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## THE ALGORITHM OF CONTROL PRICING POLICY IN TRADE NETWORKS ON THE MARKET OF FERROUS METALS

*Prices and the key to playing the key role in the market mechanism, at the same time that is require a control and sets of rules, the inadmissibility and chaos in the processes of price and dynamics. The price is a collapsible economic category, integrally included all the factors that can be combined with the product of the life cycle. Most of all, the price of being a product of realizing your own keys and functions, such as: stimulating, sharing, regional, social and etc. Realization of these functions is to serve as a permanent driver of dynamics, an extension of the range of serviced services, enhanced functionality and innovation. Partnerships to take care of effective and strategic strategies, as well as safety and health and competitiveness in the current market. In the minds of the direct feedback of the market economy, the task of a quick and effective management of the political policy is equivalent to the task of the economic system of the state economy. In a rapidly changing market environment, the task of rapid and effective management of pricing policy is equivalent to the task of sustainability of a particular economic system or a single entity. The growth and scaling of industries in general and individual companies in particular, globalization, pose new challenges in pricing and implementation of pricing policy. Without automation, without the creation of information systems capable of real-time management of price dynamics, the development of the modern economy is impossible. The issue of classification of goods and services is extremely important. The classification of the nomenclature of goods and services should take into account its consumer properties, qualitative characteristics, shelf life and operational compliance, etc. The development of information technology requires the adaptability of the database topology for access from all existing peripherals with relevant interfaces and highly informative for each element of the nomenclature. The issue of price management of companies is studied in detail in the work. The methodology of price policy management for companies with a developed network of regional offices has been developed. An algorithm for automating the pricing policy of companies is built taking into account the regional features of large network companies. This algorithm was tested in the environment of ERP-system 1C 8.2. Enterprise for distribution networks in the ferrous metals market.*

**Keywords:** algorithm, automation, management, price, pricing, pricing policy, ERP-systems.

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## АЛГОРИТМ УПРАВЛІННЯ ЦІНОВОЮ ПОЛІТИКОЮ В ТОРГОВИХ МЕРЕЖАХ НА РИНКУ ЧОРНИХ МЕТАЛІВ

*Ціни і ціноутворення відіграють ключову роль в ринковому механізмі, водночас вони вимагають управління, недопущення стихійності і хаотичності в процесах ціноутворення та динаміки цін. Ціна – складна економічна категорія, в яку інтегрально включені всі фактори, що впливають на створення продукту і його життєвий цикл. Більш того, ціна будь-якого продукту реалізує свої ключові функції, як то: вимірну, спів вимірну, стимулюючу, розподільчу, облікову і соціальну. Реалізація цих функцій служить постійним драйвером цінової динаміки, розширення спектра сервісних послуг, підвищення якості та інновацій. Підприємства змушені розробляти ефективні цінові стратегії, які забезпечують їх життєздатність і конкурентність на сучасному ринку. В умовах стрімкої зміни ринкової кон'юнктури задача швидкого і ефективного управління ціновою політикою еквівалентна задачі про стійкість тієї чи іншої економічної системи чи то окремого суб'єкта господарювання. Зростання і масштабування індустрій в цілому та окремо взятих компаній зокрема, глобалізація, ставлять нові задачі в ціноутворенні та реалізації цінової політики. Без автоматизації, без створення інформаційних систем, здатних в режимі реального часу управляти процесами цінової динаміки, неможливий розвиток сучасної економіки. При цьому важливим є питання класифікації товарів і послуг. Класифікація номенклатури товарів і послуг має враховувати її споживчі властивості, якісні характеристики, терміни придатності та експлуатаційної відповідності тощо. Розвиток інформаційних технологій вимагає адаптивності*

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топології баз даних для доступу з усіх існуючих периферійних пристроїв з релевантними інтерфейсами й високою інформативністю стосовно кожного елементу номенклатури. У роботі детально вивчена проблематика управління ціновою політикою компаній. Розроблено методологію управління ціновою політикою для компаній з розвинутою мережею регіональних представництв. Побудовано алгоритм автоматизації цінової політики компаній з урахуванням регіональних особливостей великих мережевих компаній. Даний алгоритм апробовано в середовищі ERP-системи 1С 8.2. Enterprise для збутових мереж на ринку чорних металів.

**Ключові слова:** алгоритм, автоматизація, управління, ціна, ціноутворення, цінова політика, ERP-системи.

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### **АЛГОРИТМ УПРАВЛЕНИЕ ЦЕНОВОЙ ПОЛИТИКОЙ В ТОРГОВЫХ СЕТЯХ НА РЫНКЕ ЧЕРНЫХ МЕТАЛЛОВ**

Цены и ценообразование играют ключевую роль в рыночном механизме, при этом ими необходимо управлять, не допуская стихийности и хаотичности в процессы ценообразования и динамики цен. Цена – сложная экономическая категория, в которую интегрально включены все факторы, влияющие на создание продукта и его жизненного цикла. Более того, цена любого продукты реализует свои ключевые функции, как то: измерительную, соизмерительную, стимулирующую, распределительную, учетную и социальную. Реализация этих функций служит постоянным драйвером ценовой динамики, расширение спектра сервисных услуг, повышением качества и инноваций. Предприятия вынуждены разрабатывать эффективные ценовые стратегии, которые обеспечивают их жизнеспособность и конкурентность в современном мире. В условиях стремительного изменения рыночной конъюнктуры задача быстрого и эффективного управление ценовой политикой эквивалентна задаче о устойчивости той или иной экономической системы или отдельного субъекта хозяйствования. Рост и масштабирование индустрий и отдельно взятых компаний, глобализация ставят новые задачи в вопросах ценообразования и реализации ценовой политики. Без автоматизации, без создания информационных систем способных в режиме реального времени управлять процессами ценовой динамики невозможно развитие современной экономики. При этом крайне важным есть вопрос классификации товаров и услуг. Классификация номенклатуры товаров и услуг должна учитывать ее потребительские свойства, качественных характеристики, сроки годности и эксплуатационной пригодности и т.д. Развитие информационных технологий требуют адаптивности топологии баз данных для доступа со всех существующих периферийных устройств с доступными интерфейсами и высокой информативностью о каждом элементе номенклатуры. В работе детально изучена проблематика управления ценовой политикой компаний. Разработана методика управления ценовой политикой для компаний с развитой сетью региональных представительств. Построен алгоритм автоматизации ценовой политики компаний с учетом региональных особенностей крупных сетевых компаний. Данный алгоритм апробирован в среде ERP-системы 1С 8.2. Enterprise для сбытовых сетей на рынке черных металлов.

**Ключевые слова:** алгоритм, автоматизация, управление, цена, ценообразование, ценовая политика, ERP-системы.

**Introduction.** The pricing policy of the enterprise is one of the key policies, which consists in setting prices that ensure the viability of the company in market conditions, and including choosing a pricing method, developing a pricing system, and choosing pricing market strategies. It aims to ensure the survival of the company, maximizing financial results and retaining market share [2-6].

The pricing policy of the company is formed as part of the general strategy of the company and includes a pricing strategy and pricing tactics. The pricing strategy involves positioning the product portfolio in the market. As part of the implementation of the strategy, tactical measures are developed (to stimulate sales), including systems of price discounts and non-price rewards for consumers [17-18].

In the process of implementing the pricing policy, the company must adjust immediate measures and manage the time it takes to change the strategy. Determining the daily prices of goods and services is one of the most important problems of any enterprise, since the optimal price can ensure its success and stability. Of course, the implemented price policy largely depends on the type of goods or services offered by the enterprise. It is formed inextricably linked with the planning of the production of goods or services, the identification of consumer needs, sales promotion. The pricing policy is aimed at setting such prices of goods and services depending on the prevailing market conditions, which will allow us to achieve the goals set by the enterprise, to solve strategic and operational tasks [7–12].

Pricing is one of the processes that requires enormous resources of time and processing large amounts of information even in a stable market environment. Due to this scale of work, the role of the human factor as a rule negatively affects the result. Not enough time is devoted to other processes, mistakes are made, reserves are not properly analyzed, etc. The processes of globalization have led to the rapid growth of elements of the nomenclature that companies regularly operate on. Many companies are actively implementing geographic expansion while scaling the offerings of their goods and services on the Internet and social networks.

All this sharply raises the question of a convenient classification of goods and services and structured storage of data about them. Information databases of the nomenclature of goods and services should store data on its consumer properties, quality characteristics, shelf life and usability, etc. [13–16]. The development of technology requires adaptability of the database topology for access from the maximum number of peripheral devices with user-friendly interfaces and high information content about each item of the item. Based on this, one of the most important tasks is to study the problems of managing pricing policies of companies, developing a methodology for managing pricing policies for companies with a developed network of regional representative offices and building an algorithm for automating pricing policies of companies taking into account the regional characteristics of large network companies.

#### **Analysis of recent research and publications.**

In [2], approaches to pricing based on activity are described. The relationships between price, value and sales volume and how these relationships affect profitability are examined. Pricing for efficiency combines the disciplines of marketing, economics, business strategy, design and cost accounting to achieve maximum results. The importance and depth of management accounting in the formation of a sustainable company strategy was studied in [1,3,9].

The pricing policy of the enterprise is a key marketing category. In the fundamental works [3,4], one of the key policies is written, which consists in setting prices that ensure the viability of the company in market conditions, and including the choice of pricing method. In [5, 6], they focus on an approach in which the pricing policy of a company is formed as part of the general strategy of the company and includes a pricing strategy and pricing tactics. The pricing strategy involves positioning the product portfolio in the market. How to use pricing as a way to create new markets, develop your market share and obtain a sustainable competitive advantage.

The development of a pricing system, the selection of pricing market strategies, the focus on ensuring the company's survival, maximizing financial results and maintaining market positions are described in [7,12]. As part of the implementation of the strategy, tactical measures are developed (to stimulate sales), including systems of price discounts and non-price rewards for consumers [17, 18].

In [8,10], the enterprise is a production-technological, organizational and economic unity. Methodological approaches to building a successful company as an integrated, interconnected multi-level facility, the tasks of which are focused on obtaining the maximum result in a volatile competitive environment, are described. Dependence on system performance, level of production organization, degree of competition, requires each company to search for its own development path, organization system, information equipment, automation level, etc.

In [13], an approach to creating a unified information platform of a modern enterprise is proposed, constructive conditions for the functional stability of the information infrastructure are given. The issue of managing the pricing policy of companies with developed network infrastructure and large volumes of the product range was studied in [14–16].

Analyzing the issues of managing pricing policies of companies described in the indicated sources and many other publications, we conclude that in connection with the rapid development of the market and technologies, pricing is actually a new competition tool. Everywhere, companies have to work with huge amounts of data, instantly respond to changes in the external and internal environment, minimize the influence of the human factor and increase the accuracy of calculations, etc. The process of pricing and implementation of pricing policy is one of the key processes in the work of modern companies. This issue requires in-depth comprehensive study, development of new effective methods and approaches to automating the processes of managing pricing policies, as a tool to increase competitiveness and stability in modern market conditions.

**The purpose and objectives of the study.** To study the problems of pricing policy management of companies operating in the metal rolling market. To develop a methodology for managing pricing policies for companies with a developed network of regional offices. Describe the algorithm for automating the pricing policy of companies according to the regional characteristics of large companies. Test the pricing algorithm in the environment of the ERP-system.

**The main part.** Along with the fact that the price of the product for the company is an important factor that determined the financial results of business, it also plays a key role as a condition for the successful implementation of the goods, in this case, the price as a tactical tool provides the company with a number of advantages [2–5]:

- First, the use of price does not require additional money, as it takes place with advertising actions, product individualization, promotion etc.;
- Second, users prefer products which expressed in price better than on the basis of advertisement, product individualization and so on;
- Third, even when such sales approaches as individual selling and advertising are basic, price can be used as a powerful tool to support them.

In general, the price should be considered as one of the inherent properties of the product, along with the consumer properties of goods, quality, etc. [6–12]

In practice, companies use a variety of pricing strategies: the strategy of high prices ("price-skimming"); strategy of low prices, or strategy of "penetration" of the market, tiered pricing strategy, the strategy of preferential prices, the strategy of flexible, elastic prices; strategy of stable, standard, constant prices, not rounded prices strategy, etc.

Before you put into practice a particular pricing policy, it is necessary to regularly monitor the level of prices. Understanding of the dynamics of prices is formed from looking at the prices of actual transactions, exchange, prices of auctions and tenders; offer prices of large companies, reference prices, etc.

It is important to note that the company can change the pricing strategy. At a particular point of time only one pricing strategy can be used [17–18].

It is known that:

- a) lower limit of price level which are set by the company is the amount of production costs, sales under more lower price will be unprofitable;
- b) upper limit which are set for the price is the market price that is formed on the one hand, under the influence of supply and demand, and on the other – competition from suppliers of similar products.

In economics, the basic principle of pricing policy is the reimbursement of the cost of production and sale of products, services, jobs and profit in an amount sufficient to carry out expanded reproduction and paying appropriate taxes to the state, municipalities and education fund of consumption of providing a certain standard of life of employees.

We choose as a target market, the market of ferrous metals and metal products, and examine in detail an approach to automate the process of pricing policy for companies operating in this market through an extensive regional network.

Participant of the metal market used in the practice of their work almost all the main types of prices discounts: discounts of price-list and the reference price; bonus discount for the turnover; discounts in progress for quantity, amount of purchase, serial, and special discounts to buyers in which the seller is concerned, hidden discounts and etc. [16].

Selected pricing strategy and a system of discounts affect the pricing entity, taking into account the pricing strategies of competitors, the level of prices are set by common sense is in the range:

- between the low price (cost for production) which is unprofitable, and
- theoretically higher price, demand-driven (market price).

Modern companies offer the market a wide range of goods, works and services. Companies are taking atomization of control processes, throughout using modern ERP-system. Consider the approach to automating the prices of goods from the point of view of the requirements and functionality of the ERP-systems for Example 1C 8.2 Enterprise. This development is adapted and tested for companies working in the metal market, while it can be successfully used to solve similar problems in any other markets.

For enterprises that offer the market a wide range of products that can be clearly classified by the set of characteristics in the information system can be widely used tools for *characteristics* and *series*. In this case, it is desirable to include *the characteristics* parameters such as: size, length, diameter, class, standard, etc. Such features as: manufacturer, brand name, additional characteristics of a lot – take into account in the *series*. With this approach to defining element *nomenclature* we have the opportunity to lead lot account of goods where the product is a four-dimensional element of  $a = a(x_1, x_2, x_3, x_4)$ . Using this mechanism provides wide opportunities render reports in various analytical sections.

It is important to note that in lot-account documents is extremely important to reflect the entire set of parameters  $x_i$ . In the write-off documents can be limited only by the choice:  $x_1$  or couple  $(x_1, x_2)$ , or trey  $(x_1, x_2, x_3)$ .

Let us consider in detail the case where the parties to the documents of the write-off of filtering is done by a pair of parameters  $(x_1, x_2)$ , and the write-off method is defined by a pair of parameters  $(x_3, x_4)$ . In this case, the price should be set for each type of goods and the set of its characteristics, that is for each pair  $(x_1, x_2)$ .

It should be noted that for many products and kits for their performance there is a single price – a feature called price band. For example, the amount of goods that the company operates in the market is more than four thousand, and the number of prices used in this case – (*price groups*) not more than two hundred.

For the elements of an information system 1C 8.2 Enterprise introduce the notation:

$\mathcal{H}_\chi$  – elements of the reference book " *Nomenclature*";

$\mathbb{C}_{g_j}$  – elements of " *NEWPriceGroup Nomenclature*";

$\mathfrak{R}_{\mathbb{C}_{g_j}}$  – a registry entry " *NEWPriceGroup Nomenclature*" is set to the current date to every *name of nomenclature*  $x_1$  and *characteristics*  $x_2$  belonging to a particular price group:

$$\mathfrak{R}_{\mathbb{C}_{g_j}} \supset \left\{ \mathfrak{R}_{\mathbb{C}_{g_j}(k;j)} := \left( t; \mathcal{H}_{\chi_k}; \mathbb{C}_{g_j} \right) \right\}, \quad (1)$$

$k = \overline{1, \mathcal{N}}$ , where  $\mathcal{N} \in \mathbb{N}$  – number of products in the product portfolio of the company;

$j = \overline{1, \mathcal{G}}$ , where  $\mathcal{G} \in \mathbb{N}$  – number of price bands in the product portfolio.

$\mathfrak{P}_{r,t}$  – current, at a certain date *price-list* for the range of a given document " *SetPriceNomenclature*".

For the purpose of improving the efficiency of solving this problem and provide a rational approach to price policy of the company developed the document "*NEWSetPriceForPriceGroup*".

This document is intended for installation on the actual date of two arrays of prices:

1) *corporate basic prices*  $\{C_g\}$  – boundary (minimum / maximum) at selling prices of certain *corporate basis* (e.g. CPT – central warehouse);

where  $\{C_g\} := \begin{pmatrix} C_{g_1} & c_1 \\ \vdots & \vdots \\ C_{g_j} & c_j \end{pmatrix}$  – values of base prices  $c_i$ ,  $i = \overline{1, j}$  for each element of  $C_{g_1}$ ,  $i = \overline{1, j}$

“*NEWPriceGroupNomenclature*”;

2)  $\{\Delta C_{gr}\}$  — set to “*mark-on / (write-down) applied according to corporate basis*” for each item of “*NEWPriceGroupNomenclature*”. These values determine the difference (positive / negative) from the *basic corporate price* for each regional office.

Note: for the same price group  $C_g$  nomenclature set your own level of prices in each regional office – a unique *level of regional prices* for each price group  $C_g$ . At the same time, in the same regional office for different price groups  $C_g$  nomenclature will be their own values  $\{\Delta C_{gr}\}$ .

Settings and competent organization of the directory “*TypePriceNomenclature*” – is the basis of an effective system of control of the company price policy [16].

Standard features of information system include the construction of *calculated* prices relative to *basis* prices only in relative terms. This is a significant limitation that makes it difficult to build a full-range price policy, for example in the framework of the pricing strategy not rounded prices. The informational system 1C 8.2 is not difficult to create a new author “*TypeCalculatePrice*”, in particular for the realization of our objectives established method of calculating the price “*NEWSumProfit*” allowing to operate not only the relative indices markups / markdowns for the settlement prices on *corporate basis*, but widely applied absolute markups/markdowns. Then the standard toolkit “*TypePriceNomenclature*”, already with advanced features can be fully used for the construction of the automated control system of the price policy of the company.

In practice, set up three key types of prices:

- i. necessarily set up at least one *basic* type of prices, for example: “*CPT-MainStorage (base)*”.
- ii. group of prices are determined that are “*calculated*” and relative to the *base type* of price for a particular type of pricing method, for example, creates a type of price “*Region-K (regional)*” (*regional price*) which is *calculated* relative to the *base price type* “*CPT-MainStorage (base)*” using the method of calculating prices “*NEW-SumProfit*”.
- iii. defined group of prices that are “*calculated*” relative to the *base price type* for a particular type of method of prices calculation at a lower level of application of price policy, such as: the types of prices “*Region-K (A Retail)*”, “*Region-K (B SmallGrossSale)*”, “*Region-K (C GrossSale)*” are “*calculated*” relatively to the *base price type* “*CPT MainStorage (base)*” and implemented by way of price calculation “*NEW-SumProfit*”.

In this case, *regional price* will be previously installed minimum selling price for this particular regional office, and the array  $\{\Delta C_{gr}\}$  will reflect the deviation of small-gross-sale and retail prices from the *base price* in the region of sale.

Designed in 1C 8.2 Enterprise mechanism generates the document “*SetPriceNomenclature*” in which set prices for the price group  $C_g$  already deployed for all elements of the price grope, that is formed regional current price list for the certain date  $\mathfrak{P}_{r,t}$  for all elements of the *nomenclature* and each *characteristics*:

$$\mathfrak{P}_{r,t} := \{C_g\} \odot \{\Delta C_{gr}\}, \quad (2)$$

where  $\odot$  – o an operation that implements any way of *calculating prices* used in setting price types of directory “*TypePriceNomenclature*”.

The prices identified in document "*SetPriceNomenclature*" are the basis for creating of printed versions of price-lists of the company for the appropriate sales divisions.

### **Discussion of the results.**

The price of a product for the company is an important factor determining the financial result of its activities; in addition, it plays a key role as a condition for the successful implementation of the strategic and tactical goals of the company. It is important to note that an enterprise can change its pricing strategy. Only one pricing strategy can act at a particular time.

For enterprises offering a wide range of products on the market, it is important to clearly classify according to a set of characteristics. An approach is proposed that makes it possible to widely use accounting tools by *characteristics* and *series* in the information system. In this case, it is desirable to include such parameters as *characteristics*, for example: size, length, diameter, class, standard, etc. Such signs as, for example: manufacturer, brand, additional characteristics of the party - take into account in *series*. With this approach to the definition of the concept of an item of nomenclature, we get the opportunity to keep a batch account of goods, where the product is an element of four-dimensional space  $a = a(x_1, x_2, x_3, x_4)$ . The use of this mechanism provides ample opportunities for reporting in various analytical sections.

It is important to note that in batch-forming documents it is extremely important to reflect the entire set of parameters  $x_i$ . Moreover, in the cancellation documents, you can limit yourself to choosing only:  $x_1$  either the pair  $(x_1, x_2)$ , or the triple  $(x_1, x_2, x_3)$ . This property significantly improves the filtration efficiency and system speed.

The application of this classification of nomenclature elements in the practical implementation of pricing, for the same price group  $C_g$  of the nomenclature sets its own price level at each regional representative office - a unique *regional price level* for each price group  $C_g$ . In practice, the task of pricing each item of the item is reduced to setting prices for classes of homogeneous products, followed by calculating each price value, adjusted for logistics costs from the production region to the sales region and the margin of market segments of consumers. Practical testing of the algorithm in the environment of the ERP-system 1C 8.2. Enterprise for sales networks in the market of ferrous metals with translation of pricing on corporate resources on the Internet confirms the effectiveness of this approach.

### **Conclusions**

Studied in detail the problems of controlling of the companies' price policy working in the metal market.

The article highlights the issues of pricing policy management for companies operating in the metal rolling market. An approach is proposed that makes it possible to widely use accounting tools by characteristics and series in the information system. Sets of parameters are described that best correspond to each of these sets, which allows keeping a batch account of goods, representing the nomenclature as an element of four-dimensional space, which significantly improves the quality of data filtering in the information system. A pricing policy management methodology has been developed for companies with a developed network of regional representative offices. An algorithm for automating the pricing policy of companies was built taking into account the regional characteristics of large network companies. This approach allows the calculation to generate a large array of data on the prices of items taking into account the geography of storage, sales, level of customer loyalty. The algorithm was tested in the environment of the ERP-system 1C 8.2. Enterprise for distribution networks in the iron and steel market.

There is developed the technique of control pricing policy for companies with a wide regional network. There is structured an algorithm for automation of companies pricing policy taking into consideration a regional specific features of companies with wide networks. This algorithm has been tested in the environment of the ERP-system 1C 8.2. Enterprise for trade networks on the market of ferrous metals.

**Список використаної літератури**

1. Brierley J., Cowton C. and Drury C. (2008), "The application of product costs in pricing in British manufacturing industry". *Sasin Journal of Management*, 14 (1). P. 4 – 14.
2. Daly J. (2002), *Pricing for Profitability: Activity-Based Pricing for Competitive Advantage*. New York: John Wiley&Sons, Inc. 288 p.
3. Druri C. (2003), *Cost and management accounting: an introduction (5th edition)*. Detroit: Cengage Learning EMEA. 576 p.
4. Kotler P. and Armstrong G. (2010) *Principles of Marketing 13E*. Upper Saddle River: Pearson Prentice Hall. 613 p.
5. Smith T. (2011), "Pricing Strategy: Setting Price Levels, Managing Price Discounts and Establishing Price Structures". Cengage Learning. P. 270 – 272.
6. Simon H. (2015), *Confessions of the Pricing Man: How Price Affects Everything*. Berlin: Springer. 221 p.
7. Базилевич В.Д., Базилевич К.С., Ігнатюк А.І., Слухай С.В. *Мікроекономіка*. Київ: Знання, 2008. 679 с.
8. Грибов В., Грузинов В. *Экономика предприятия*. М.: Финансы и статистика, 2005. 208 с.
9. Друри К. *Управленческий и производственный учёт. Вводный курс*. М.: Юнити-Дана, 2016. 735 с.
10. Зайцев Н.Л. *Экономика промышленного предприятия*. М: ИНФРА-М, 2008. 414 с.
11. Михальська О.Л., Швець В. Г. *Управлінський облік та аналіз виробничих витрат*. КНУ. Київ: Кондор, 2019. 224 с.
12. Скворцов І.Б., Загорецька О.Я., Балик У.О. *Стратегічне ціноутворення*. Львів: ЗУКЦ, 2013. 348 с.
13. Собчук В. *Методика створення єдиного інформаційного простору на виробничому підприємстві з функціонально стійким технологічним процесом. Системи управління, навігації та зв'язку*. Т.6. № 8. С. 84 – 91.
14. Собчук В. *Оценка развития регионального потребления в Украине, (в условиях 2010 года)*. Материалы конференции. Алушта, 2010. С. 43 – 46.
15. Собчук В.В., Собчук А.В. *Управління ціновою політикою збутових мереж. Математика. Інформаційні технології. Освіта. 2014 рік : збірка матеріалів допов. учасник. III Міжнар. наук.-практ. конф., 6–8 червня 2014 р. Луцьк–Світязь: СНУ імені Лесі Українки, 2014. С. 95 – 98.*
16. Собчук В.В. Музика Л.П., Микитюк І.О., Федонюк А.А. *Управління ціновою політикою збутових мереж на ринку чорних металів на платформі 1С 8.2 УПП. Комп'ютерно-інтегровані технології: освіта, наука, виробництво, 2015 р., № 19, Луцьк, ЛНТУ. С. 146 – 155.*
17. Уткин, Э.А. *Цены. Ценообразование. Ценовая политика*. М.: Тандем, 2000. 224 с.
18. Тарасевич В.М. *Ценовая политика предприятия*. Спб.: Питер, 2003. 288 с.

**References**

1. Brierley J., Cowton C. and Drury C. (2008), "The application of product costs in pricing in British manufacturing industry". *Sasin Journal of Management*, 14 (1). P. 4 – 14.
2. Daly J. (2002), *Pricing for Profitability: Activity-Based Pricing for Competitive Advantage*. New York: John Wiley&Sons, Inc. 288 p.
3. Druri C. (2003), *Cost and management accounting: an introduction (5th edition)*. Detroit: Cengage Learning EMEA. 576 p.
4. Kotler P. and Armstrong G. (2010) *Principles of Marketing 13E*. Upper Saddle River: Pearson Prentice Hall. 613 p.
5. Smith T. (2011), "Pricing Strategy: Setting Price Levels, Managing Price Discounts and Establishing Price Structures". Cengage Learning. P. 270 – 272.



6. Simon H. (2015), *Confessions of the Pricing Man: How Price Affects Everything*. Berlin: Springer. 221 p.
7. Bazylevych V.D., Bazylevych K.S., Ihnatiuk A.I. and Slukhai S.V. (2008), *Microeconomics*. Kyiv: Znannia. 679 p.
8. Hrybov V. and Hryzynov V. (2005), *Enterprise economy*. M.: Fynansy y statystyka, 2005. 208 p.
9. Drury K. (2016), *Management and production accounting. Introductory course*. M.: Yunyty-Dana. 735 p.
10. Zaitsev N.L. (2008), *Industrial Economics*. M: YNFRA-M. 414 p.
11. Mykhalska O.L. and Shvets V. H. (2019) *Management accounting and analysis of production costs*. KNU. Kyiv: Kondor. 224 p.
12. Skvortsov I.B., Zahoretska O.Ia. and Balyk U.O. (2013), *Strategic pricing*. Lviv: ZUKTs. 348 p.
13. Sobchuk V. (2019), “Methods of creating a single information space at a manufacturing enterprise with a functionally stable technological process”. *Systemy upravlinnia, navihatsii ta zviazku*. 6 (8). P. 84 – 91.
14. Sobchuk V. (2010), “Assessment of the development of regional consumption in Ukraine, (in 2010)”. *Materyaly konferentsyy. Alushta*. P. 43–46.
15. Sobchuk V.V. and Sobchuk A.V. (2014), “Management of pricing policy of sales networks”. *Matematyka. Informatsiini tekhnolohii. Osvita. 2014 rik : zbirka materialiv dopov. uchasnyk. III Mizhnar. nauk.-prakt. konf., 6–8 chervnia 2014 r. Lutsk–Svitiaz: SNU imeni Lesi Ukrainky*. P. 95 – 98.
16. Sobchuk V.V. Muzyka L.P., Mykytiuk I.O. and Fedoniuk A.A. (2015), “Management of the pricing policy of distribution networks in the market of ferrous metals on the platform 1C 8.2 SCP”. *Kompiuterno-intehrovani tekhnolohii: osvita, nauka, vyrobnytstvo*, 19, Lutsk, LNTU. P 146 – 155.
17. Utkyn E.A. (2000), *Prices. Pricing*. M.: Tandem. 224 p.
18. Tarasevych V.M. (2003), *Pricing policy of the enterprise*. Spb.: Pyter. 288 p.