do sortimento, proposto no artigo, é adaptado às modernas condições de gestão. Propõe-se que a formação da política de sortimento seja realizada passo a passo, com o uso de dados contábeis e informações primárias obtidas por meio de pesquisa de campo e modernas tecnologias da Internet.

Os índices para estimar o sortimento da empresa de produção são listados. O algoritmo de uma estimativa de adequação de um sortimento existente aos requisitos do mercado e às possibilidades de produção é descrito. Propõe-se comparar o estágio do ciclo de vida do produto com o nível de retorno de produtos não realizados e o nível de carregamento do equipamento de produção.

A integração de tecnologias modernas da Internet no mecanismo da formação de sortimento é oferecida. A principal ênfase é no cálculo dos coeficientes de adequação dos bens ao mercado, corrigidos em tempo real pelos dados estatísticos do site da empresa. O uso da lista de sortimento como um instrumento de controle de sortimento em pontos de venda é considerado. O artigo é de natureza aplicada.

**Palavras-chave:** sortimento, política de sortimento, gestão de sortimento, índice de adequação do produto ao mercado, demanda de mercado, produto, bem.

## Introduction

The assortment formation is an important strategic and tactical task of the production enterprise in modern conditions. As far as the quality, volumes and prices of products correspond the requirements of a dynamic market, so the main enterprise key performance indicators (revenue, profit, profitability) and the level of a whole country welfare are high.

The study of this problem is not usually carried out in a complex but is in parts: marketing research of consumer preferences, evaluation of competition, positioning, pricing. The output volumes are a special question in the economic and mathematical literature. Therefore, a complex assortment management methodology is necessary now.

As a result of the theory and practice research of forming the assortment policy it is established

that most often its main stages are the market demand and production resources (Suharev, 2013, Proshkina, 2004; Proshkina, 2015a; Proshkina, 2015b; Proshkina, 2008; Proshkina, 2018; Novoselskaya & Ksenofontova, 2013; Shabanova et al, 2015; Philip et al., 2012; Cadeaux & Dubelaar, 2012; Mantrala et al, 2009).

So the most complete and detailed the assortment policy methodology for the multinomenclature enterprise, disclosed in (Proshkina, 2004), contains the following steps: internal information and analysis of the existing assortment of the enterprise; external information and analysis of the adequacy of goods to the market; an analysis of the consistency of production and implementation and the choice of a product development strategy; calculation of the production program; implementation of assortment policy.





In addition, there is a detailed toolkit assortment management which affects also the pricing policy, analysis of the assortment representation at points of sale, assortment planning, etc. (Proshkina, 2015b; Proshkina, 2008; Proshkina, 2018; Cadeaux & Dubelaar, 2012; Mantrala et al, 2009).

However, a number of issues of assortment management is opened, especially in the current conditions of the information community.

### Methods

Analysis and synthesis, comparison, observation, statistical analysis methods, economic-mathematical modeling.

### Results and discussion

In this paper a number of additional tools for regulating and managing the product range are proposed, a comprehensive methodology for the formation of the company's assortment policy is developed and adapted to the modern conditions.

Formation of the assortment policy is proposed to be carried out in stages, using as a database the enterprise accounting system and primary information obtained through field research of the market and modern Internet technologies. The assortment development is largely influenced by two factors: consumer demand and production opportunities. Production depends on raw materials, materials, equipment, financial, labor and other resources. Demand as an economic category may depend on a number of hard-to-control factors,

but, from the firm position, it is possible to influence it with a promotion system, marketing tools, advertising, etc.

The first stage of the proposed methodology is economic analysis of the existing assortment.

It allows you to measure the value of each article for company's profits. It allows to find successful and weak goods, production reserves and potential capabilities of the enterprise also. It includes: break-even analysis; ABC analysis (Novoselskaya & Ksenofontova, 2013; Shabanova et al, 2015); analysis of production and sales, etc. (Suharev, 2013; Proshkina, 2004; Proshkina, 2018; Philip et al., 2012).

It is proposed to supplement this list with another tool. The data found (profit, assortment structure, production indicators) may not characterize the product's conformity to the market adequately. The stage of the product's life cycle reflects the level of market demand.

It is necessary to compare the stage of the product's life cycle with the level of return of unrealized products and the level of production equipment loading.

This three-dimensional decision-making model will combine several product development strategies.

It will allow to find reserves of increase in production for those goods, the demand for which is high.

At the second stage of the proposed methodology, an improved algorithm for analyzing and assessing the adequacy of goods to market needs is proposed to standardize the decision-making process (Proshkina, 2004).

This task involves a number of stages: first, the parameters for estimating the goods are determined (they depend on the product itself, for example, for bakery products it is freshness, taste, etc.); then the parameters are given in a quantitative form; the specific weight of each parameter is determined; and the coefficients of goods adequacy are calculated.

The adequacy coefficient shows the conformity of the goods to market requirements. It is found as the arithmetic mean of the ratio of the actual values of the commodity parameters to the ideal ones (Proshkina, 2004). In this case, some parameters are more important for consumers, while others are less, so you need to enter the specific weights of each parameter.

The coefficient of product adequacy to the market shows how much the actual parameters approach to the ideal ones. The most appropriate (adequate) product receives a coefficient value close to «1», an inadequate product - a value close to «0».

The coefficient value decides: to leave the product, to stimulate sales, to modify, to change cardinality, or to take out of production (Proshkina, 2004). Nevertheless, despite the mathematical justification, the decision of good future should be made by experts.

It should be noted that the parameters of the commodity evaluation can depend on many factors, for example, IT-aspects of production and marketing.

Therefore, as a tool for gathering information about the adequacy of goods, the website is encouraged. The website (corporate site) acquaints customers with the firm and includes all the functionality of the Internet representation. It is also necessary for automation of internal workflow, accounting of company's indicators, marketing tasks, etc. A functional web page with good information content is an effective marketing tool of the company (Proshkina, 2015a).

The main objectives of the company's web representation:

- conducting relevant marketing research in the field of product assortments;
- coverage of a new consumer segment and expansion of the geography of the market;
- feedback from customers, continuous contact, information gathering;
- an additional way of promotion, advertising;
- reduction of costs, prompt receipt and processing of orders;
- B2B interaction: search for wholesale online partners, conclusion of transactions, etc.

Besides, the site allows you to control the level of customer satisfaction with the assortment in real time. This information should be used at the second stage of the method of forming the assortment in the algorithm for analyzing and assessing the adequacy of goods to market needs.

When it comes to multinomenclature firm, it is especially important to group the assortment on the site correctly. The grouping system should be clear to the consumer, not to the development team. Each position should have a number of characteristics describing its properties and composition, price, photo (which can be hidden). It is advisable to specifically compile the database of goods (for example,

comparative tables with the description of products and prices). You can structure the information by various criteria.

For the purposes of the research, it is necessary to add an evaluation scale and the possibility to leave a comment. Indicators of the evaluation scale should daily flock to the information database to correct the adequacy coefficients.

This simple tool to regulate the assortment will reduce the cost of marketing research.

The analysis of the "intersection of audiences" makes it possible to track which sites of a thematic focus are of particular interest to this audience. This will allow planning a promotion campaign. The basis of such study is log-files of service of the Internet statistics SpyLOG. If the firm has its own web server, information about visitors can be obtained from logs (log files) or with cookie technologies. A call, a letter, a promotion may be the response of the firm.

At present, the enterprises of Naberezhnye Chelny (Tatarstan) does not actively use all the possibilities of Internet pages. Perhaps this is due to the specifics of the products (for example, bakery and confectionery products are perishable products and an assessment of its quality, taste and freshness cannot be done with the Internet). Broad technical and marketing solutions are applied by large companies only. Massive advertising and a wide representation of their assortments at points of sale allows to speak about the success of their actions. Own internet resource opens up a lot of advantages for the business, and not only in the assortment sense. The introduction of new brands or a product positioning are effective ways to promote products which the web resource can contribute to (Proshkina, 2015b).

The last assortment regulate tool is the assortment list which exists in each outlet. It is used to control the presentation of the assortment at points of sale. For each retail point, such lists are developed individually. It depends on geographical location, type of consumers, attendance level, frequency of purchases, size of retail areas and other factors (Proshkina, 2008). The assortment list allows you to monitor the constant availability of goods on sale and the continuity of such availability. The assortment list itself must be systematically updated, adapted to customer needs. Using the methods of logistics, you can track the completeness and stability of the assortment presented in each store.



## Summary

Thus, among the proposed instruments for regulating and managing the multi-nomenclature assortment, we can single out the following:

- economic analysis tool: the comparison of the stage of the product life cycle with the level of unrealized products and with the level of production equipment loading. This three-dimensional model allows us to assess the market demand in combination with the production capabilities and to find reserves for increasing production for those goods whose demand and perspectives are high;
- web representation of the company as an assortment policy tool which allow to simplify and accelerate regular marketing research and collection of external information. Site log analyzers and data counters are modern system analysis tools, the using of which becomes a necessity;
- coefficients of the product adequacy to the market which are adjusted in real time with the help of website statistics;
- the assortment list that allows to control the assortment presentation at points of sale.

## Conclusions

The article systematizes the main instruments of regulation and management of the company's product assortment. The usual range of the assortment formation works is extended, the modern marketing management tools are offered. These tools help to significantly simplify the collection and analysis marketing information (website possibilities, feedback to customers) and allow to do real-time tracking of the level of coefficients adequacy of goods to market requirements and to make decisions that meet modern business conditions.

The using of these tools is possible not only in a complex, but also separately.

In general, these tools can effectively enhance the basic economic performance of the enterprise and they are the basis for an extended economic activity analysis of the organization.

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