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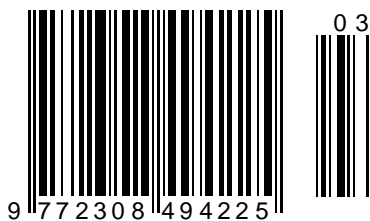
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**T.S. Guliyeva**  
Azerbaijan Medical University  
Department of Oncology  
[tamarakuliyeva@gmail.com](mailto:tamarakuliyeva@gmail.com)

**Sh.Sh. Osmanov**  
Baku City Hospital  
Patomorphology laboratory

## PHYLLODES TUMORS OF THE BREAST DIAGNOSTIC AND PATOMORPHOLOGY RESEARCH

**Abstract:** This article examines issues related to the diagnosis, treatment and provides clinical examples of phylloid tumors of breast.

**Key words:** phylloides tumors of the breast, leaf-shaped tumors of the breast.

**Language:** English

**Citation:** Guliyeva, T. S., & Osmanov, Sh. Sh. (2022). Phylloides tumors of the breast diagnostic and patomorphology research. *ISJ Theoretical & Applied Science*, 03 (107), 401-405.

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### Introduction

The group of fibroepithelial tumors of the mammary gland includes two-component tumors with proliferation of connective tissue and epithelial component. Fibroadenomas are one of the most common tumors of the mammary gland, with 2% of them being rare leaf-shaped tumors compared to oncological practice [2]. All these tumors are characterized as neoplasms with a two-component structure, in which the connective tissue component predominates. In sarcomas, this component is absolute, and in the group of fibroepithelial tumors, it is found in parallel with the development of epithelial tissue. The rarity of these neoplasms, the characteristics of the clinical course and the polymorphism of the morphological structure are based on different views on the nature of these processes and the principles of treatment tactics [1].

Fibroadenoma is a tumor that develops from the epithelium of the mammary glands and the stroma of the terminal part of the urinary system and involves the proliferation of stromal and epithelial elements. The disease is mainly found in patients of young age with high morbidity in the third decade of life. Fibroadenomas are mainly located in the upper outer

quadrant of the mammary gland; the right and left mammary glands are damaged with the single frequency. The tumor is usually solitary, but in 25% of cases there are numerous nodules that develop synchronously and asynchronously.

The vast majority of phylloid tumors described in the literature are found in women, and in men these tumors are rarely encountered [5].

According to the literature, phylloid tumors can occur at any age - from early puberty to old age; the interval varies from 10 to 90 years [6].

The fibrous component has an increased number of cells and is hypercellular. However, atypia is not observed in the cells; individual mitotic figures are observed.

The etiology and pathogenesis of phylloid tumors are unknown. It is believed that the tumor is caused by a violation of the hormonal balance in the body, primarily estrogen. The formation of phylloid tumors and its recurrences also occur during pregnancy. Pregnancy and lactation stand on the agenda as factors that stimulate tumor growth. Both benign and malignant tumors of the thyroid gland, diabetes, liver disease, apparently are the factors that disrupt hormone metabolism and contribute to the

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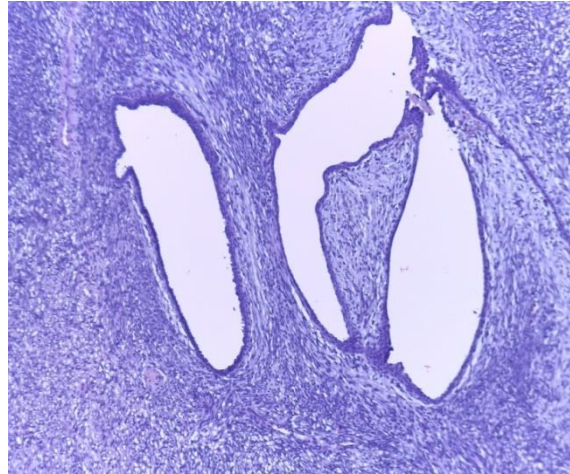
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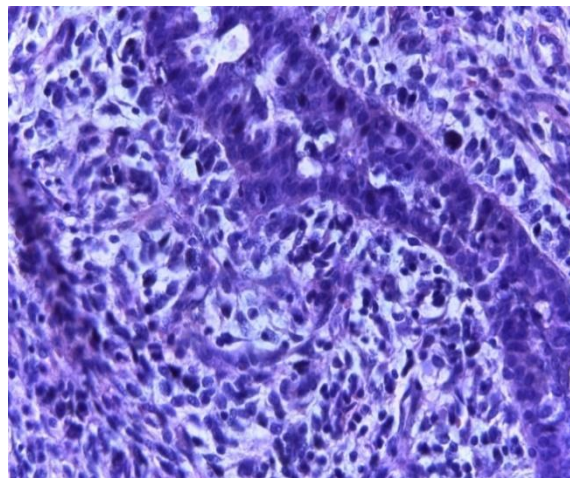
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development of neoplasms [8].Leaf tumor is similar to fibroadenoma, but is characterized by the predominance of the connective component. Phylloid tumors are characterized by an unusual clinical picture, difficult to diagnose, prone to recurrence and high probability of deterioration of the condition.

According to the International Histological Classification of the World Health Organization (1995), fibroepithelial neoplasms are divided into 3 variants of phylloid tumors (9020/0) - benign (picture 1), borderline (picture 2) and malignant (picture 3).



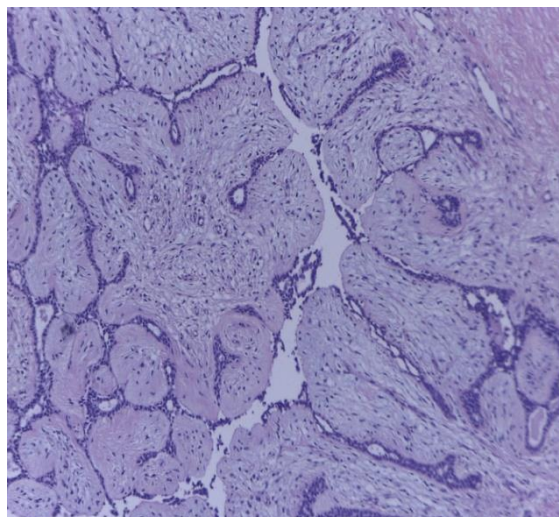
**Picture 1. Mammary gland: benign phylloid tumor 100 magnification. Dye hematoxillin-eosin. The derivative is two-component: glandular component and fibrous component. The fibrous component is hypocellular.**



**Picture 2. Borderline phylloid tumor of the breast 100 magnification. The derivative has two components: the epithelial component and the fibrous component.**

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**Picture 3. Malignant phylloid tumor of the mammary gland MFT. 400 magnification. Dye hematoxyllin-eosin.**

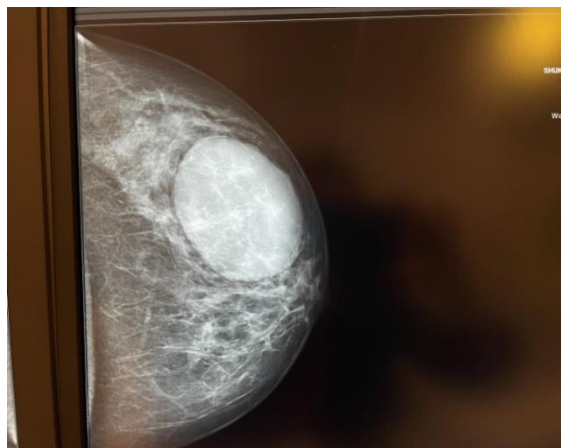
The derivative has two components: the epithelial component and the fibrous component. The fibrous component is hypercellular, atypical. Numerous mitotic figures are observed.

Phylloid tumors have a great potential for malignant changes in the stroma of the mammary gland sarcoma. However, the presence of an epithelial component does not exclude the development of a carcinoma-type malignant tumor. In addition, the development of both components can lead to the formation of carcinoma sarcoma.

Carcinosarcoma is a very rare tumor pathology, characterized by malignancy of both stromal and epithelial components, metastasizing both lymphogenically and hematogenously. The leading morphological feature of deciduous tumors of the mammary gland is the excess of fibrous cells of fibroblast type. The absence of this symptom negates the diagnosis of phylloid tumor. On the other hand, a malignant phylloid tumor differs from stromal sarcoma of the mammary gland in the presence of

epithelial structures. The main feature of phylloid tumors is relapse and malignancy with the formation of mammary sarcoma. The most common and specific clinical symptom is the large size of the phylloid tumor. The literature describes tumors with a diameter of 45 cm. The average size of tumors is from 5 cm to 10 cm, but there are also 1 cm phylloid tumors [1]. Tumor size is not relevant as a prognostic factor (the potential for metastasis of a 2 cm tumor is described), but most authors confirm the high degree of malignancy of large tumors [9].

The clinical picture does not differ in specificity and can range from small tumors with precise contours to tumors covering the entire mammary gland. From large tumors, the skin of the mammary gland becomes cyanotic, thinning, and the subcutaneous veins dilate sharply. In some cases, skin ulcers are observed, but these symptoms do not always appear as a feature of the malignant process. There are no radiological criteria for distinguishing malignant phylloid tumor from mammary sarcoma (picture 4, 5).



**Picture 4. Benign phylloid tumor. The skin, gills and areola have not changed.**



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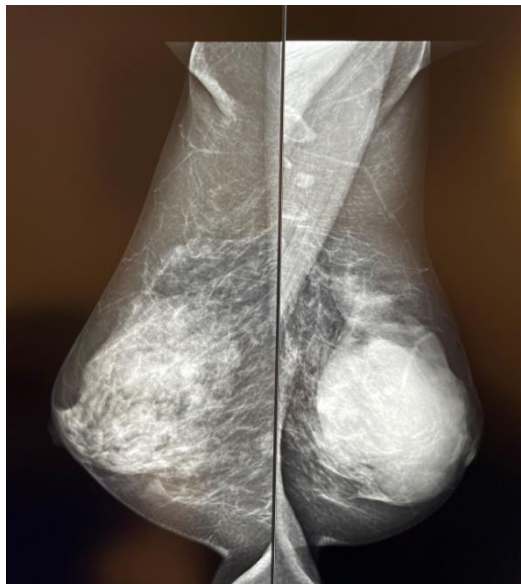
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Existing diagnostic methods (radiology, USM, cytology) often do not allow the differentiation of epithelial and non-epithelial tumors of the mammary gland. Absolute and sufficient operation in benign and transitional variants of phylloid tumor - is a sectoral

resection of the mammary gland in the case of total damage to the breast and in the malignant variant - mastectomy. In most cases, there is no need for lymph dissection.



**Picture 5. Borderline phylloid tumor. Infiltrative areas are noted around the tumor.**

Recent studies have revealed changes in the genotype of tumor cell nuclei [4]. The study of phylloid tumors at the genetic level is very rare. Molecular-genetic markers that reveal significant mutations in gene suppressors, such as BRCA1-2, TP53, represent single-nucleotide polymorphic variants [3]. Both stromal and epithelial components of phylloid tumors were described as allelic losses and cytogenetic transformation zones, such as FHIT (locus D3 S1300) 3p12-p14 [11]. These indicators confirm that both components are part of the neoplastic process. Chromosome small shoulder deletion and allelic imbalance have been associated with more aggressive course and recurrence of tumors. Specific locus panel (LOH) with disappearance of heterozygous pruritus was found in patients with multiple and contralateral phylloid tumors, which is not typical for ordinary fibroadenomas. Early phylloid tumors and their

recurrences were of a single clonic nature, but LOH was characteristic of pathological progression and metastasis [10]. According to the results of this study, malignant epithelial and stromal components carry the same LOH genotype, which in turn determines the overall pathological mechanism. K. Reiem and co-authors study discovers the association of the R1699W missense variant of the BRCA1 gene with a malignant variant of breast phylloid tumor [7]. According to the authors, carriers of hereditary mutations of the BRCA1 gene, which are rarely removed (change protein function), are more likely to develop this histopathological variant. In addition, allelic loss of the D22S264 locus of the TP53 gene contributes to the progression of phylloid tumors. In our opinion, genetic studies of phylloid tumors can respond to many factors, considering the structural and functional changes of genes (BRCA1-2 and TP53).

## References:

1. Vorotnikov, I.K., Bogatyrev, V.N., & Korzhenkova, G.P. (2006). Leaf-shaped tumors and sarcomas of the mammary glands: clinic, diagnosis, treatment. *Mammology*, No. 1, pp. 20-23.
2. Grigoruk, O.G., Bogatyrev, V.N., Lazarev, A.F., Sokolova, V.K., Frolova, T.S., & Bazulina, L.M. (2005). Cytological diagnosis of leaf-shaped tumors and breast sarcomas. *Mammology*, №1, pp.30-32.

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3. Lyubchenko, L. N., Portnoy, S. M., Pospekhova, N. I., et al. (2007). Clinical and molecular aspects of hereditary breast cancer. *Molecul. honey*, No. 1, pp. 8-9.
4. Draghi, F., Sabolla, L., & Campani, R. (1996). *Radiol-Med-Torino*. 1996 May. 91(5). pp.585-590.
5. Kahan, Z., Toszegi, A.M., Szarvas, F., et al. (1997). Recurrent phyllodes tumor in a man. *Pathology Research and Practice*, 193/9, pp.653-658.
6. Mallebre, B., Ebert, A., Perez-Canto, A., et al. (1996). Cystosarcomaphylloides of the breast. A retrospective analysis of 12 cases. *Geburtshilfe-Frauenheilkd*, Jan. 56(1), pp. 35-40.
7. Reiem, K., Flucke, U., Engel, C., et al. (2007). Associated of the BRCA1 missense variant R1699W with a malignant phyllodes tumor of the breast. *Cancer Genet. Cytogenet*, Vol. 176, pp.76-79.
8. Salvadori, B., Cusumano, F., & Del Bo, R. (1990). Chirurgia e tumorifillodideiimammella. *Argomentioncol*, 11. № 2, pp.157-163.
9. Salvadori, B., Cusumano, F., & Del Bo, R. (1990). *Argomentioncol*. 1th ed. — UFO, pp. 157-163.
10. Sawyer, E., Hanby, A., Lakhani, S., et al. (2000). Molecular analysis of phyllodes tumors reveals distinct changes in the epithelial and stromal components. *Am. J. Pathol.*, Vol. 156, N 3, pp. 1093-1098.
11. Wang, Z., Buraimoh, A., Iglehart, J., et al. (2006). Genomewide analysis for loss of heterozygosity in primary and recurrent phyllodes tumor and fibroadenoma of breast using single nucleotide polymorphisms array. *Breast Cancer Res. Treat.*, Vol. 97, N 3, pp. 301-309.

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**Shavkat Akhmatovich Supiev**  
Navai State Pedagogical Institute  
Senior Teacher of French

**Giyoszhon Yusufovich Siddikov**  
Navai State Pedagogical Institute  
Senior Teacher of French  
Department of Foreign Languages

## FRENCH PHRASEOLOGICAL UNITS EXPRESSING HISTORICAL CONCEPTS

**Abstract:** *Phraseologisms of the French language, reflecting certain events of French history, features of the life of the French people, a particular historical period, features of French historical experience, that is, what is associated with "historical memory".*

**Key words:** *historical memory, language, phraseological units, historical memories.*

**Language:** *Russian*

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**Scopus ASCC:** 1203.

### ФРАНЦУЗСКИЕ ФРАЗЕОЛОГИЧЕСКИЕ ЕДИНИЦЫ, ВЫРАЖАЮЩИЕ ИСТОРИЧЕСКИЕ ПОНЯТИЯ

**Аннотация:** *Фразеологизмы французского языка, отражающие те или иные события французской истории, особенности жизни французского народа, того или иного исторического периода, особенности французского исторического опыта, то есть то, что связано с «исторической памятью».*

**Ключевые слова:** *историческая память, язык, фразеологизмы, исторические воспоминания.*

#### Введение

Понятие «историческая память» очень широкое, это анализ и изучение информации, доступной от прошлых поколений к настоящему, воображению людей, эмоциям, различным религиозным и культурным традициям, источнику знаний. Словосочетания, репрезентирующие «историческую память», включают области этимологии, этнографии, истории, языкознания, и они тесно взаимосвязаны, дополняя и обогащая друг друга.

Во фразеологическом фонде языка можно выделить несколько важных с этой точки зрения пластов. Например:

1) **Фразеологизмы, относящиеся к историческим событиям.**

Примерами этого слоя являются исторические события, вредоносные войны, кровавые репрессии и революции, трагедии, повлекшие за собой большие духовные, человеческие и материальные потери. В результате таких войн во французской истории возникли фразеологизмы, представляющие несколько «исторических воспоминаний». Например, фраза «*repartir comme en quatorze*» буквально означает «возвращение на 14 лет», а фраза означает «настойчивость в начале каждого начинания». Судя по всему, происхождение этой фразы было основано на событиях войны 1914-1918 годов, потрясшей весь мир. Кроме того, фраза «*journée des harengs*» распространена среди французов, буквально означая «день рыбы», и

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имеет особую историю как фраза, которая убила многих защитников города во время осады Орлеана 12 февраля 1429 г. при попытке остановиться с продовольствием, предназначенным для армии. В обозе везли военные амуниции, пушки, луки и, кроме того, бочки с сельдереем. Приближался Великий пост, и воины должны были соблюдать законы церкви, есть в этот период только рыбу. Солдаты доблестно сражались, чтобы не отдать бочки с рыбой и не умереть с голоду. Даже сегодня эта фраза используется среди французов, а в переводе на узбекский *“есанг ҳам балиқ егин, эмасанг ҳам балиқ”*. Эта фраза также доступна на узбекском языке и может быть синонимом фразы «ешь суп, даже если у тебя остался один день, ешь суп, даже если у тебя осталась одна копейка».

Все мы знаем, что Франция признана одной из ведущих стран в мировом виноделии, а французские вина известны во всем мире [1. с 59]. Среди французов также есть фразы, которые относятся к «исторической памяти», связанной с употреблением вина. Например, если мы возьмем буквальный анализ *s'est un vrai vin de la cometeibora*, это означает «настоящее вино кометы», и мы знаем, что исторические события также были основой для создания этой фразы [2. с 47]. Эта большая комета была обнаружена французским астрологом Оноре Флоржергом в 1811 году, и вина этого года также были очень вкусными, что означает «уникальный вкус, чудесный».

### 2) Фразеологизмы, относящиеся к историческим легендам, анекдотам.

Примерами этого типа являются мифологические, мифологические, анекдотические, а также фразеологические единицы, репрезентирующие «историческую память», возникшую на основе устной традиции [3. с 122]. За века в мире произошло бесчисленное множество событий. Среди этих событий много трагедий. Существует множество фразеологизмов, основанных на одних и тех же трагических исторических событиях: гибель Титаника, изгнание Гинденбурга, квартет Рабле, квартет Ноги, Графальгарский переворот; переворот де Жарнак как. Например, если мы буквально переведем фразу «*etre malheureux comme un gibet*», *gibet* означает *dog* (орудие пытки), что означает быть несчастным, как дорд, и буквально означает «быть несчастным». Из истории известно, что во Франции деревья в основном делались из тополя, сосны или травы, которые считались проклятыми деревьями; и в современной науке это подтверждается тем, что эти деревья активно поглощают негативную энергию. Вот почему слово несчастье использовалось французами со словом *dog*. Кроме того, словосочетание «виолончель д'Энгра»

ассоциируется с музыкальным инструментом, буквально со скрипкой Энгра; дословно: любопытство, увлечение) - это словосочетание принадлежит французскому художнику Доминику Энгру (1780-1867), который в юном возрасте обучался музыке и даже играл партию второй скрипки в тулузском оркестре. В свободное время Энгр, художник, сохранял свою любовь к музыке и играл на скрипке, причем своим талантом скрипача он гордился в большей степени, чем своими картинами, и славился своим музицированием. Однако у Энгра была другая любовь к музыке, чем к живописи, к которой его интерес к музыке восходит к его детству.

Аналогичная ситуация наблюдается и в *quart d'heure de Rabelais* — раблевских четвертях; протокол погашения задолженности; трудные напряженные минуты. На обратном пути в Париж из Рима Рабле останавливается в одном из отелей Лиона. Но у него нет денег, чтобы заплатить владельцу отеля. Знаменитый писатель лукавит. Он роняет листок бумаги, на котором написано: яд для короля, яд для королевы. Хозяин отеля сдает его охране как преступника. Существует анекдот о том, что Рабле отправили в Париж в сопровождении кавалергардов, где он был освобожден после того, как рассказал судье о своем хитроумном плане.

Словосочетание *un coup de Trafalgar* возникло 21 октября 1805 г. в результате морского сражения между английской эскадрой адмирала Г. Нельсона и франко-испанским флотом адмирала П.-Ш.Вильнева. В этом сражении флот П. Ш. Вильнева был разгромлен и плану Наполеона послать войска на Британские острова пришел конец. Это сражение позволило британскому флоту простоять в море более 100 лет. Этот термин используется до сих пор и, по-видимому, основан на «исторических событиях».

Анализ примеров показывает, что скрытые тайны природы языка чрезвычайно многочисленны и изощренны. Как выразился Ш. Балли: «Если бы язык находился под контролем разума, его можно было бы анализировать во всех его аспектах, точно так же, как человек должен добровольно остановить свое сердцебиение или научиться быстро биться» [4. ].

В целом фразеологизм представляет собой языковую единицу, занимающую особое место в образном выражении отношения человека к различным событиям и в повышении речевой чувствительности. Фразеологизмы, относящиеся к реальным историческим символам, строятся на основе сбора сведений о королях, полководцах, революционерах, представителях дворянских родов, шутах, артистах, писателях и т. д., и на основе этих материалов создаются фразеологизмы, отражающие «исторические Память».



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3) Фразеологизмы, существующие в имени исторических деятелей.

Существует множество фразеологизмов этого типа, в основном связанных с именами исторических деятелей. Например, есть фраза «être comme Jeanne d'Arc», что буквально означает быть похожей на Жанну Дарк, что буквально означает «быть смелой, патриотичной». Из истории известно, что Жанна — дочь Орлеана и упоминается как героиня, храбро сражавшаяся за Орлеан. Именно поэтому слово мужество ассоциируется с именем Жанна Дарк. Есть также несколько фраз, упомянутых под именем Жанна Дарк. Например, «cheveux à la Jeanne d'Arc». Во французском языке есть фраза «*mot de Cambronne*», которая буквально используется в переводе для обозначения «слова Камброна», что означает «грубое слово». Фраза связана с именем французского генерала Пьера Камброна (1770-1842), командовавшего гвардией Наполеона в битве при Ватерлоо. По мнению историков, Камброн, мужественно сражавшийся с противником, ответил на предложение врага сдать оскорбительным словом, послужившим источником фразеологического единства.

Charbonnier est maître chez soi/lui — этот фразеологизм, означающий «историческая

память», буквально означает «угольщик — хозяин в своем доме», а образно «каждый имеет право командовать в своем доме». Однажды во время охоты король Франции Франциск I (1494–1547) заблудился и нашел убежище в хижине шахтера. Жена встретила его с гостеприимством, так как в то время не было шахтера. Король сидел в одиноком кресле, имевшемся в доме, и ждал своего хозяина. Вечером усталый шахтер приветствовал незнакомца и попросил дать ему стул, ибо каждый был хозяином своего дома, и это было правильно и справедливо. Франциск понял это правильно и был вынужден поменяться местами в кресле. Из-за этого и появилась эта фраза. Charbonnier является главным chez soi, mon cher monsieur, et, sans être trop curieux, je voudrais bien connaître le moyen que vous emploieriez pour m'imposer votre volté dans ma demeure.

Как мы проанализировали выше, в создании и появлении каждого фразеологизма репрезентируют «историческую память» исторические события, образованные историческими деятелями истории, и сегодня эти выражения широко используются в языкознании, устной речи.

## References:

1. Pernu, R., & Kljen, M.-V. (1992). *Zhanna d'Ark Tekst*. Moscow: Izdatel'skaja grupa «Progress-Akademija».
2. Gagnière, C. (2008). *Pour tout l'or des mots. Au bonheur des mots. Des mots et merveilles Texte*. Paris: Éditions Robert Laffont.
3. Ahmanova, O.S. (2010). *Slovar` lingvisticheskikh terminov*. Moscow: Librokom / URSS.
4. Nazarjan, A.G. (1987). *Frazeologija sovremennogo francuzskogo jazyka*. Moscow: Vysshaja shkola.
5. Bologne, J.-C. (2007). *Qui m'aime me suive. Dictionnaire commenté des allusions historiques Texte*. Paris: Larousse, DL.
6. (n.d.). Retrieved from <http://www.expressionsfrançaises.fr/expressions-e/1987-ecrire-comme-unange.html>
7. (2006). *Ўзбек тилининг изоҳли lugati. Ўзбекистон Millij Jenciklopedijasi" Davlat Ilmij Nashrijoti.*- Tashkent.

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**Ismoil Ibragimovich Safarov**

Institute of Chemistry and Technology  
Doctor of Physical and Mathematical Sciences,  
Professor to department of Advanced Mathematics,  
Tashkent, Uzbekistan  
[safarov54@mail.ru](mailto:safarov54@mail.ru)

**Muxsin Khudoyberdiyevich Teshaev**

Bukhara Engineering-Technological Institute  
Doctor of Physical and Mathematical Sciences,  
Professor to department of Advanced Mathematics,  
Bukhara, Republic of Uzbekistan,  
[muhsin\\_5@mail.ru](mailto:muhsin_5@mail.ru)

**Shuxrat Isroilovich Jo'raev**

Bukhara State University  
Senior Lecturer to Department of Technology Engineering,  
Bukhara, Republic of Uzbekistan

**Nurillo Raximovich Kulmurov**

Navoi State Mining Institute  
Senior Lecturer to Department of Technology Engineering,  
docent, Uzbekistan  
[nurillo.Kulmurov.64@mail.ru](mailto:nurillo.Kulmurov.64@mail.ru)

## OF LINEAR OSCILLATION OF A DISSIPATIVE INHOMOGENEOUS MECHANICAL SYSTEM WITH A FINITE NUMBER OF DEGREES OF FREEDOM

**Abstract:** The paper considers two modes of operation of the system - natural and forced oscillations. Natural oscillations are understood as movements in which all points of the system oscillate with the same frequencies and damping indices (but with different complex amplitudes). It is assumed that there are no external influences during natural oscillations. Forced oscillations occur under stationary (periodic) and non-stationary external influences. The oscillation mode (steady or unsteady) depends on external influences.

**Key words:** natural oscillations, frequency, steady state, strength, vibration, mechanical systems, object, damped oscillations, resonance.

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О ЛИНЕЙНОМ КОЛЕБАНИИ ДИССИПАТИВНОЙ НЕОДНОРОДНОЙ МЕХАНИЧЕСКОЙ СИСТЕМЫ С КОНЕЧНЫМ ЧИСЛОМ СТЕПЕНЕЙ СВОБОДЫ

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**Аннотация:** В работе рассмотрены два режима работы системы – собственные и вынужденные колебания. Под собственными колебаниями подразумеваются движения, при которых все точки системы совершают колебания с одинаковыми частотами и показателями демпфирования (но с разными комплексными амплитудами). Предполагается, что внешние воздействия при собственных колебаниях отсутствуют. Вынужденные колебания происходят при стационарных (периодических) и нестационарных внешних воздействиях. Режим колебаний (установившийся или неуставившийся) зависит от внешних воздействий.

**Ключевые слова:** собственные колебания, частота, установившийся режим, прочность, вибрация, механические системы, объект, затухающие колебания, резонанс.

### Введение

Во многих случаях решение проблемы динамической прочности и устойчивости связано с изучением реологических свойств элементов и влияния их взаимодействия различных форм колебаний рассматриваемой механической системы. В работах [1,2,3,4,5] рассматриваются проблемы взаимодействия элементов механической системы между собой и со средой. Такие механические системы часто используются для защиты объектов от вибраций и ударов. Исследования в области защиты различных объектов от вибраций и ударов получили интенсивное развитие в начале 70-х годов прошлого столетия, в числе которых можно было бы назвать работы [5,6]. Современные радио механические комплексы и навигационные оборудования, размещаемые на подвижных объектах (летательных аппаратах, кораблях, самоходных машинах, автомобилях и пр.), подвергаются воздействию сложного комплекса дестабилизирующих факторов. К этим факторам, в частности, относятся вибрационные и ударные нагрузки, возникающие при изменениях скорости движения подвижных объектов с винтовым, турбовинтовым и реактивным двигателями, акустических воздействиях и т.п. Аэродинамические силы также вызывают повышение вибрации узлов и деталей подвижных объектов [7,8].

Исследования прочности и динамической устойчивости диссипативных (диссипативно однородных и неоднородных) механических систем (ДМС) далеки еще от исчерпывающих решений. Управление резонансными колебаниями диссипативных механических систем с помощью активных методов до настоящей времени окончательно не решены.

### Постановка задачи и методики решения.

Рассматривается динамическое поведения напряженно-деформируемого состояния диссипативной механической системы, состоящего из деформируемых и недеформируемых тел. Связь напряжений  $\sigma_{ij}$  и деформаций  $\varepsilon_{ij}$  для элементов механической системы удовлетворяет линейным

наследственным соотношениям Больцмана-Вольеры, которую принимаем в виде:

$$s_{ij} = 2\sigma(e_{ij} - \int_{-\infty}^t R(t-\tau)e_{ij}(\tau)d\tau) \quad (1)$$

где,  $s_{ij}$ - девиатор напряжений  $\sigma_{ij}$ ,  $e_{ij}$ - девиатор деформаций  $\varepsilon_{ij}$ ,  $\sigma = \sigma_{ij}/3$ ,  $R$ -слабо сингулярное ядро релаксации, принимаемое в виде

$$R(t) = Ae^{-\beta t} \cdot t^{\alpha-1};$$

здесь,  $E$ - мгновенный модуль упругости,  $A, \alpha$  и  $\beta$  - безразмерные параметры.

Параметры ядра релаксации и мгновенного модуля упругости определяются из квазистатических экспериментов методикой, изложенной в работе [9].

**Общая вариационная постановка динамики диссипативных механических систем.** Рассмотрим механическую систему, состоящую из  $N$  жестких и  $K$  деформируемых элементов, соединенных друг с другом и с основанием (или окружающей средой)  $S$  вязкоупругими элементами:  $S = S_1 + S_2$ .

Деформируемые элементы системы выполнены из вязкоупругих или двухкомпонентных тел. Физические свойства вязкоупругих материалов описываются линейными наследственными соотношениями Больцмана-Вольерра с интегральными разностями ядер наследственности [10,11].

Некоторые из деформируемых элементов могут быть упругими; в этом случае ядра наследственности, описывающие реологические свойства элементов, тождественно равны нулю. Систему, в которой реологические свойства деформируемых элементов идентичны (ядра наследственности элементов равны между собой), будем называть диссипативно-однородной, а систему с различными реологическими характеристиками - будем называть диссипативно-неоднородной. В частном случае, когда внешние воздействия отсутствуют, рассматриваются собственные затухающие колебания системы, при наличии внешних воздействий – вынужденные.

Основной проблемой является исследование диссипативных (демпфирующих) свойств системы в целом, а также исследование ее напряженно-деформированного состояния. При свободных колебаниях диссипация сводится к затуханию

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собственных колебаний. Скорость затухания количественно оценивает диссипативные свойства системы: чем выше скорость затухания, тем выше диссипация.

При вынужденных установившихся колебаниях системы ее диссипативные свойства проявляются в резонансных режимах и приводят к конечным значениям резонансных амплитуд. В случае нестационарных колебаний диссипативные свойства проявляются при определении напряженно-деформированного состояния системы.

В случае вынужденных установившихся колебаний резонансные амплитуды являются количественной характеристикой диссипативных свойств системы, интенсивность которой становится выше понижением резонанса амплитуды вынужденных колебаний.

Для количественной оценки диссипативных свойств системы в целом предлагаются две величины: минимальная скорость затухания собственных колебаний и максимальная резонансная амплитуда. Введем понятия глобального коэффициента демпфирования и глобальной резонансной амплитуды. Диссипативные свойства системы определяются прежде всего демпфирующими характеристиками систем, совершенно неприменимо к диссипативно-неоднородным системам.

Исследование зависимости уровня диссипативных свойств системы от ее параметров составляет основное содержание данной работы. Установлено, что глобальные демпфирующие характеристики диссипативно-неоднородной системы в целом определяются не только (и не столько) вязкоупругими свойствами элементов системы, сколько взаимодействием колебаний различных собственных форм, которые в существенной степени определяются структурой, конструкцией, геометрией, размерами, наличием упругих связей, взаимным расположением элементов системы в целом.

Согласно работам динамика диссипативных механических систем они более реально описываются обобщенной вязкой моделью (1):

$$\tau \phi(t) = c_m \left[ \phi(t) - \int_a^t R_c(t-\tau) \phi(\tau) d(\tau) \right] \quad (2)$$

где  $\tau$  - вязкоупругий оператор;  $c_m$  - мгновенный коэффициент вязкоупругого оператора;  $R_c$  - ядро релаксации;  $\phi(t)$  - произвольные функции времени.

### Математическая постановка задачи.

Предположим, что интегральные члены в наследственном соотношении (2), описывающие реологические свойства деформируемых элементов, малы по сравнению с мгновенно упругими слагаемыми. В совокупности с предположением о колебательном характере движения это позволит применить процедуру

замораживания [12,13,16], которая приводит к следующим комплексным физическим соотношениям для деформируемых элементов нулевого объема:

$$F_e = -c_e \Delta e = -c_e [1 - \Gamma_e^c(\omega_R) - i \Gamma_e^s(\omega_R)] \Delta e \quad (3)$$

Для элементов с распределенной жесткостью это соотношение будет иметь вид:

$$\sigma_{ij} = \lambda_n \varepsilon_{ni} \delta_{ji} + 2\bar{\mu}_n \varepsilon_{ni}, \quad S = S_1 + S_2, \quad n = 1, 2, 3, \dots, S, \quad (4)$$

$$\text{где } \bar{\lambda}_n = \lambda_n [1 - \Gamma_{n\lambda}^c(\omega_R) - i \Gamma_{n\lambda}^s(\omega_R)] \quad (5)$$

$$\Gamma_{\lambda,m}^c(\omega) = \int_0^\infty R_{\lambda,m}(\tau) \cdot \cos \omega \tau d\tau ;$$

$$\Gamma_{\lambda,\mu}^s(\omega) = \int_0^\infty R_{\lambda,\mu}(\tau) \sin \omega \tau d\tau$$

$F_e$  - усилие в  $i$ -ом сосредоточенном элементе,  $\Delta e$  - удлинение этого элемента;  $\bar{C}_e, \sigma_{ij}, \varepsilon_{ij}$ -его комплексная жесткость, напряжение и деформация в элементе ненулевого объема;  $\Gamma_e^c, \Gamma_e^s, \Gamma_{n\lambda}^c, \Gamma_{n\lambda}^s, \Gamma_{n\mu}^c, \Gamma_{n\mu}^s$  - синус и косинус образа Фурье ядер релаксации  $i$ -го сосредоточенного элемента и  $n$ -го распределенного элемента;  $\omega_R$  - действительная часть комплексной частоты колебаний системы. При этом частота будет комплексной при собственных, действительных, а также вынужденных колебаниях. В первом случае комплексная собственная частота является частотой затухающих колебаний, мнимая часть - коэффициентом демпфирования собственных колебаний системы. Во втором случае  $\omega_R$  совпадает с частотой вынужденных колебаний. При собственных колебаниях соотношения (3), (4) приближенные, при вынужденных - точные.

При постановке задачи о собственных и вынужденных колебаниях системы используется принцип возможных перемещений, согласно которому сумма всех действующих на систему активных сил, включая силы инерции, равна нулю:

$$\delta A = \delta A_\sigma + \delta A_u + \delta A_f = 0 \quad (6)$$

здесь

$$\begin{aligned} \delta A_f &= - \sum_{n=1}^{S_2} \int_{v_n} \sigma_{ij} \delta \varepsilon_{ij} dV - \sum_{e=1}^{S_1} \Gamma_e \delta \Delta e \\ \delta A_u &= - \sum_{n=1}^{S_a} \int_{v_n} \rho_u \frac{\partial^2 \bar{u}}{\partial t^2} \delta u dV - \sum m_k \frac{d^2 u}{dt^2} \delta \bar{u}_k \\ &\quad - \sum_{k=1}^n I_k \frac{d^2 u}{dt^2} \delta \phi_k \\ \delta A_I &= - \sum_{n=1}^{S_2} \int_{v_n} \rho_n \bar{f} \delta \bar{u} dV + \sum_{n=1}^{S_1} \int_{v_n} \bar{f} \delta \bar{u} dV \\ &\quad + \sum_{n=1}^N F \delta \bar{u}_n + \sum_{k=1}^N m_k \delta \bar{\phi}_k \end{aligned}$$

$\delta \varepsilon_{ij}, \delta \nabla e$  - вариации деформаций распределенных и линейных сосредоточенных элементов;  $\rho_n$  - плотность материала  $n$ -го сосредоточенного элемента;  $m_k$  - масса  $k$ -го жесткого тела;





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$$U = U(u, \dot{u}), \quad V = V(v, \dot{v}), \quad W = W(w, \dot{w}),$$
$$\left( \dot{u} = \frac{\partial u}{\partial t}, \quad \dot{v} = \frac{\partial v}{\partial t}, \quad \dot{w} = \frac{\partial w}{\partial t} \right)$$

называются динамическими характеристиками амортизатора. При анализе динамики виброзащитных систем в положении статического равновесия принимаются:

$$U = V = W = 0, \quad \dot{U} = \dot{V} = \dot{W} = 0$$

Пусть часть поверхности тела совершает поступательное движение по заданному гармоническому закону, а на части поверхности заданы нагрузки, изменяющиеся во времени по заданному гармоническому закону.

Задачи виброзащитных объектов с машинным оборудованием во временной области, по существу, представляет собой динамический анализ отклика механической системы на действие ударных или вибрационных нагрузок. Естественно, что прежде, чем проводить такой анализ, необходимо определить входные нагрузки или перемещения, геометрические и физико-механические свойства оборудования, граничные условия. Имея такие данные, необходимо разрабатывать динамическую (математическую) модель, которая приближенно будет представлять реальные изделия и нагрузки. Как правило, динамическая модель будет только приближенно

отражать реальный объект, ибо точное его представление повлечет за собой непреодолимые математические трудности при решении. Форма импульсов и математическое выражение приведена ниже (рис.2 и рис.3).

Математическая модель полу синусоидального импульса

$$F(t) = A \sin \omega t \text{ при } 0 \leq t < \tau, \quad F(t) = 0 \text{ при } t \geq \tau;$$

Прямоугольного импульса

$$F(t) = A \text{ при } 0 \leq t < \tau, \quad F(t) = 0 \text{ при } t \geq \tau;$$

Треугольного импульса

$$F(t) = At/\tau \text{ при } 0 \leq t < \tau, \quad F(t) = 0 \text{ при } t \geq \tau.$$

Проставление ударных импульсов в виде простейших форм оправдано не всегда. К более точным результатам приводит представление ударного процесса в виде частотного спектра  $F(\omega)$ , полученного преобразования Фурье

$$F(\omega) = \int_{-\infty}^{\infty} F(t) e^{i\omega t} dt.$$

После удара в механической системе возникает НДС, которое может привести к допустимым значениям напряжений и деформаций. А при воздействии гармонических или вибрационных воздействий, в механической системе возникает резонанс.

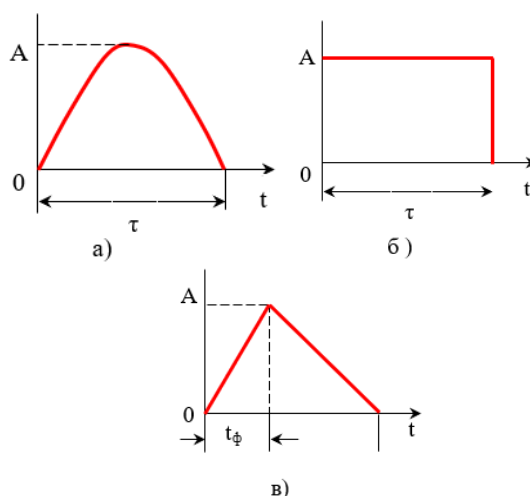


Рис.3. Форма ударных импульсов:

а- полу синусоидальная; б- прямоугольная; в- треугольная.

Можно указать три типа динамических моделей, пригодных для решения задач виброзащиты во временной области; модели с распределенными параметрами; модели с

сосредоточенными параметрами; смещенные модели.

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Рис.4. Структурная схем метода активной виброзащиты.

Основной целью диссертационной работы является применение разработанной методике решения и алгоритма для защиты объектов радиоэлектронной аппаратуры от вибрационных воздействий. Классификация виброизоляторов приведена на рис.4.

Проанализируем более подробно каждую из указанных выше моделей.

### Модели с распределенными параметрами.

Рассмотрим деформируемое тело (рис.5), на которое действуют внешние силы, распределенные по поверхности  $\{C\}$ , сосредоточенные силы  $\{F_i\}$ ,

моменты  $\{M_i\}$ , и объемные силы  $\{P\}$ . Здесь силы представлены в виде матриц-столбцов вида:  $\{C\} = \{C_x, C_y, C_z\}$  и т.д., где  $C_x, C_y, C_z$  - проекции внешних сил на оси абсолютной системы координат хуз. Тогда, используя уравнения механики твердого тела [1], можно сразу получить уравнения движения в виде:

$$\operatorname{div} \vec{T} + \vec{B} = \rho \frac{\partial^2 \vec{U}}{\partial t^2}. \quad (7)$$

$$T = \tilde{\lambda} \cdot \operatorname{div} \vec{U} \cdot \hat{E} + 2\tilde{\mu} \cdot \varepsilon$$

Здесь  $E$  - единичный тензор второго ранга;

$\tilde{\lambda}$  и  $\tilde{\mu}$  - операторные модули упругости:

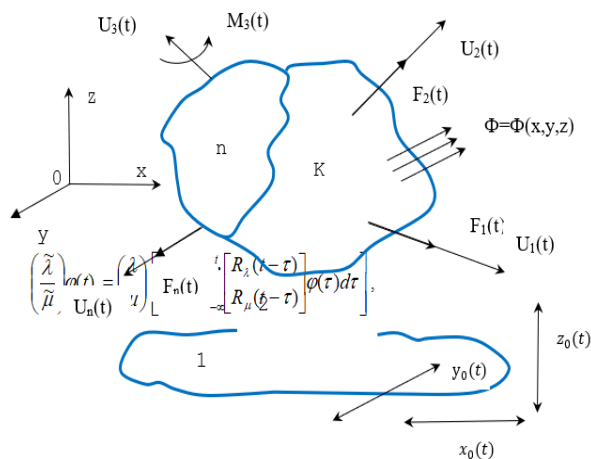


Рис.5. Расчетная схема

$\lambda$  и  $\mu$  - мгновенные модули упругости,  $\vec{B}$  - вектор плотности объемных сил.

### Модели с сосредоточенными параметрами.

Пусть механическая система состоит из  $N$  масс, соединенных между собой деформируемыми элементами (рис.6). Ограничимся рассмотрением таких колебаний, которые описываются линейными дифференциальными уравнениями. Для того, чтобы уравнения движения были

линейными, необходимо, чтобы отклонения системы от положения равновесия были достаточно малы (что обеспечивается малостью начальных возмущений).

Уравнения Лагранжа в этом случае имеют вид:

$$\frac{d^2}{dt^2} \left( \frac{\partial T}{\partial \dot{q}_j} \right) - \frac{\partial T}{\partial q_j} = \frac{\partial \Pi}{\partial q_j} + Q_j(t) \quad (j=1,2,3,\dots)$$

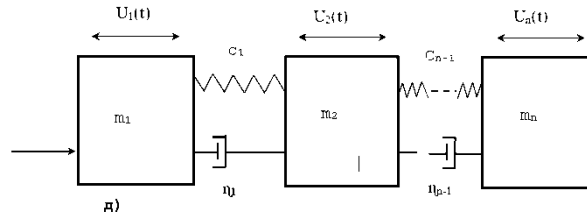
причем,

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$$Q_j(t) = \sum_{i=1}^s \vec{F}_i(t) \frac{\partial \vec{x}_i}{\partial q_j}, \quad (j = 1, 2, 3, \dots, n)$$

где  $n$ - число степеней свободы системы;  $s$ -число возмущающих сил  $\vec{F}_i(t)$ .



**Рис.6. Много массовая система.**

Подставляя в уравнения Лагранжа выражения кинетической и потенциальной энергий:

$$T = \frac{1}{2} \sum_{i=1}^n \sum_{j=1}^n a_{ij} \dot{q}_i \dot{q}_j,$$

$$\Pi = \frac{1}{2} \sum_{i=1}^n \sum_{j=1}^n a_{ij} q_i q_j,$$

получаем:

$$\begin{aligned} a_{11}\ddot{q}_1 + a_{12}\ddot{q}_2 + \dots + a_{1n}\ddot{q}_n + c_{11}q_1 + c_{12}q_2 + \dots + c_{1n}q_n &= Q_1(t) \\ a_{21}\ddot{q}_1 + a_{22}\ddot{q}_2 + \dots + a_{2n}\ddot{q}_n + c_{21}q_1 + c_{22}q_2 + \dots + c_{2n}q_n &= Q_2(t) \\ \dots & \dots \\ a_{n1}\ddot{q}_1 + a_{n2}\ddot{q}_2 + \dots + a_{nn}\ddot{q}_n + c_{n1}q_1 + c_{n2}q_2 + \dots + c_{nn}q_n &= Q_n(t) \end{aligned} \quad (8)$$

Уравнения (5) называются дифференциальными уравнениями вынужденных колебаний системы с конечным числом степеней свободы. В матричной форме эти уравнения имеют следующий вид:

$$[a]\{\ddot{q}\} + [c]\{\dot{q}\} = \{Q(t)\} \quad (9)$$

где  $C_{ij}\hat{\phi}(t) = C_{ij}[\phi(t) - \int_{-\infty}^t R_{ij}(t-\tau)\phi(\tau)d\tau]$   
 $R_{ij}(t-\tau)$  - ядро релаксации;  $\phi(\tau)$  - произвольная функция времени;  $\{q(t)\}$  - матрица обобщенных координат.

Для модели рис.5 матрицы уравнений (6) будут иметь вид:

$$[M] = \begin{bmatrix} m_1 & & & 0 \\ & m_2 & & \\ & & \dots & \\ 0 & & & m_n \end{bmatrix}, \quad \{Q\} = \begin{bmatrix} F_1(t) \\ 0 \\ \cdot \\ \cdot \\ 0 \end{bmatrix},$$

$$\{U(t)\} = \begin{bmatrix} U_1(t) \\ U_2(t) \\ \cdot \\ \cdot \\ U_n(t) \end{bmatrix},$$

$$[C] = \begin{bmatrix} \bar{C}_1 & \bar{C}_1 & 0 & 0 & \cdot & \cdot & \cdot & 0 \\ \bar{C}_1 & (-\bar{C}_1 - \bar{C}_2) & \bar{C}_2 & \bar{C}_2 & \cdot & \cdot & \cdot & 0 \\ 0 & \bar{C}_1 & -\bar{C}_1 & -\bar{C}_2 - \bar{C}_3 & \dots & & & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & 0 & \bar{C}_{n-1} & \cdot & \cdot & \cdot & -\bar{C}_n \end{bmatrix}$$

**Смешанные модели.** Смешанные модели, используемые для описания машиностроительного оборудования, обычно представляют собой сочетания элементов с распределенными параметрами и дискретных элементов. Основные расчетные схемы приведены на рис. 7.

Пусть механическая система состоит из деформируемых и недеформируемых (абсолютно жестких) элементов. Уравнения движения системы

могут быть получены с помощью вариационного принципа (1.2). Внешние нагрузки могут быть вибрационные или ударные. Если ударная нагрузка  $F(t)$  является гармонической функцией времени, тогда

$$F(t) = F_0 e^{i\omega t} = F_0 (\cos \omega t + i \cdot \sin \omega t) \quad (10)$$



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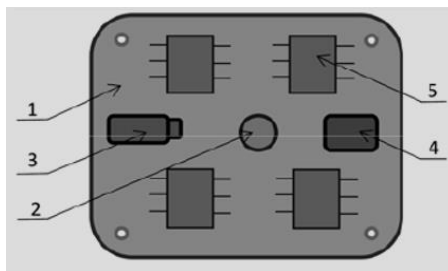


Рис. 7. Схема малогабаритной активной системы гашения вибраций: 1-печатная плата защищаемого устройства, 2-акселерометр, 3-генератор вибрации, 4-микропроцессор, 5-функциональные элементы защищаемого устройства.

В этом случае время  $t$  рассматривается в неограниченном отрезке  $-\infty < t < \infty$ . Качественное ударное воздействие (удар), приложенный к машинам и оборудованию, характеризуется кратковременностью, обычно вызывает колебательные процессы, происходящие как во время действия удара: первая - машина и оборудование рассматриваются как абсолютно жесткие тела (время действия удара очень мало), а ударное воздействие характеризуется импульсом [14,15], вторая - ударное воздействие

рассматривается как статическое (время действия удара велико). В дальнейшем мы назовем внешним ударным воздействием такое непериодическое возбуждение механической системы, кинематическое или силовое, время действия которого сравнимо, по крайней мере, с наименьшими периодами собственных колебаний системы и которая вызывает в ней значительное перемещение.

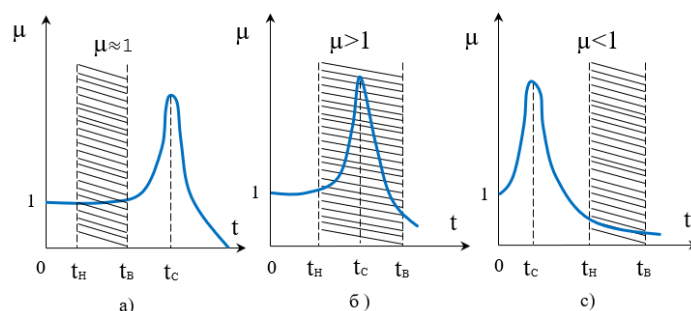


Рис.8. Методы виброзащиты: а- увеличение жесткости конструктивных элементов; б- использование конструктивных элементов с увеличенной степенью демпфирования; в- использование виброизоляторов.

Анализ поведения виброзащитной системы при ударе показывает, что имеет ряд параметров ударного воздействия, в наибольшей степени влияющих на движение виброизолированного объекта. К их числу относятся пиковое значение  $\sigma_0$ , длительность  $\tau$  и полный импульс  $S_0$  ударного воздействия  $\sigma(t)$ , представляющего при кинематическом возмущении закон изменения основания. Эти величины связаны соотношением

$$S_0 = \int_0^{\tau} \sigma(t) dt \quad (11)$$

Методы защиты электронных аппаратов от вибраций удобно представить, если использовать зависимость коэффициента динамичности  $\mu$  от частоты  $f$  (рис.8). Таким образом в статье. Проведен анализ работ, посвященных современным задачам резонансных колебаний диссипативных механических систем, состоящих

из систем твердых и деформируемых тел, применительно к виброизолируемым объектам.

### Заключения

Предложена общая вариационная математическая постановка задачи динамики диссипативно- однородных и неоднородных механических систем, состоящая из твердых и деформируемых тел. Связь между напряжениями и деформациями учитывается с помощью интеграла Больцмана - Вольтера. На основе метода Мюллера, Гаусса, интегральное преобразование Лапласа и Рунге Кута предложена методика решения и алгоритм задачи собственных и вынужденных колебаний диссипативных механических систем, состоящая из твердых и деформируемых тел.

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## References:

1. Amabili, M., & Pellicano, F. (2001). Nonlinear supersonic flutter of circular cylindrical shells. *AIAA Journal*, Vol. 39, No. 4, April 2001, pp. 564-572.
2. Baradokas, P.A., & Matsgolyavichus, D.A. (1971). Sintez mnogoslnoynoy plastinki s maksimalnim rasseyaniyem energii kolebaniy. *Lit. mekh., sb.*, № 2(9), pp.33-45.
3. Birgera, I.A. (1968). *Prochnost, ustoychivost, kolebaniya*, Spravochnik, t. Z, pod red., Moscow.
4. Bozhko, A. (1987). *Passivnaya i aktivnaya vibrozashchita sudovix mexanizmov* Sudostroyeniye, (p.176).
5. Bern, M., & Eppstein, D. (1992). *Mesh generation and optimal triangulation*. - Computing in Euclidean Geometry, edited by F. K. Hwang and D.-Z. Du, World Scientific.
6. Bozorov, M.B., Safarov, I.I., & Shokin, YU.I. (1966). *Chislennoe modelirovanie kolebaniy dissipativno odnorodnix i neodnorodnix mexanicheskix sistem*. (p.188). SO RAN, Novosibirsk.
7. Vlasov, B.Z., & Leontev, H.H. (1960). *Balki, pliti, obolochki na uprugom osnovanii*. (p.491). Moscow: FIZMATGIZ.
8. (1984). *Vibro zashita radioelektronnoy apparaturi polimernimi kompaundami* / Pod red. YU. V. Zeleneva. (p.129). Moscow: Radio i svyaz'.
9. (1978). *Vibratsii v texnike: Spravochnik: V 6 t.* Mocow: Mashinostroyeniye, 1978 - 1981.
10. Dembaremdiker, A.D. (1985). *Amortizatori transportnix mashin*. (p.199). Moscow: Mashinostroyeniye.
11. Dustmatov, O.M. (1997). Ob odnoy zadache dinamicheskogo gasitelya kolebaniy. *Uzbekskiy zhurnal «Problemy mekhaniki»*, №5, pp.55-59.
12. Zarutskiy, V. A., & Telalov, A. I. (1991). Dizayn xususiyatlariga ega bo'lgan yupqa devorli qobiqlarning tebranishlari. Eksperimental tadqiqotlarni ko'rib chiqish. *Amaliy mexanika*, T. 278, No 4, pp. 3 - 9.
13. Ilyinskiy, V.S. (1982). *Zashita REA i prestizonnogo oborudovaniya ot dinamicheskoy vozdeystvie*. (p.296). Moscow: Radio i svyaz.
14. Koltunov, M.A., Mayboroda, V.P., & Kravchuk, A.S. (1983). *Deformatsiyalanuvchi qattiq jismning amaliy mexanikasi*. (p.345). Moscow: Oliy maktab.
15. Kolovskiy, M.Z. (1966). *Vibratsiyadan himoya qilish tizimlarining noxizizqli nazariyasi*. (p.320). Moscow: Nauka.
16. Kulmuratov, N.R., Ishmamatov, M. R., Khalilov, Sh., & Akhmedov, N. (2021). Dynamic vibration extinguished on a viscously elastic base. *Int. J. of Applied Mechanics and Engineering*, vol.26, No.2, pp.1-10.

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**Amanbay Sarsenbayevich Arziyev**

Karakalpak State University  
Senior-teacher of the department “Architecture”  
of Architecture faculty

**Temur Tenelbayevich Sarsenbayev**

Karakalpak State University  
Assistant-teacher

**Rashid Rustemovich Mambetkarimov**

Karakalpak State University  
Student

## THE ROLE OF DESCRIPTIVE GEOMETRY IN KARAKALPAK EMBROIDERY

**Abstract:** This article focuses on the rich historical heritage of the Karakalpak people, the types of national patterns, ways to create patterns, decorate national costumes and items with embroidery, aimed at strengthening the abilities, consciousness and thinking of students.

**Key words:** Art, pattern, ornament, embroidery, jewelry, composition, geometric figure.

**Language:** English

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### Introduction

The art of embroidery is one of the brightest and most original manifestations of the artistic culture of the Karakalpak people. The types of products with embroidery, the nature of ornamentation, color and compositional solutions are diverse. Among other types of Karakalpak decorative and applied art, artistic embroidery stands out as the richest in terms of types, techniques of execution, variety of color and ornamental construction.

The Karakalpak region is very rich in historical and cultural monuments. Of these, such arts as embroidery, weaving, drawing, carving, jewelry are considered the golden fund of the culture of our people. Today we will look at the art of embroidery [3,p.47-60].

### Main part

The art of embroidery is a national heritage passed down to us from ancient times by our

ancestors. Bright colors on the patterns of embroidery products, their high harmony and weaving technique make people stop looking at themselves. In ancient times, when men were engaged in cattle breeding and agriculture, women were engaged in embroidery and weaving. Patterns in Karakalpak embroidery are divided into 3 types. These are plant, animal and geometric patterns. The embroidery of these patterns uses four primary colors. These are red, green, yellow and white. There are many types of patterns: earrings, ram's horns, scorpion, ant's waist, camel's foot, camomile and others. Each type of pattern has its own beauty and meaning. The technique and types of embroidery also differ from each other. For example, chain embroidery, chain embroidery, mouse trail, scissors and others [1,p.15-30].

One of the characteristic features of the Karakalpak folk embroidery is that different motifs of the pattern are used to decorate different types and purposes of clothes and household items. In the

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pattern "Кызыл киймешек", "Женгсе", "Женгуш" the richest in motifs of the ornament, plant and zoomorphic motifs predominate, in embroideries "Ак женге", "Кок койлек", "Ак кимешек" geometric figures are preferred. (Pic.1) To some extent, this is due to the material and technique of execution. Cross-

stitching on a homespun boz enables craftswomen to strictly observe the symmetry and clarity of the contours of ornamental figures. In embroideries on cloth, plant or zoomorphic motifs are arranged more freely, the lines and contours of figures often more accurately convey natural forms [8,p.20].



Pic.1. Sleeve protectors and Qizil kiymeshek

Before embroidering each pattern, its drawing is first applied. The drawings are a drawing-document that provides the true appearance of each item. When performing a drawing, it is imperative to have the appropriate knowledge. That is, it is correct to take measurements of parts or elements and place them correctly. The smallest mistake leads to loss of

product quality. Therefore, descriptive geometry has an important role in the art of embroidery. Because the subject of descriptive geometry increases a person's ability to think and think. Ancient people tried to express their feelings with the help of drawings of various drawings on the walls of caves and mountain rocks [5,p.12].



Pic.2. Festive costume

This painting depicts a Karakalpak girl before marriage. (Pic.2) As you can see, both samples of national embroidery and samples of Gobilien were used in this picture. When performing this work, the picture was first printed on a 60x80 banner. Next, the surface of the banner was drawn and divided in vertical and horizontal form by 10 cm. After that, cubes appeared on the drawing. The area of the cubes is also divided by 1 mm.

After preparing the drawings, the "Canve" material intended for cross-stitching is also divided into cubes in the same way, and the embroidery of the pattern on the material begins. First, all drawings are embroidered with a cross according to the colors of

the cells on the banner, that is, they act as a background. National patterns are embroidered on them. After completing all the embroidery processes, the material is decorated with various beads, beads, decorative stones. In the creation of this composition, Mouline threads and threads intended for crocheting are widely used. As you can see, we use not only red, but 3-4 shades of red. Since the place illuminated in the composition can be a part of the picture remaining in the shade. In embroidering this composition, the following types of embroidery are used.

For reference: this composition was worked on for 4 months. Excluding patterns and decorations on



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the surface, 7,680,000 cells (crosses) were embroidered [6,p.7-16].

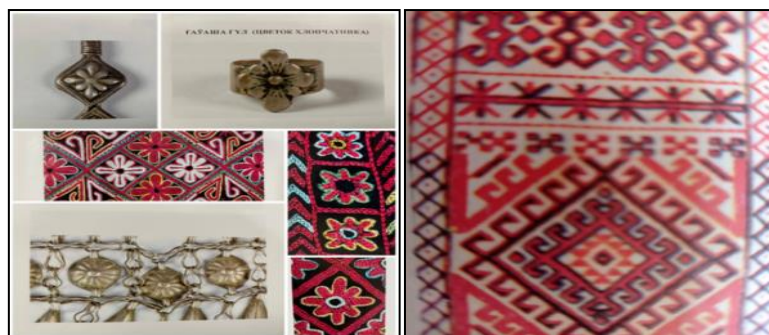
Most of the ornamental motifs of the Karakalpak folk embroidery are associated with the animal world. The main motif is «Muyiz» - ram's horns. Known to the art of the peoples of Central Asia and Kazakhstan. It was a symbol of the most ancient pastoral tribes of these regions. "Muyiz," writes L.I. Rempel, "is a symbol of the productive activity of a pastoralist and, even more broadly, an image, a concept of almost universal significance. Various representations were associated with him at different times [10,p.18-26].

The motifs of the horns are quite varied. Some of them retained real outlines, while most of them were subordinated to ornamental artistic tasks and took on graphic, schematic forms, and only according to folk

tradition can be attributed to the "Muyiz" ornament [13,p.21-27].

Ornaments of a geometric nature are accepted in all types of Karakalpak embroidery (Pic. 3.) Rhombuses, cross-shaped figures, rectangles, straight lines, zigzags, dotted lines have specific names associated with natural phenomena, animals, or denote abstract concepts.

Geometric figures in the form of triangles, rows of rectangles with curls at the corners are called "Калта гуль" (pattern-pocket) or "Шахмахы" (flint). Now it is no longer possible to establish exactly whether this or that ornamental figure is a symbol of an object (pocket, flint), or whether these names were assigned later on by similarity, by association.



Pic. 3. Karakalpak`s embroideries

Speaking about the peculiarities of the interpretation of the ornament in the Karakalpak embroidery, first of all, it is necessary to note the active role of color. Color not only introduces rhythmic alternation into the composition of uniform patterns, but often creates an ornamental figure, makes it possible to "variate interpretations" of the same motifs [7,p.31].

In the process of interaction, the art of each nation made, obviously, a certain selection of motives, in accordance with traditional artistic tastes, and sometimes subjected them to significant processing. Thus, individual "alien" elements "fit" into folk art, enriching its technical capabilities with ornamental motifs, methods of compositional construction and color scheme. With regard to the Karakalpak folk ornamental art, this issue was raised in the above-mentioned works by T.A. Zhdanko and L.I. Rempel. In connection with the study of the art of Karakalpak woodcarving, I.V.Savitsky touches on it in his work. The author also gives a table of ornaments common to Karakalpak woodcarving, embroidery and weaving, which we present in this work in fig. XXII with some addition. Various types of Karakalpak folk arts and crafts have their own artistic features, at the same time they constitute a single complex of artistic creativity, which has absorbed the world of ornamental and color

images, closely related to the aesthetic and ideological ideas of the people [14,p.34].

### Conclusion

The given comparative data allow us to conclude that, along with some commonality (which may be based on genetic and cultural ties), Karakalpak folk embroidery has a deep and vivid artistic identity. The abundance of ornamental motifs, the variety of techniques for constructing patterns and the richness of color combinations would not have been possible without the long-established artistic tradition. At present, it is difficult to trace the origins of some ornaments, their compositional and color combinations. However, it can be stated with certainty that the formation of the artistic style of the Karakalpak folk laying art in general and the art of embroidery in particular goes back to ancient times. At the same time, throughout all stages of the development of Karakalpak art, ethnic, economic and cultural ties with the peoples of Central Asia, Kazakhstan, the Volga region, the Urals, Siberia, and the North Caucasus played a certain role.

The French scientist and statesman Gospar Monge said: "Drawing an understandable language for all nations involved in technology in the world, that is, the language of technicians." We can see this

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idea in the modern art of embroidery. Since, these types of embroidery are very familiar to all peoples. They change only on the basis of the emergence, tradition and way of life of each nation.

#### References:

1. Glinskaya, E. (1994). «*Azbuka vishivaniya*». (p.15, 30). Tashkent:«Mehnat».
2. (2000). *Photo album «Miyras»*. Nukus: «Qaraqalpaqstan».
3. Allamuratov, A. (1977). «*Karakalpakskaya narodnaya vshivka*». Nukus.
4. Savitsky, I.V. (1965). «*Rez'ba po derevu*». Tashkent.
5. Laszlo, M., & Kuzeev, R. (1962). *Objects of folk art in the Bashkir collection of the Hungarian Ethnographic Museum*. «Arheologiya i etnografiya Bashkiriya». Ufa.
6. Rakhmanov, I. (2014). «*Chercheniye dlya 8ih klassov*». Tashkent: «Ukutuvchi»,.
7. Kagan, M.S. (1961). «*O prikladnom iskusstve*». Leningrad.
8. Kamalov, S. (1969). *Karakalpaki v XVIII - XIX vekax*. Tashkent.
9. Notkin, I.I. (1967). *Iskusstvo drevnih*. Tashkent.
10. Nurmammedov, N.B. (1979). *Iskusstvo Kazakhstana*. Moskva: «Iskusstvo».
11. Muhtarov, A. (1968). *Rez'ba po derive v doline Zarafshana*. Moskva.
12. (1964). *Ocherki istoriy Karakalpakskoy ASSR*. Tashkent.
13. Jdanko, T.A. (1960). *Ocherki istoricheskoy etnografii karakalpakov*. Moskva.
14. (1958). *Narodnoye dekorativnoye iskusstvo Sovetskogo Uzbekistana*. Tashkent.
15. (1968). *Narodnoye dekorativno-prikladnoye iskusstvo kirgizov*. Moscow.

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**Daniil Sergeevich Shcherbakov**

Institute of Service and Entrepreneurship (branch) DSTU  
bachelor

**Artyom Alexandrovich Tikhonov**

Institute of Service and Entrepreneurship (branch) DSTU  
bachelor

**Vladimir Timofeevich Prokhorov**

Institute of Service and Entrepreneurship (branch) DSTU  
Doctor of Technical Sciences, Professor  
Shakhty, Russia

**Galina Yurievna Volkova**

LLC TsPOSN «Orthomoda»  
Doctor of Economics, Professor  
Moscow, Russia

## DEVELOPMENT OF RECOMMENDATIONS FOR QUALITY ASSURANCE AND CERTIFICATION OF FOOTWEAR FOR A NEWLY DEVELOPED PRODUCT RANGE

**Abstract:** *in the article, the authors investigated the need to improve the quality management system at light industry enterprises is due to the following important reasons. Firstly, it is an increase in the confidence of potential consumers in the products manufactured by this enterprise. Secondly, this is an opportunity to significantly strengthen its position in existing markets, as well as significantly expand the spheres of influence by entering new domestic and foreign markets. And thirdly, this is a significant increase in labor productivity of any industrial enterprise, which is supposed to introduce QMS with the use of effective management. In the article, the authors analyze the possibilities of the policy and the goals of the enterprise in the field of quality within the framework of the quality management system (QMS).*

**Key words:** *quality, import substitution, demand, competitiveness, market, profit, demand, buyer, manufacturer, financial stability, sustainable TPP, attractiveness, assortment, assortment policy, demand, implementation paradigm, economic policy, economic analysis, team, success.*

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### Introduction

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As noted earlier, TOP is able to survive due to the fact that it will focus on its consumer, trying to please his requirements, i.e., increasing the range of

footwear produced, the variety of materials used, colors, the use of new technologies in production, using domestic raw materials, thereby reducing the selling price, but first of all, the buyer is worried about the quality of the purchased product, no one wants to purchase a product that after a short amount of time

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cannot be used for its intended purpose. In a saturated market and prevailing non-price competition, it is the high quality of products that is the main factor of success.

The quality of manufactured goods is the most important criterion for the activities of any enterprise. Moreover, this product is footwear that must meet the requirements of technical regulations, i.e. must be safe, hygienic, ensure the normal functioning of the foot in terms of sweating of the foot, and the appropriate weight, which does not require unnecessary expenditure of energy when moving. So, shoes are designed to protect the legs, and, consequently, the entire human body from harmful external influences. Quality improvement determines the degree of the firm's survival in market conditions, the rate of scientific and technological progress, the economy of all types of resources used in the enterprise, and the overall increase in production efficiency.

Enterprises that have made significant progress in improving the quality of their products have a real opportunity to:

- to increase the share of the occupied sales market;
- to increase the selling price for products and, accordingly, the profit of the enterprise;
- conduct a more effective advertising campaign for products and the enterprise as a whole;
- to strengthen the confidence of business partners in the implementation of mutual supplies;
- increase the level of competitiveness of products and strengthen the business image of the enterprise.

- Enterprises that are going to unite in a shoe cluster should seriously approach the issue of quality management of their products and the management mechanism.

- Footwear quality management refers to the actions taken during its creation, use or consumption in order to establish, ensure and maintain the required level of its quality.

- The main functions of managing the quality of shoes in a cluster should include, first of all, such functions as:

- forecasting market needs, technical level and quality of footwear;
- planning to improve the quality of footwear;
- rationing of requirements for the quality of footwear and standardization;
- development and production of footwear;
- technological preparation of production;
- organization of relations in terms of product quality between suppliers of raw materials, materials, semi-finished products and components, manufacturers and consumers of footwear;
- ensuring stability and the planned level of quality of footwear at all stages of its life cycle;

- quality control and testing of footwear;
- prevention of defects in production;
- in-house certification of products, technological processes, workplaces, performers, etc.;
- certification of products, works, services, quality systems and production;
- stimulation and responsibility for the achieved level of quality;
- in-house accounting and reporting on the quality of footwear;
- technical and economic analysis of changes in the quality of footwear;
- provision of footwear quality management (legal, informational, material, material and technical, metrological, organizational, technological, financial);
- special training and professional development of personnel.

- The direct objects of management in the shoe cluster will be indicators and characteristics of the quality of shoes, factors and conditions affecting its level, as well as the processes of forming the quality of shoes at different stages of its life cycle.

- The subjects of management will be various management bodies and individuals operating at various hierarchical levels and implementing quality management functions in accordance with generally accepted principles and methods of management.

- It should be noted that the mechanism for managing the quality of footwear is a set of interrelated objects and subjects of management, the principles, methods and functions of management used at various stages of its life cycle and levels of quality management.

- The mechanism for managing the quality of shoes in a cluster should include the following subsystems:

- forecasting and planning the technical level and quality of footwear;
- regulating the quality of footwear directly in production;
- quality control of footwear;
- accounting and analysis of changes in the quality level;
- incentives and responsibility for quality.

- The structure of special subsystems of the mechanism for managing the quality of footwear in a cluster should also include the following subsystems:

- standardization;
- shoe tests;
- prevention of defects in production;
- certification;
- certification.

- And the last subsystem of the mechanism for managing the quality of footwear in the cluster should be providing, which would include the following subsystems:

- legal support;

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- information support;
- material and technical support;
- metrological support;
- staffing;
- organizational support;
- technological support;
- financial security.
- Therefore, it is necessary to create a center in the shoe cluster, which would include all these subsystems, and assume the responsibility of performing the above functions. Namely, it is necessary that the center must have a standardization and certification department. The need to create such a center is also due to the fact that only mandatory certification applies to footwear.

- It would be rational to create such a center, which could apply for services not only to enterprises belonging to the shoe cluster, but also to other organizations, whether or not related to the production of footwear. On the example of creating a cluster, taking into account the situations that have developed at shoe enterprises, it is recommended to include a quality management department in this center. Who would coordinate all the actions of the technical control departments at enterprises, collect information about the activities carried out, analyze and propose quality improvement tactics specifically for each enterprise.

- This means that the following departments should operate in the center: the department of standardization, certification and quality management.

- The department for standardization and certification will have to assume such responsibilities as:

- introduction (storage and updating) of the stock of normative and technical documentation of the shoe cluster;
- development of standards of organizations for manufactured footwear;
- examination and approval of draft regulatory and technical documents received by the enterprise from outside;

- issuance of certificates;
- registration of declarations of conformity of manufactured shoes.

- In general, the activities of the center should be aimed at confirming compliance with the requirements of technical regulations and national standards and the provision of services such as the preparation of the following documents:

- certificate of conformity GOST R;
- registration of the declaration of conformity;
- exemption letters for customs or for sale;
- development, approval and registration of standards of organizations.

- Consequently, the inclusion of this center consists in maintaining shoe production at the highest level, managing the quality of products of enterprises in the shoe cluster, promoting the creation, implementation and certification of a quality management system and production for compliance with the requirements of ISO 9001: 2015. Confirmation of conformity is a procedure that results in is documentary evidence that the product meets the established standards.

It can be mandatory or voluntary. Mandatory confirmation of conformity is carried out in two forms: acceptance of a declaration of conformity and mandatory certification.

Mandatory certification applies to products and services related to ensuring the safety of the environment, life, health and safety of people's property, i.e., potentially dangerous products and services.

Requirements for products (goods, services, processes) are contained in technical regulations and must be met by all manufacturers in the domestic market and importers when imported into Russia.

Footwear is subject to mandatory confirmation of conformity in the form of mandatory certification and declaration of conformity. Forms of conformity confirmation are shown in Table 1.

**Table 1. Forms of confirmation of conformity of shoes**

Declaration of conformity of shoes	Shoe certification
Carried out by the manufacturer (supplier, executor)	Conducted by a certification body for products (services)
Conformity document - declaration of conformity	Document certifying conformity - certificate of conformity
Consumer information: - information about the registered declaration for shoes or in the accompanying documentation; - marking with a conformity mark	Consumer information: - a copy of the certificate of conformity; - information about the certificate of conformity in the accompanying documentation; - marking with the conformity mark with the code of the certification body



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Declaration of Conformity is a procedure by which the supplier (first party) documents that the product complies with the specified requirements. At the same time, the supplier certifies the quality parameters with a declaration of conformity using the appropriate means of control, product testing with the involvement of a third party.

The declaration of conformity is legally binding along with the certificate of conformity.

The names and designations (codes) of objects subject to mandatory certification are established accordingly nomenclatures and lists.

So, in accordance with the order of the Federal Agency for Technical Regulation and Metrology of 18.12.2007, No. 3589 s 01 January 2008 year...the attached amendments were introduced into the "Nomenclature of products for which mandatory certification is provided by the legislative acts of the Russian Federation", and in the "Nomenclature of products subject to declaration of conformity", in accordance with which footwear subject to mandatory certification is given in Table 2, and the declaration of conformity is given in table 3.

**Table 2. Shoes subject to mandatory certification**

Shoe name	Shoe position code according to OK 005-93 (OKP)	Designation of the normative document	Verifiable Requirements of the Governing Normative Document
1	2	3	4
Children's footwear (except for sports, national, orthopedic)	880,000	GOST 26165-2003	Pp. 3.4, 3.6, 4.3, 4.4.2, 4.5, 4.6, 4.7, 4.8
Home and travel footwear for children	880,000	GOST 1135-2005	Pp. 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.5.1
Casual shoes made of synthetic and artificial leather (except for army)	880,000	GOST 26166-84	Section 2.10
Casual footwear (made of leather and combined with textile materials)	880,000	GOST 26167-2005	A.2.11
Special leather footwear for protection from general industrial pollution	880,000	GOST R 12.4.187-97	Pp. 4.3.1-4.3.10, 4.4.1, 4.4.2, 4.5.1
Children's shoes from Russian	881000	GOST 5394-89	Pp. 2.2.3, 2.2.4, 2.2.5
Special leather footwear for protection from high temperatures (except for firefighters shoes)	881160 881260	GOST 12.4.032-77	Clauses 2.7, 2.8, 2.10, 2.11, 2.13
Special leather footwear for protection against mechanical stress	884160 884260	GOST 28507-90	Pp. 2.3, 2.7.3-2.7.9
		GOST 12.4.024-76	Pp. 1.3, 1.4.2, 1.6, 1.12-1.14
Special vibration-resistant footwear	884160 884260	GOST 12.4.024-76	Pp. 1.3, 1.4.2, 1.6, 1.12-1.14
Special leather footwear for protection against oil, oil products, acids, alkalis, non-toxic and explosive dust	886260 882260 886160 882160	GOST 12.4.137-84	R. 2.4, 2.14-2.24, 2.26-2.27
Special footwear for protection against slipping on greasy surfaces	882160 886160 882260 886260	GOST 12.4.033-77	Pp. 2.4, 2.5, 2.7, 2.8, 2.10

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**Table 3. Shoes subject to declaration of conformity**

Shoe name	Shoe position code according to OK 005-93 (OKP)	Designation of the normative document	Verifiable Requirements of the Governing Normative Document
1	2	3	4
Model shoes	880020	GOST 19116-2005	P.4.5.3
Casual shoes made of leather, textiles and combined shoes made of leather with textile materials (except for special and children's)	882110 882210 887110 887210 888110 888210	GOST 26167-2005	P.4.5.3
Household and travel footwear (except for children)	880040 882140 882150 882240 882250 883150 883240 883250 885140 885150 885240 885250 888140 888150 888240 888250	GOST 1135-2005	P.4.4.3
Shoes with textile upper with rubber molded tops and soles	259000	GOST 14037-79	Clauses 1.2, 2.6 (regarding the abrasion of rubber soles), 2.8
Sports footwear, rubber and rubber-textile	259600	GOST 9155-88	Subclauses 1.2.3, 1.2.4, 1.3.4 (regarding the abrasion of the rubber of the sole and the strength of the bond between the liner and the textile upper)
Children's shoes felted coarse-woolen	816710	GOST 18724-88	Pp. 1.2.4 (in terms of the mass fraction of free sulfuric acid)
Leather footwear (except for special, children's)	881000 881200	GOST 5394-89	Pp. 2.2.3

The procedures, rules, tests and other activities that can be considered as part of the certification process (activity) itself may vary depending on a number of factors. Among them - legislation concerning standardization, quality and certification itself; features of the certification object, which in turn determines the choice of the test method, etc. In other words, the proof of conformity is carried out according to one or another certification system. According to the ISO / IEC document, it is a system

that carries out certification according to its own rules regarding both procedure and management.

Carrying out work on certification of footwear is carried out in accordance with section 4 "[Of the Rules](#) for certification of textile and light industry products ", approved by the Resolution of the State Standard of Russia dated February 6, 2001 No. 13, includes the following procedures:

- filing an application for certification;
- consideration and decision-making on the application;

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– selection of footwear samples for certification purposes is carried out in accordance with the requirements of GOST 9289-78. "Shoes. Acceptance rules", but not less than 3 pairs from each sex and age group;

– selection, identification of samples (identification of footwear includes characteristics of the product by name, type, gender and age, materials used on the upper and lower parts of shoes, methods of fastening parts, seasonality, including the presence and characteristics of insulating lining, finishing) and their testing;

– production verification (if provided by the certification scheme). Mandatory certification of footwear is carried out according to schemes 1, 1a, 2, 2a, 3, 3a, 4, 4a, 5, 6, 7, 9, 9a, 10, 10a. When certifying footwear for children, it is not recommended to use schemes 9, 9a, 10 and 10a;

– issuance of a certificate of conformity;

– inspection control of certified products in accordance with the certification scheme.

The list of indicators used in the mandatory certification of footwear, regulatory documents establishing indicators and methods of their testing are given in table 4.

**Table 4. The list of indicators confirmed during the obligatory certification of footwear**

Name of production	OKP code	Characteristics, (indicators) of products, confirmed during certification	Regulations	
			Defining indicators	Establish methods for their determination.
1	2	3	4	5
Children's footwear (except for sports, national and orthopedic)	880,000 881000	Compliance of the materials used and the design features of the footwear with the requirements of the Ministry of Health of Russia	GOST 26165-2003 GOST 1135-2005 GOST 5394-89	SanPiN 2.4.7./1.1.1286-03
		General and permanent deformation of the toe cap and heel of the shoe (not determined for leather footwear)		GOST 9135-73
		Flexibility of the shoe		GOST 9718-88
		Weight of shoes (determined for all age and gender groups except for shoes for schoolchildren, girls and boys)		GOST 28735-2005
		Strength of fastening of parts of the bottom of the shoe		GOST 9134-78 GOST 9292-82
	885140 885150 885250 888140 888150 888240 888250	Flexibility (only for leather shoes)		GOST 9718-88
		Product type; Age and sex affiliation; Materials used on the top and bottom parts		Visually
		Bottom fastening methods; Seasonality, including the presence and characteristics of the insulating lining, finishing		
Shoes with textile upper with rubber molded tops and soles	259000	Shoe thickness; Relative extension;	GOST14037-79	GOST14037-79

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		Relative permanent deformation after rupture;		
		Product type; Gender and age The materials used for the details of the bottom and top; Bottom fastening methods; Seasonality, including the presence and characteristics of the insulating lining, finishing		Visually
Sports footwear, rubber and rubber-textile	259600	Shoe thickness; Conditional strength	GOST9155-88	GOST9155-88
		Relative extension; Product type; Gender and age The materials used for the details of the bottom and top; Bottom fastening methods;		
		Seasonality, including the presence and characteristics of the insulating lining, finishing		Visually
Special footwear for protection against mechanical stress	884160	The presence of the necessary protective structural elements Linear dimensions Strength of workpieces seams Strength of fastening of parts of the bottom	GOST 12.4.072-79	GOST 12.4.072-79
	884260		GOST 28507-90	GOST 28507-90
	259311		GOST 12.4.072-79	GOST 9133-78
	259312		GOST 28507-90	GOST 164-90 GOST 427-75 GOST 7502-89 GOST 11385-89
			GOST 12.4.072-79	GOST 9290-76 GOST 9134-78 GOST 9290-76
			GOST 28507-90	GOST 9134-78 GOST 9292-82
		Strength of fastening of heels	GOST 28507-90	GOST 9136-72
		Impact resistance of shoes with protective toe caps	GOST 12.4.024-76	GOST 12.4.151-85
		General and permanent deformation of the toe and heel	GOST 28507-90	GOST 9135-73
		Decrease in strength indicators from exposure to machine oil	GOST 12.4.024-76	GOST 9.030-74
		Flexibility	GOST 28507-90	GOST 9718-88 GOST 12.4.024-76
		Water resistance	GOST 12.4.024-76	GOST 12.4.072-79
		Water resistance	GOST 12.4.024-76	GOST 26362-84
		Fastening strength of outer protective socks; Conditional strength	GOST 12.4.072-79	GOST 12.4.106-81 GOST 270-75
		Relative extension	GOST 12.4.072-79	GOST 270-75

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		Relative permanent deformation after rupture	GOST 12.4.072-79	GOST 270-75
		Internal safety clearance in the forefoot	GOST 12.4.072-79	GOST 12.4.072-79
		Abrasion	GOST 12.4.072-79	GOST 426-77
		Shock-proof toe cap length	GOST 12.4.072-79	GOST 12.4.072-79
		Weight	GOST 12.4.072-79 GOST 28507-90	GOST 23676-79
		Marking	GOST 12.4.072-79 GOST 28507-90	GOST 12.4.103-83
Special footwear for protection against oil, oil products, acids, alkalis, non-toxic and explosive dust	259311 259312 259530 886260 882260	Availability of necessary protective structural elements	GOST 12.4.137-84 GOST 12265-78 GOST 12.4.072-79	GOST 12.4.137-84 GOST 12265-78 GOST 12.4.072-79
		Linear dimensions	GOST 12.4.137-84	
			GOST 12265-78 GOST 12.4.072-79	GOST 9133-78 GOST 164-90 GOST 7502-89 GOST 11358-89 GOST 427-75
		Strength of workpieces seams	GOST 12.4.137-84	GOST 9290-78
		Strength of fastening of parts of the bottom with the top	GOST 12.4.137-84	GOST 9292-82 GOST 9134-78
		Strength of fastening of heels	GOST 12.4.137-84	GOST 9136-72
		General and permanent deformation of the toe and heel	GOST 12.4.137-84	GOST 9135-73
		Factor of reduction of fastening strength from exposure to aggressive media	GOST 12.4.137-84	GOST 12.4.165-85
		Flexibility	GOST 12.4.137-84	GOST 9718-88
		Conditional strength	GOST 12.4.137-84	GOST 270-75
		Relative extension	GOST 12265-78	GOST 269-66 GOST 270-75
			GOST12.4.072-79	
		Permanent deformation after the break	GOST 12265-78 GOST12.4.072-79	GOST 269-66 GOST 270-75
		Abrasion	GOST 12265-78 GOST12.4.072-79	GOST 426-77
		Waterproofness	GOST 12265-78	GOST 12265-78
		Change in sample volume after exposure to a mixture of	GOST 12265-78 GOST 12.4.072-79	GOST 9.030-74



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		reference isooctane and toluene		
		The size of the internal safety gap in the toe of the boots with shockproof toecaps;	GOST 12.4.072-79	GOST 12.4.072-79
		Weight	GOST 12265-78 GOST 12.4.072-79 GOST 12.4.137-84	GOST 24104-80 GOST 23676-79 GOST 16993-71
		Marking	GOST 12265-78 GOST 12.4.072-79 GOST 12.4.137-84	GOST 12.4.103.-83
Special footwear for protection from high temperatures	881160 881260	Availability of necessary protective structural elements	GOST 12.4.032-77	GOST 12.4.032-77
		Linear dimensions		GOST 9133-78
		Determination of the strength of the seams of workpieces		GOST 9290-76
		Determination of the fastening strength of the bottom parts;		GOST 9134-78 GOST 9292-82
		Determination of the deformation of the toe and heel		GOST 9135-73
		Coefficient of reduction of strength of fastening of parts of the bottom from high temperatures		GOST 12.4.138-84
		Flexibility		GOST 9718-67
		Impact resistance of protective socks		GOST 12.4.151-85
		Weight		GOST 24104-80
		Marking		GOST 12.4.103-83
Special footwear for vibration protection	884160	Availability of necessary protective structural elements	GOST 12.4.024-76	GOST 12.4.024-76
		Linear dimensions		RD 17-06-036-90
		Bottom attachment strength		GOST 9134-78 GOST 9292-82
		Strength of fastening of heels		GOST 9136-72
		Transmission ratio		GOST 12.4.024-76
		Flexibility		GOST 422-75
		Weight		GOST 12.4.024-76
		Marking		GOST 12.4.024-76
Special footwear for protection against slipping on greasy surfaces	882160 886160	Strength of workpieces seams	GOST 12.4.033-77	GOST 9290-76
		The strength of the fastening of the bottom parts;		GOST 9134-78 GOST 9292-82
		Strength of fastening of heels;		GOST 9136-72
		Deformation of the toe and heel;		GOST 9135-73

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		Flexibility;		GOST 9718-88
		Linear dimensions and weight;		RD 17-06-036-90
		Marking		GOST 12.4.103-83

The numerical values of quality indicators obtained as a result of shoe tests should not go beyond the standard values specified in GOST 21463-87

“Shoes. Strength standards”. The strength of the thread fasteners of the parts of the shoe blank must comply with the standards specified in table 5.

**Table 5. Strength standards of thread fastenings for parts of the blank of footwear**

The name of the fastened materials of the outer parts of the upper of the shoe	Breaking load for each sample, N / cm, not less			Test Method
	With one line	With two lines	For lines more than two	
1	2	3	4	5
1. calves, outgrowth, half-cutter, goby, cowhide, bovine, pigskin, bull, horse front, textiles in combination with leather, textiles	90	115	145	According to GOST 9290-76
2. chevro, chevret, velor, suede, split leather, goat leather	75	85	95	According to GOST 9290-76
3. artificial, synthetic leather; artificial, synthetic leather in combination with leather	80	90	100	According to GOST 9290-76
4. leather: Shaft with front Outside rear strap, seam with bootleg; Back outer strap with upper Vamp with ankle	- - -	165 135 175	175 - 175	According to GOST 9290-76

The strength of the attachment of the sole with the blank of the upper in the shoe with chemical methods of attachment must comply with the standards specified in table 6.

**Table 6. Standards for the strength of fastening the sole with the preparation of the upper in the shoe of chemical fastening methods**

Outsole material	Tol- the thickness of the sole you are minimal, mm	The strength of the sole on 1 cm the width of the tightening edge; N / cm, not less, for the original size of a half pair of shoes								Me- tod use- py- tany
		husband	wives	Boy- chico- waya	De- vi- whose	School for boys and girls	Preschool		Gu- sa- ri- ko- waya	
							2 sub- group	1 sub- group		
1	2	3	4	5	6	7	8	9	10	11
1. leather for the bottom of the shoe	2.0-2.5 3.0 3.5 4.1	36 37 39 42	34 35 37 39	34 35 37 39	28 29 30 32	26 27 29 31	25 26 28 30	24 25 27 29	23 24 25 27	GOST 9292-82
2. skin fiber	2.0-2.5 3.0 3.6 4.2	47 48 49 53	45 46 47 51	45 46 47 51	31 32 34 36	30 31 32 34	- - - -	- - - -	- - - -	GOST 9292-82

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3. rubber non-porous, rubber "styronil" and "transporter"	2.0-2.5	45	42	42	28	27	26	25	-	GOST 9292-82
	3.0	46	43	43	30	28	27	26	-	
	4.0	48	45	45	33	30	29	28	-	
	5.0	53	50	50	38	35	34	32	-	
4.porous rubber, polyvinylchloride Porous rubber, polyvinyl chloride	4.0-4.5	44	42	42	31	30	28	27	26	GOST 9292-82
	5.0	45	43	43	32	31	29	28	27	
	5.5	47	44	44	34	32	30	29	28	
	6.0	48	46	46	36	34	32	31	-	
	8.0	58	53	53	39	38	37	36	-	
	10.0	68	63	63	50	47	45	42	-	
	12.0	86	76	76	61	56	55	52	-	
14.0	94	91	91	71	67	61	62	-		
15.0	109	108	108	82	75	74	71	-		
5.polyurethane, thermoplastic elastomer	5.0	44	43	43	33	32	28	27	-	GOST 9292-82
	6.0	47	46	46	38	36	32	31	-	
	8.0	58	53	53	43	42	37	35	-	
	10.0	69	63	63	53	51	43	41	-	
	12.0	84	75	75	60	59	53	51	-	
	15.0	109	108	108	83	79	75	74	-	

The strength of fastening parts of the bottom in shoes of thread and combined fastening methods must comply with the standards specified in table 7.

**Table 7. Strength standards for fastening bottom parts in shoes with thread and combined fastening methods**

Name of the fastened parts	The name of the bonded materials	Fastening method	Seam fastening strength per 1 cm of each sample N, not less	Test Method
1	2	3	4	5
1.soles with shoe uppers	Leather; leather, textiles, artificial and synthetic leather Non-porous rubber, leather; leather Non-porous rubber, polyurethane; leather	Doppelny, stitched, sandal, "Parko"  Glue-stitching, stitching-glue-stitching Onboard	140	According to GOST 9134-78
			110	According to GOST 9134-78
			120	According to GOST 9134-78
2.soles with padding	Porous rubber; leather	Rant-glue, dopple-glue, sandal-glue, stitch-sandal-glue, nail-glue	thirty	GOST 9292-82
3.soles with welts	Leather; leather for welts	Rantovy, "Parko"	130 110	GOST 9134-78 GOST 9134-78
4.soles (with undercut) with welt	Porous rubber; leather for welts	Rant	140	GOST 9134-78
5.Plate with shoe upper blank	Leather; leather	Sandal-glue, dopple-glue, stitching-sandal-glue	120	GOST 9134-78

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6.wrap-around backing	Leather; leather for welts	Rant-glue	120	GOST 9134-78
7. welt with shoe upper preparation	Leather for welts; textile	"Parko"	80	GOST 9134-78
8.welt with natural lip insole with artificial lip	Leather for welts; leather	Rantovy, welt-glue	120 160	GOST 9134-78 GOST 9134-78

The strength of fastening parts of the bottom with the blank of the upper of the shoe, studded and combined fastening methods must comply with the standards specified in table 8.

**Table 8. Standards for the strength of fastening parts of the bottom with the blank of the upper of the shoe, studded and combined fastening methods**

Name of the fastened parts	The name of the bonded materials	Fastening method	Strength of each sample, N / cm, not less	Test Method
Sole with shoe upper blank	Non-porous rubber (with leather backing or trim); yuft	Gvozdeyoy	150	GOST 9134-78
	Leather; yuft Porous rubber; leather (in the presence of a leather backing and an intermediate layer of leather fiber or non-porous rubber) Leather; leather Non-porous rubber, leather Non-porous rubber (with leather backing); leather Rigid, semi-rigid polyurethane; leather Polyurethane; leather	Gvozdeyoy	110	GOST 9134-78
		Nailing the substrate and intermediate layer	250	
		Bonded midsole and outsole	25	GOST 9134-78
		Screw		
		Screw		
		Gvozdeyoy		GOST 9292-82
		Gvozdeyoy	120 90 110	GOST 9292-82
Nail-side	150	GOST 9134-78		
Also	170	GOST 9134-78		
		150		

The strength of fastening heels in shoes must comply with the standards specified in table 9.

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**Table 9. Norms for fixing heels in shoes**

Upper workpiece material	Age group	Heel height	Heel material	Heel attachment strength in a half pair of shoes, N, not less	Test method
1.leather, textiles, artificial materials Leather, textiles, artificial materials	Womens	Extra high, high	Synthetic, wood	850	GOST 9136-72
		Average	Synthetic, rubber	850	GOST 9136-72
	Male, female, girlish Male, female, boy, girl, school Preschool	Short	Leather, rubber, wood, synthetic	800	GOST 9136-72
		Short short	Rubber Leather Rubber (molded) Rubber	450 1200 900	GOST 9136-72
	All other age and sex groups	Short		700	GOST 9136-72
2.Uft	Mens				

The deformation of the toe caps must comply with the standards specified in table 10.

**Table 10. Toe deformation rates**

Workpiece material	Toe material	Toe deformation in shoes, mm, not more		Test Method
		General	residual	
Synthetic and artificial leather, textiles	Elastic materials of the EP-2, ES-2 brands Thermoplastic materials with	-	1.0	GOST 9135-2004
		-	1.0	GOST 9135-2004
	coating based on transpolyisoprene or polymers Leather for the bottom of shoes, nitro leather-T shoe (for all age and gender groups, except for preschool)	2.5	-	GOST 9135-2004

The deformation of the backdrops must comply with the standards specified in table 11.

**Table 11. Deformation rates of backdrops**

Shoe Upper Material	Back material	Heel deformation in shoes, mm, no more		Test Method
		General	Residual	
Synthetic and artificial leather, textiles	Cardboard with a high leather fiber content Leatherboard grades 3-1-11	-	1.0	GOST 9135-2004



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	Coated thermoplastic materials based on transpolyisoprene or polymers Nitroskozha-T shoe, leather for the bottom of shoes, cardboard (for all age and gender groups, except for preschool)	-	1.0	GOST 9135-2004
		-	1.0	GOST 9135-2004
		4.0	-	GOST 9135-2004

For shoes with a textile upper with rubber molded liners and soles, the thickness of the outsole rubber with a reef without textiles and internal parts must correspond to the values indicated in Table 12, and in terms of physical and mechanical parameters,

the rubber used for the manufacture of shoe soles and liners must comply with the standards, specified in table 13 in accordance with GOST 14037-79 "Shoes with a textile upper with rubber molded liners and soles. Technical conditions".

**Table 12. Guideline values for shoe thicknesses with textile uppers and rubber overmolded liners and soles**

Measurement locations	Shoe thickness, mm, not less				
	male	female	School for boys and boys	School for girls and maiden	Children
Outsole Sole with heel	5	4	4	4	4
	9	8	8	8	6

**Table 13. Standard values of physical and mechanical indicators of rubber used for the manufacture of shoes with a textile upper and rubber with molded liners and soles**

Indicator name	Norm							
	Rubber for obsoyuzok				Sole rubber			
	Category 1		From the state. Quality mark		Category 1		With the State Quality Mark	
	Cher	Colour	Cher	Colour	Cher	Colour	Cher	Colour
Conditional strength, mPa, ( $KZC / CM^2$ ), not less Elongation,%, not less	8.0 (80)	8.0 (80)	9.0 (90)	9.0 (90)	8.0 (80)	8.0 (80)	9.0 (90)	9.0 (90)
	300	400	300	400	240	280	300	400
Relative residual deformation after rupture,%, no more	25	40	25	40	25	40	25	40

And the thickness of the sole of rubber-textile shoes (together with a set-in insole, a tight-fitting lattice, if any, and a reef) and the thickness of the sole of swimming shoes with a reef must correspond to those given in Table 14, according to the physical and

mechanical parameters of the rubber used for the manufacture of shoes must comply with the standards, given in table 15 in accordance with GOST 9155-88 "Sports footwear, rubber and rubber-textile. Technical conditions".

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**Table 14. Guideline values for the thickness of the sole of the rubber-textile footwear of bathing shoes with a reef**

Type of footwear	Shoe group	Sole thickness, mm, not less	
		Outsole	Heel
Rubber-textile shoes and boots	Children	4.0	6.0
	School, boy, female, male	5.0	7.0
Rubber bathing shoes	Children, school, boys, women and men	2.0	2.0

Note:

- for shoes with spikes, the thickness of the sole without taking into account the height of the spikes must correspond to that given in table 14;
- for shoes without elevation in the heel, the thickness of the sole must be at least 4 mm for nursery and 5 mm for school, boys, women and men.

The certification body keeps records of the certificates and licenses issued by it for the use of the conformity mark in accordance with the rules for storing acts and sends information about them to the Federal Agency for Technical Regulation and Metrology in accordance with the established procedure. Documents and materials used in the certification of TLP products must be stored in the

certification body that issued the certificate. The decision on certification is accompanied by the issuance of a certificate of conformity to the applicant or its refusal. With positive results of tests (inspections) provided for by the certification scheme, and examination of the documents submitted, a certificate of conformity is drawn up and registered.

**Table 15. Standard values of physical and mechanical indicators of rubber used for the manufacture of shoes**

Indicator name	Norm for sports shoes		Norm for bathing shoes	Test methods
	Soles and linings of rubber-textile shoes			
	black	White and colored		
Conditional strength, mPa ( $\kappa\text{ZC} / \text{CM}^2$ ), not less	9.0 (90)	12.0 (120)	15.0 (150)	GOST 270-75
Elongation, %, not less	350	500	500	GOST 270-75
Rubber outsole abrasion $\frac{\text{M}^3}{\text{TII}\text{Ж}} (\frac{\text{CM}^3}{\kappa\text{Bm}})$ , no more	200 (720)	205 (740)	-	GOST 426-75
The bond strength of the rubber casing with the textile upper, $\frac{\text{H}}{\text{M}} (\frac{\kappa\text{ZC}}{\text{CM}})$ , not less	1200 (1.2)	1500 (1.5)	-	GOST 6768-75

In case of negative results of certification tests or the applicant's refusal to pay for certification work, an opinion is issued indicating the reasons for the refusal to issue a certificate.

The presence of a certificate of conformity for products subject to mandatory certification is a prerequisite for their implementation and (or) putting into operation.

Inspection control of a certified facility. If this stage is provided by the certification scheme, then it is carried out by the body that issued the certificate during the entire period of validity of the certificate, as a rule, at least once a year in fore intermittent checks, and, if necessary, unscheduled.

Inspections include testing of product samples and tests necessary to confirm that marketed products

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continue to meet established requirements. requirements confirmed during certification.

Indicators for determining the frequency and volume of inspection control are:

- the degree of potential hazard of the product;
- production stability;
- volume of issue;
- availability of a quality system;
- the cost of the inspection control.

The scope and procedure for conducting inspection control establish the rules for certification of homogeneous products.

Unscheduled inspections can be carried out in case of claims to the quality of products from consumers, trade organizations and bodies exercising public and state control over the products for which the certificate is issued.

Inspection control includes:

- analysis of incoming information about certified products;
- creation of a commission to conduct control;
- testing and analysis of their results;
- registration of control results and decision making.

The results of the inspection control are drawn up in an act, in which makes a conclusion on the state of production of certified products and the possibility of maintaining the validity of the issued certificate.

The act is kept by the certification body, and copies of it are sent to the applicant (manufacturer, seller) and to the organizations that took part in the inspection control.

Based on the results of inspection control in case of non-compliance of products with the requirements of regulatory documents controlled during certification, the certification body may suspend or revoke a certificate. This can also happen in the following cases:

- changes in the product regulatory document or test method;
- changes in the design, composition or completeness of ductions;
- changes (non-fulfillment) of technology requirements, method control and testing, quality assurance system, if the listed changes can cause non-conformity of products to the requirements controlled during certification.

The decision to suspend the certificate is made if, by means of corrective measures agreed with the certification body that issued it, the applicant can eliminate the detected causes of non-compliance and confirm, without re-testing in an accredited testing laboratory, the compliance of the product with the requirements of regulatory documents. If this cannot be done, then the validity of the certificate is canceled.

Information on the suspension (or cancellation) of the certificate is brought to the attention of all interested organizations.

Consider the actions of the certification body and the manufacturer when carrying out corrective actions.

Corrective actions are carried out in case of violation of the conformity of products to the established requirements.

When carrying out corrective actions, the certification body performs the following:

- suspends the validity of the certificate and the validity of licenses for the use of the mark of conformity;
- informs interested participants of certification about it;
- sets the deadline for the implementation of corrective actions;
- controls the implementation of corrective actions by the manufacturer (seller).

When taking corrective actions, the manufacturer (seller) must:

- determine the scale of the violations identified;
- notify consumers, the public, interested organizations about the dangers of using (operating) products.

Based on the results of the corrective measures taken, the certification body indicates to the manufacturer (seller) the need for a new marking to distinguish the product before and after corrective measures, while in each specific case, the certification body determines the nature and type of marking and informs interested participants in the certification about it.

If the manufacturer (seller) does not comply with the If measures are taken or their ineffectiveness, the certification body revokes the certificate and revokes the license to use the conformity mark. In accordance with GOST R 51000.5-96 "General requirements for bodies for certification of products and services" (Approved by the Resolution of the State Standard of the Russian Federation (Federal Agency for Technical Regulation and Metrology) dated 02.29.96 N 138) the following requirements are imposed on the certification body:

- the certification body shall perform functions to ensure that the appropriate certification procedures are carried out; to be impartial, independent of the applicant (manufacturer, seller) and consumer (to be a third party), not to have any commercial interests, not to be part of an organization, and not to be connected by administrative, financial, commercial or other ties with an organization with a direct commercial interest in the product or service subject to certification. The certification body and its personnel should not be subject to commercial, financial or other pressures that could influence the results of certification; have the competence to objectively and reliably carry out certification of products or services;

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– The structure of the certification body should ensure the impartiality and equal opportunity for all interested parties to participate in the operation of the certification system. For this, representatives of interested organizations participate in the work of the Coordinating Council functioning under the certification body;

– the certification body, as a rule, must have its own testing laboratory, covering all or part of its scope of accreditation (the testing laboratory must be accredited according to the relevant rules);

– the certification body shall have and provide upon request: an organizational chart clearly defining the structure of the certification body. The structure of the certification body must ensure the performance of certification work in the declared scope of accreditation; scheme of interaction with testing laboratories and other participants in the certification system; information about the sources of financing for the activities of the certification body; a documented description of the rules and procedures for certification; documentation defining its legal status;

– the personnel of the certification body must have the necessary competence to carry out their duties;

– specialists of the certification body who assess the conformity of products or services, testing and inspection control must be experts of the certification system in the field corresponding to the scope of accreditation of the certification body;

– If any work is outsourced to another organization, the certification body must be satisfied that the subcontracting personnel of that organization comply with the requirements of this standard. The scope of work performed by another organization or non-staff should be limited;

– the certification body must have a fund of documents necessary for certification, a control system for this documentation and ensure: availability of documents currently in force at the workplace; timely introduction of changes or amendments to documents in accordance with the established rules. This work should ensure their direct and rapid implementation; removal of outdated documentation; advance notification of holders of certificates of conformity and other users about changes and amendments to the documentation by means of communication means or through periodic publications;

– the certification body shall maintain a registration and logging system. Records and records shall show how each certification procedure has been carried out, including test reports and inspection reports for certified products. All protocols and registration records must be securely stored for a specified period, while maintaining confidentiality in relation to the interests of the applicant, if this does not contradict current legislation;

– the certification body must have the necessary tools and documented procedures to allow certification of products in accordance with the requirements for this specific area of production activity;

– if the certification body conducts tests, then the testing laboratory included in it must comply with the established requirements and be accredited in accordance with the relevant rules. If tests (including on behalf of the certification body) are carried out by another testing laboratory, the certification body must be sure that this laboratory meets the established requirements and is accredited in accordance with the relevant rules;

– the inspection control carried out by the certification body must meet the requirements of the relevant certification system and international documentation;

– if the certification body uses the services of another organization, it is necessary to conclude a documented agreement (contract) with it, including the observance of confidentiality;

– the certification body must have a Quality Manual and documented procedures establishing the procedure for confirming the certification body's compliance with the requirements of GOST R 51000.5-96;

– the certification body must ensure the confidentiality of information obtained during the certification process;

– the certification body must have a complete list (register) of certified products or services with an indication of the holders of certificates and (or) permits (licenses) for the use of the conformity mark. This list should be available to interested individuals and organizations;

– the certification body should establish rules for handling complaints during certification;

– the certification body must carry out internal checks to assess its compliance with the requirements of GOST R 51000.5-96. Such inspections should be recorded and their details, as well as the corrective actions taken, should be communicated to personnel. They should also be available to those entitled to this information;

– the certification body is obliged to control the use of the issued certificates of conformity, marks of conformity, permits (licenses) for their use;

– the certification body must have documented procedures for canceling or suspending the validity of certificates of conformity, canceling or suspending the validity of permits (licenses) for the use of conformity marks.

High quality of footwear is achieved due to careful preparation of production, rhythmic work and strict adherence to technological processing regimes when performing individual operations, and control at each stage of production.

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Various types of technical control are usually classified as follows:

- by control methods: organoleptic, instrumental, analytical, automatic;
- by the complexity of execution (by qualification): simple, medium, difficult;
- by the completeness of coverage of semi-finished products: solid, selective;
- by location in the technological scheme: continuous, selective;
- by the number of operations covered: general, private;
- in order of execution: preliminary, accompanying, subsequent;
- by the location of the control points: stationary, volatile.

Organoleptic control (visual) - the quality of parts and products is assessed organoleptically.

Instrumental control - determination of the shape and size of the controlled object using simple measuring instruments and devices.

Analytical control is an assessment of the properties of controlled objects by laboratory testing of materials, parts and products for comparison with GOST standards.

Automatic control - automatic registration of phenomena and automatic application of measures to eliminate possible violations of the established parameters of the technological process or the establishment of a work order.

Simple control is carried out at the object of observation and is carried out organoleptically, or using the simplest instruments.

Control of medium complexity - performed at workplaces using analytical control methods.

Complex control is carried out in laboratories by the method of analytical control.

Full control covers all semi-finished or finished products.

Sampling control covers only a certain part of products or semi-finished products processed in operation, while the results of quality control of some of the controlled objects apply to all products. On operations with an unstable technical process, it is recommended to use only a solid one.

Interoperational control is carried out during the transition of a product from one operation to another and covers all products.

Final control is carried out on the release of finished products and aims to establish the appropriate quality of finished products to the requirements of GOST.

General control covers all operations of the production process from start to finish and can be carried out as continuous or selective.

Private control covers part of the leading operations of the production process and can be carried out as a complete or selective.

Preliminary control is carried out as the main type of technical control, carried out before performing operations to determine the quality of materials, chemicals, accessories, equipment and spare parts entering the factory.

Concomitant control is reduced to checking the results of operations in the course of its implementation, as well as to monitoring the progress of the technical process in order to prevent the occurrence of low-quality products and their timely detection during production.

Subsequent control is a check of the results of work at the operation, in the stream, at the site, in the shop, at the enterprise. Subsequent control compared to preliminary and concomitant is the least effective.

Stationary control is carried out at the workplace when a large number of controlled items arrive and when it is advisable to include the control point in the production line.

Flying control is carried out over the course of the technical process, carried out by the foremen of production areas and laboratory technologists.

The use of this or that type of control is determined by the technical possibility of using a certain type of control, the importance of the operation, and the economy. Table 16 lists objects and types of control to which they can be subjected.

The most progressive control method, which enables inspectors to effectively fight for product quality, to signal faults even before the appearance of defective products, is the statistical method.

The meaning of statistical methods of quality control is to significantly reduce the cost of its implementation in comparison with continuous control, on the one hand, and in the exclusion of accidental changes in product quality, on the other.

**Table 16. Objects and types of control**

Objects of technical control	Types of technical control
Upper materials (chrome leather)	Organoleptic Selective (in stock) Instrumental (periodic) Physicomechanical and chemical (in the laboratory)



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Lining (chrome leather)	Organoleptic Selective (in stock) Physicomechanical Analytical (in the laboratory)
Textile	Organoleptic Selective (in stock) Physicomechanical Analytical (in the laboratory) Instrumental
Accessories (blocks, hooks, buttons, buttons, nails, buckles, etc.)	Selective (in the laboratory) Organoleptic Instrumental (periodic)
Auxiliary materials (threads, glue, heels)	Selective (in the laboratory) Organoleptic (for heels) Physical and mechanical (for threads) Chemical (for glue)

There are two areas of application of statistical methods in production (Figure 1):

- when regulating the course of the technological process in order to keep it within the specified limits (left side of the diagram);
- upon acceptance of manufactured products (right side of the diagram).

Areas of application of statistical methods of product quality management

Typically seven are used for data analysis., so-called, statistical methods or quality control tools (simplest methods):

- delamination (stratification) data;
- charts;
- Pareto chart;
- causally-investigation chart (Ishikawa diagram or "fish skeleton");
- checklist and bar chart;
- scatter chart;
- control charts...

1) Delamination (stratification).When dividing data into groups in accordance with their characteristics, the groups are called layers (strata), and the separation process itself - delamination (stratification).

There is always a greater or lesser scatter in the measurement results.... If we stratify by factors, generating this spread, it is easy to identify the main reason for its appearance, reduce it and achieve better product quality...

Delamination can be done like this:

- by performer (by gender, work experience, qualifications and T...d.);
- by machines and equipment (new or old, brand, type, etc....d.);
- by material (at the place of production, party, mind, quality of raw materials, etc....d.);
- by production method (by temperature, technological reception, etc....d.).

The delamination method in its pure form is used when calculating the durability of a product., when it is required to estimate direct and indirect costs separately for products and lots, when assessing the profit from the sale of products separately by customers and by products, etc....d...

2) Graphical presentation of data widely used in industrial practice for clarity and ease of understanding the meaning data... There are the following types of graphs:

a) Grafik, polyline, applied, for example, to express the change of what-or data overflow time...

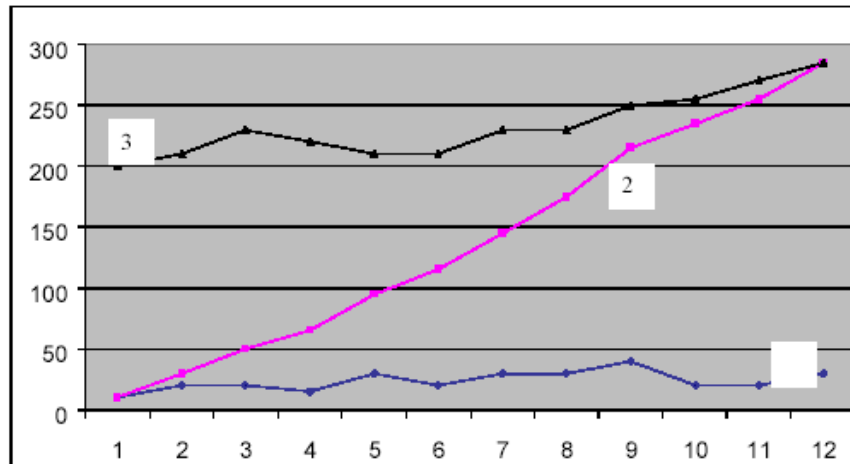
b) Pie and strip charts are used to express the percentage of the data under consideration.

Figure 1 shows the ratio of sales proceeds for certain types of footwear (A, B, C), a trend is visible: product B is promising, but A and C are not.

c) Z-shaped graph (Figure 1) is used to express the conditions for achieving these values. For example, to assess the general trend when registering actual data by month (sales volume, production volume, etc.)

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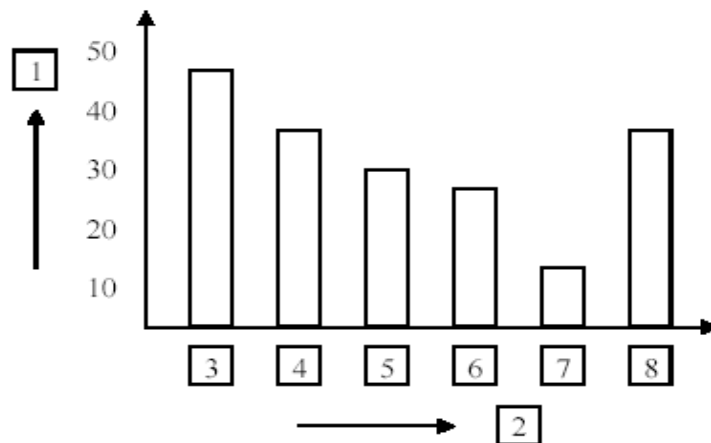
**Figure 1. Example of a Z-shaped plot**

According to the changing total, it is possible to determine the trend of change over a long period. Instead of a changing total, you can plot the planned values and check the conditions for reaching them.

d) The bar graph (Figure 2) represents a quantitative dependence, expressed by the height of the bar, of factors such as the cost of the product from its type, the amount of losses as a result of rejects from the process, etc.

Varieties of a bar graph are a histogram and a Pareto chart.

3) Pareto diagram. Scheme, built on the basis of grouping by discrete features, ranked in descending order (for example, by frequency of occurrence) and showing the cumulative (accumulated) frequency, called a Pareto chart (picture 3).

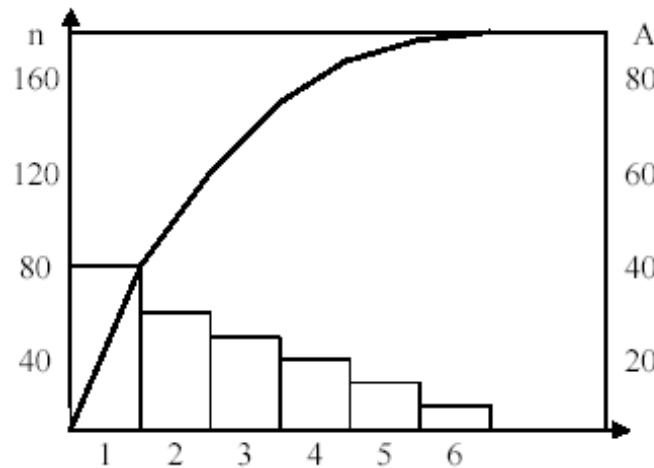


**1 - the number of purchase incentives; 2 - incentives to buy; 3 - quality; 4 - price reduction; 5 - warranty periods; 6 - design; 7 - delivery; 8 - others**

**Figure 2. An example of a bar graph**

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1 -errors during production; 2 -poor quality raw materials; 3 -poor quality tools; 4 -poor quality templates; 5 -poor quality drawings; 6 -other; A - relative cumulative (accumulated) frequency, %; n -number of defective items...

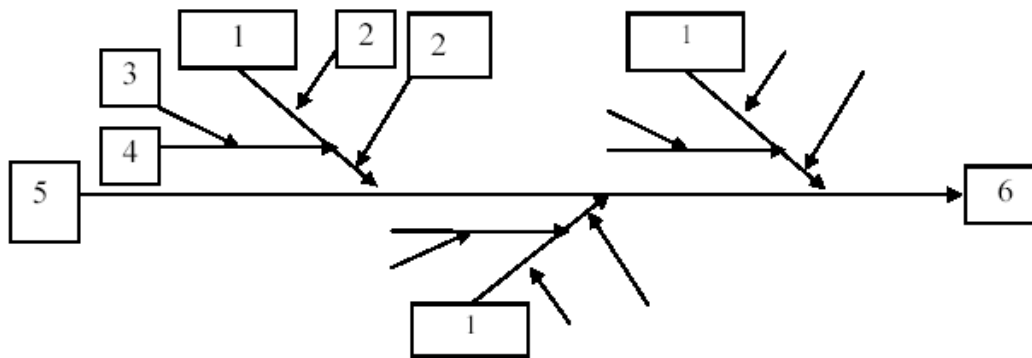
Figure 3. Pareto chart example...

The above diagram is based on the grouping of defective products by type of marriage and their location in descending order of the number of units of defective products of each type.... With its help, you can evaluate the effectiveness of the measures taken to improve product quality., building it before and after making changes...

4) Causal diagram (Figure 4).

Causally-investigative chart used, when it is required to investigate and portray the possible causes of a particular problem... Its application allows you to identify and group conditions and factors, affecting this problem...

5) Checklist(accumulated frequency table) compiled to build histogramsdistribution, includes the following columns: (table 17).



a) an example of a conditional diagram, where: 1 - factors (reasons); 2 - large "bone"; 3 - small "bone"; 4 - middle "bone"; 5 - "ridge"; 6 - characteristic (result).

Figure 4. Example of a causal diagram

Table 17. Accumulated frequencies table

Interval no.	Measured values	Frequency	Accumulated frequency	Accumulated relative frequency

Based on the control sheet, a histogram is built (picture 9), or, with a large number of measurements, the density distribution curve probabilities (figure 5).

A histogram is a bar graph and is used to visualize the distribution of specific parameter values

by frequency of occurrence over a certain period of time.... When plotting the allowable values of the parameter, you can determine, how often this parameter is in or out of range...

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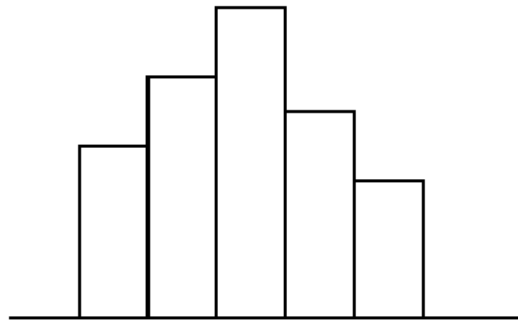


Figure 5. An example of data presentation in the form of a histogram

When examining the histogram, you can find out, whether the batch of shoes and the technological process are in a satisfactory condition... Consider the following issues: what is the distribution width in relation to the tolerance width; what is the center of the distribution in relation to the center of the tolerance band; what is the form of distribution...

6) Scatter plot (scatter) used to identify addiction (correlations) some indicators from others or to determine the degree of correlation between  $n$  data pairs for variables  $x$  and  $y$ :  $(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)$ .

This data is plotted (scatter chart), and for them the correlation coefficient is calculated, examples of graphs are shown in Figure 6.

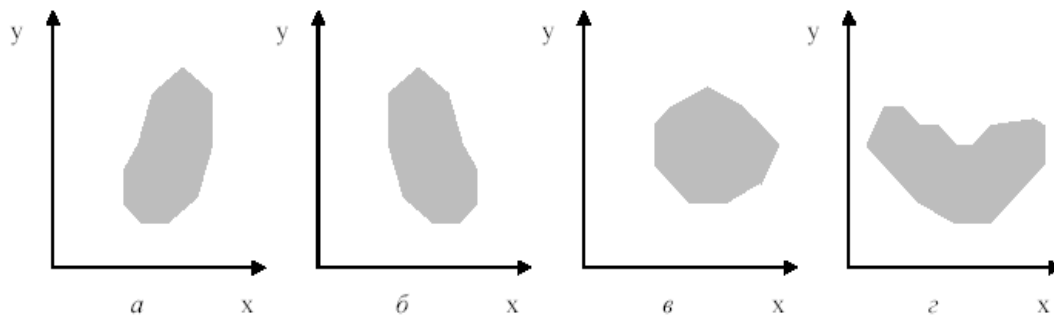


Figure 6. Scatter plots

When:

a) we can talk about a positive correlation (with increasing  $x$ ,  $y$  increases);

b) a negative correlation appears (with increasing  $x$ ,  $y$  decreases);

v) with increasing  $x \rightarrow y$  can both increase and decrease, which indicates the absence of correlation. But this does not mean that there is no relationship between them, there is no linear relationship between them. An obvious nonlinear (exponential) dependence is also shown in the scatter diagram (d).

The correlation coefficient always takes values in the interval  $-1 \leq r \leq 1$  those. with  $r > 0$  - positive correlation, with  $r = 0$  - no correlation, with  $r < 0$  - negative correlation.

7) One way to achieve satisfactory quality and maintain it at this level is the use of control charts., which represent a graphical representation of the average value of the controlled parameter and the limit of permissible variability, i.e. regulation boundaries.

In the course of the technological process, the values of the controlled parameter (in the form of points) obtained as a result of sampling are plotted on the map, and the state of the technological process is judged by their location relative to the regulation boundaries. Essentially, the control chart represents the confidence interval of the time series estimate, i.e. a number of chronologically arranged quality indicators, and the regulation limits are the significance levels taken with the corresponding standard deviation coefficients. The significance level is the probability that the controlled parameter will go outside the limits. With an established technological process, the statistical distribution of quality indicators,

Depending on the type of control, two groups of control charts are distinguished: according to quantitative and qualitative characteristics. The first group includes control charts used in the control and regulation of quantitatively measured parameters of

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products (length, width, thickness, weight, etc.). The resulting distributions of parameters in almost all cases obey the normal distribution of random variables. The most common maps are: arithmetic mean values, standard deviations, medians and ranges.

The choice of the type of control chart for a given technological process depends on which parameter is influenced by systematic causes (disturbances). If systematic causes (wear of the cutting tool) lead to a bias in the mean values, it is advisable to use control charts for the mean. If systematic reasons lead to an increase in the spread of parameter values, then it is advisable to use a control chart of standard deviations; if at the same time there is a shift in the arithmetic mean and an increase in the spread, then it is advisable to apply simultaneously two types of control charts.

The second group includes maps used in the control and regulation of a qualitative attribute, i.e. an alternative feature, when products are divided into two categories - suitable and unsuitable. The most common control charts for an alternative attribute are: control charts for the proportion of defects; control charts of the number of defective products; defect checklists.

To determine the boundaries of regulation and build control charts, a preliminary study and analysis of the technological process is assigned, the purpose of which is to establish the causes of changes in the quality indicator, and, if possible, eliminate them or reduce their influence, as well as determine the statistical regularities of the process and their numerical characteristics. The duration of the period of preliminary study and analysis of the technological process, depending on the complexity of its nature, can be from two to three months. When maintaining

control charts, the exit of some values of the controlled parameter beyond the regulation limits is possible in two cases:

– the outlier value may refer to the general population, but goes beyond the regulation boundary based on the chosen statistical reliability; this means that the established regulation limits are narrower than the limits of natural variability. In this case, it is not recommended to interfere with the technological process;

– the value has gone beyond the boundaries as a result of any changes in the processing mode of objects of labor or in equipment; therefore, it refers to a different general population, and going beyond the regulation boundaries is not accidental. Based on this, it is necessary to investigate the cause of the process disturbance and eliminate it.

To distinguish these cases, it is necessary to analyze the state of the technological process in the previous period of time. If the previous values of the investigated parameter are quite close to the regulation limit or there is a tendency for individual values to approach the regulation limit, then it is likely that the process proceeds with systematic deviations. If the previous values are randomly scattered between the upper and lower limits of regulation, then most often the deviation is random.

The state of the process is monitored according to the developed statistical regulation maps. Depending on the length of time that the process is in a steady state, a control plan is developed, which provides for the frequency of control, the volumes of samples or samples to be recovered, and measures to bring the technological process into an adjusted state. An example of a control chart is shown in Figure 7.



Figure 7. Example of a control chart

Thus, the purposes of using checklists can be:

- identification of an uncontrolled process;
- control over the controlled process;
- process capability assessment...

In various parts of the shoe production, it is necessary to check the quality of a large amount of raw materials, materials and semi-finished products moving in batches. In this case, the so-called



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continuous control is widely used. Complete inspection is costly, since the quality of each product in the batch is checked, so it is uneconomical.

Sampling control is more expedient and economically justified, which allows, by checking the quality of products in a sample, to obtain information about the entire batch, i.e. whether the quality of a given batch meets the established standards. The term "product" is used in statistical control in a broad sense. A product means raw materials and basic materials coming from suppliers, semi-finished products transferred from one site to another, parts, finished products. Sampling control is based on the law of large numbers, which makes it possible to assert that if the general population obeys a certain distribution law, then the sample from this population also obeys the same law (of course, provided that the sample size is not less than a certain certain level). The main task of statistical sampling is to reject lots in which the number or proportion of defective products exceeds the allowable limit established for a streamlined production process. In sampling, there is always a certain probability that a lot containing no defective products greater than the allowable limit will not be accepted or that a lot containing defective products will be accepted. However, continuous control is not free from errors. It does not at all guarantee that the quality of all tested and accepted products meets the established standard. This is confirmed by the experience of enterprises in various industries, both domestic and foreign. This is explained by the fact that the controller gets tired of performing monotonous operations, due to with which his observation and attentiveness decrease, vigilance is dulled. As a result, defective products are missed as high quality. The experience of enterprises shows that only six-fold complete control can guarantee that the defective product does not fall into the batch accepted after the inspection. When constructing an acceptance control plan, first of all, the average quality level of the accepted lots is set, i.e. the proportion of defective products on average in accepted lots, and is called the level of average output quality. Then the task is already reduced to choosing the type of control and control parameters: the sample size and the maximum allowable number of defective products in the sample, at which the supplier's and consumer's risk are guaranteed at levels of 5 and 10%, respectively. Statistical acceptance control can be carried out with or without grading. When inspecting with grading, an unaccepted lot is subjected to a continuous inspection with the replacement of defective products with suitable ones. Inspection with grading improves the quality of products, since it is better than the quality of incoming lots. The average output quality is higher than the average input quality of batches.

Various types of control are known: single-stage, two-stage and multi-stage. In a one-stage plan, a sample of  $n$  items is taken from a batch of  $N$  items and

the quality of each is checked. If the number of defective items does not exceed the allowed limit, the batch is accepted, and vice versa. If the inspection is with grading, then the rejected lot is sent to 100% grading, i.e. for complete control with the replacement of unusable products with suitable ones. In the case of two-stage inspection, a sample of volume  $n_1$  is extracted from a batch of  $N$  items received for inspection, which is most often  $2/3$  or  $3/4$  of the sample size  $n$  in case of one-stage inspection. The quality is checked and the number of defective items is identified. If the batch is not accepted, then it is sent to 100% grading.

Multi-stage control is like a continuation of two-stage control. The maximum number of resamples, i.e. steps, set by a certain number. With multi-stage control, the final conclusion about the quality of the batch can be made at one of the intermediate stages. The amount of control turns out to be random. The choice of the type of control is determined by the specific production conditions: the nature of the technological process, the type of product, the organization of their movement and quality, the stability of the technological process. In this case, the qualifications of the developers are of great importance, as well as the training of persons who will apply the statistical acceptance control.

It is also recommended in the shoe industry to use methods that serve to research information when the change in the analyzed parameter is random. The main methods included in this group are: regressive, variance and factorial types of analysis, method for comparing means, method for comparing variances, etc.

These methods allow: to establish the dependence of the studied phenomena on random factors, both qualitative (analysis of variance) and quantitative (correlation analysis); explore the relationship between random and non-random variables (regression analysis); identify the role of individual factors in changing the analyzed parameter (factor analysis), as well as the use of economic and mathematical methods, which are a combination of economic, mathematical and cybernetic methods. The central concept of the methods of this group is optimization, that is, the process of finding the best option out of the set of possible ones, taking into account the adopted criterion (optimality criterion). Strictly speaking, economic and mathematical methods are not purely statistical, but they widely use the apparatus of mathematical statistics, which makes it possible to include them in the considered classification of statistical methods. For purposes related to quality assurance, from a fairly extensive group of economic and mathematical methods, the following should be distinguished first of all: mathematical programming (linear, nonlinear, dynamic); planning an experiment; simulation modeling; game theory; queuing theory; scheduling

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theory; functional cost analysis, etc. This group can include both Taguchi methods and the Quality Function Deployment (QFD) method. dynamic); planning an experiment; simulation modeling: game theory; queuing theory; scheduling theory; functional cost analysis, etc. This group can include both Taguchi methods and the Quality Function Deployment (QFD) method. dynamic); planning an experiment; simulation modeling: game theory;

queuing theory; scheduling theory; functional cost analysis, etc. This group can include both Taguchi methods and the Quality Function Deployment (QFD) method.

Examples of possible application of the considered methods for solving some problems in the quality system at the stages of the product life cycle are shown in Table 18.

**Table 18. Application of statistical methods at stages of the product life cycle**

Product life cycle stages	Tasks solved in the quality system	Statistical Methods
1	2	3
1. Marketing and Market Research	1.1 Research and assessment of market demand and the prospect of its changes	Methods for the analysis of statistical aggregates, economic and mathematical (dynamic programming, simulation, etc.)
	1.2 Analysis of the wishes of consumers in relation to the quality and price of products	Economic and mathematical methods (QFD), etc.
	1.3 Forecasting price, output, potential market share, life expectancy of products in the market	Economic and mathematical methods (theory of mass service, game theory, linear and nonlinear programming, etc.)
2. Product design and development	2.1 Standardization of requirements for product quality. Determination of technical requirements in the field of reliability. Optimization of the values of the product quality indicator. Assessment of the technical level of products	Graphic methods (Ishikawa diagram, Pareto chart, histogram, etc.): methods for analyzing statistical populations; economic and mathematical methods (Taguchi methods, QFD)
	2.2 Testing of prototypes or pilot batches of new (modernized) products	Graphical and analytical methods (histogram, layered histogram, etc.), methods for analyzing statistical populations (methods for testing statistical hypotheses, comparing means, comparing variances, etc.): economic and mathematical methods (experiment planning)
	2.3 Ensuring product safety	Economic and mathematical methods (simulation, probability trees, etc.)
3. Purchasing	3.1 Formation of plans for providing enterprises with material and technical resources of the required quality	Economic and mathematical methods (queuing theory, linear programming, etc.)
	3.2 Supplier Capability Assessment	Economic and mathematical methods (systems analysis, dynamic programming, etc.)
	3.3 Timely provision of supplies of material and technical resources	Economic and mathematical methods (queuing theory)
	3.4 Reducing the cost of material and technical support of product quality	Economic and mathematical methods (Taguchi methods, functional and cost analysis, etc.)
4. Production	4.1 Development of technological processes	Economic and mathematical methods (Taguchi methods); scatter plots, etc.); methods of analysis of statistical populations (variance, regression and correlation types of analysis, etc.)
	4.2 Ensuring the accuracy and stability of technological processes	Methods for statistical assessment of the accuracy and stability of technological

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		processes (histograms, accuracy diagrams, control charts)
	4.3 Ensuring the stability of product quality during production	Methods of statistical regulation of technological processes (accuracy diagrams, control charts)
5. Control and testing	5.1 Compliance with metrological rules and requirements in the preparation, execution and processing of test results	Graphical methods (histogram, scatter plot, etc.); methods for analyzing statistical populations (methods for testing statistical hypotheses, comparing means, comparing variances, etc.)
	5.2 Identification of products whose quality does not meet the established requirements	Statistical acceptance control methods
	5.3 Product quality analysis	Graphical methods (Ishikawa diagram, Pareto diagram, Pareto diagram stratification, etc.), economic and mathematical methods (functional and cost analysis, QFD)
6. Packaging and storage	6.1 Analysis of compliance with requirements for packaging and storage of products at the enterprise	Statistical acceptance control methods; economic and mathematical methods (queuing theory)
7. Sales and distribution of products	7.1 Ensuring the quality of product transportation	Economic and mathematical methods (linear programming, queuing theory)
8. Installation and commissioning	8.1 Analysis of product quality during installation and commissioning	Graphical methods (time series graph, etc.); methods of analysis of statistical populations (factor analysis, etc.)
	8.2 Analysis of costs to consumers in the use of products	Economic and mathematical methods (Taguchi methods, functional and cost analysis, QFD)
9. Technical service assistance	9.1 Organization of warranty repair of products Organization of timely delivery of spare parts	Economic and mathematical methods (queuing theory, linear programming, etc.)
10. After-sales activities	10.1 Analysis of product failures and other nonconformities	Graphical methods (time series graph, etc.); methods of analysis of statistical populations (factor analysis, etc.)
11. Disposal after use	11.1 Investigation of the possibility of using products of inadequate quality or at the end of their service life	Economic and mathematical methods (functional and cost analysis, QFD, etc.)

You should start mastering statistical methods with the use of simple and accessible ones, and only after that move on to more complex methods. Taking into account the difficulties of mastering statistical methods in industrial practice, it is advisable to subdivide these methods into two classes: simple and complex methods. When choosing statistical methods, they strive to ensure that they correspond to the nature of the production process, the availability of measuring instruments and processing of statistical information. Since several different statistical methods can be selected to solve a specific production problem, the one that will provide the best result at the lowest cost is selected.

In order to make a conclusion about the true quality of shoes, they are tested in testing laboratories.

The purpose of testing footwear is to obtain objective and reliable information on the compliance

of footwear quality with the requirements of regulatory and technical documentation. The main tasks of the tests are: prevention of putting into production constructively and technologically unfinished shoe models; ensuring the stability of the quality of shoes. Tests are carried out at various stages: development, manufacture (repair) and operation of footwear. The objects of testing are a prototype of the developed shoe model; a sample of footwear specially made for testing; manufactured and repaired footwear. The test classification is shown in Figure 8.

Shoes are subject to acceptance, periodic, type and inspection tests, and during the certification of shoes, also certification tests. Acceptance tests are carried out at the stage of developing shoe models, with the introduction of new materials for the top and bottom of shoes, adhesives, technological processes;

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inspection - at the stage of manufacture and operation of footwear. Prototypes of developed shoe models are subject to acceptance tests. Based on the results of acceptance tests, a decision is made on the possibility of introducing new models of footwear, using new materials, etc. or the need to make changes to the footwear to ensure compliance with the requirements and standards established by regulatory and technical documentation. In the presence of negative test results, repeated acceptance tests are carried out. The tests are carried out on re-manufactured shoe samples with corrections made to them. If the results of repeated acceptance tests are positive, the final decision is made on the implementation of the shoe model and the technical and technological documentation is corrected. Periodic tests are carried out to control the stability of the quality indicators of footwear manufactured in small batches. In case of unsatisfactory test results, measures are taken to eliminate the shortcomings that affect the deterioration of the footwear quality indicators. Periodic tests are carried out to control the stability of the quality indicators of footwear manufactured in small batches. In case of unsatisfactory test results, measures are taken to eliminate the shortcomings that affect the deterioration of the footwear quality indicators. Periodic tests are carried out to control the stability of the quality indicators of footwear manufactured in small batches. In case of unsatisfactory test results, measures are taken to eliminate the shortcomings that affect the deterioration of the footwear quality indicators.

Shoe manufacturing is stopped until satisfactory results of physical and mechanical tests are obtained.

Type tests are carried out when changes are made to the operating modes and the technological process; when introducing new technological equipment that affects the quality of footwear. Samples of footwear specially made for testing are subjected to type tests.

Inspection tests are carried out to check the quality indicators of footwear, massive deviations from the requirements and norms established in the NTD, as well as in the presence of a large number of complaints and returns from customers of footwear that did not meet the warranty period. Inspection tests are carried out on samples of footwear specially made for testing, finished footwear, selected in a random order from footwear made by order of the population (for non-destructive tests), or from a small batch (for destructive tests). If the results of the inspection tests are negative, an action plan is drawn up to eliminate the identified deficiencies, the quality control of shoes repaired and manufactured according to the orders of the population is tightened, and the manufacture of shoes in small batches is stopped.

During certification tests of men's and women's shoes, the following quality indicators are determined:

- flexibility of the shoe;

- the strength of the fastening of parts of the bottom of the shoe;

- the strength of the fastening of the heels.

For children's shoes:

- general and permanent deformation of the toe cap and heel counter;

- weight of shoes;

- flexibility of the shoe;

- the strength of the fastening of the bottom parts of the shoe.

In addition to the above indicators of the quality of footwear, during acceptance tests of prototypes of footwear, as well as technical control of the quality of manufactured footwear, the linear dimensions of footwear and its parts are checked.

When developing new models of footwear (during acceptance tests), the mass, flexibility and linear dimensions of the footwear must be determined without fail. The rest of the indicators are determined in the development of new types of footwear, in the development of new basic and auxiliary materials, fastening methods, technological processes.

To determine the above listed quality indicators of footwear, the following equipment is used: tensile testing machine, device ZhNZO-2, special devices for tensile testing machine, scales.

To determine the total and residual deformation of the toe cap and heel counter, the ZHNZO-2 device is used.

To determine the fastening strength of the heel, a device for determining the fastening strength of the middle and high heel is used, which is fastened to the tensile testing machine.

To determine the strength of the fastening of the bottom parts, use a tensile testing machine with a special aptitude.

A shoe flexibility test fixture is used to determine the flexibility.

1) Determination of the total and permanent deformation of the toe cap and heel counter - in accordance with GOST 9135-73.

Shoes must be ripped before testing. Jean in conditions of normal relative humidity ( $65 \pm 5\%$ ) and temperature ( $20 \pm 3 \text{ }^\circ\text{C}$ ) for at least 24 hours.

The device should be installed on the table, the rod with weights - in the upper position. Determination of the total and residual deformation of the back of shoes of all types is carried out with a load 8 kg, for children and little children - 5 Kg... The size of the load when determining dividing the total and residual deformation of the toe of men's and boy's shoes should be 8 Kg...

Each test half pair of shoes is marked in order number on the running surface of the sole.

Before testing the heel of the shoe, the metal liner is removed and by spreading the sides of the liner, the inner part of the shoe is adhered to the liner.



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On the lateral surface of the backdrop, point O is marked, to which forces should be applied. Point O should be located at an equal distance from the back seam of the workpiece and the end of the heel wing (line AB), and also at an equal distance from the upper edge of the heel C and its edge, at the sole D.

The point of application of the load X for the toe test shall be located on the median longitudinal line of the toe, equidistant from the edge of the toe B and the edge of the pulling edge A.

When determining the total and residual deformation of the backing, the half-pair is fixed in the device and installed on the plate of the device. A ball tip is lowered to point O. Turn the small indicator hand to set the They are divided in divisions of at least 5. The indicator reading is recorded. Then, by smoothly turning the handle 90 ° clockwise, the corresponding load is applied to the tip with the ball segment, which is pressed into the surface of the heel of the shoe.

The shoes are kept under load for 30 s and the indicator reading is re-recorded. By turning the handle counterclockwise by 90 °, the load is removed, the spherical segment with the rod is removed from the test shoe and fixed in the upper position with the handle.

After 3 minutes, the rod with the ball segment is lowered with a handle onto the same point of the heel of the test shoe and the indicator readings are again noted.

At the end of the test on the heel on one side, the half pair of shoes is removed from the fixture, turned and reinforced again for testing on the other side and in the same sequence.

When determining the total and residual deformation of the toe, a half-pair of shoes is fixed in the device in such a way that the heel of the shoe is located inside the staple. From the set of stands supplied with the device, a stand with a contour corresponding to the style of the heel and dimensions that ensure tight fixing of the heel in the bracket is selected and inserted into the bracket. Depending on the elevation of the toe of the shoe, the position of the platform is adjusted with a retainer.

The device with a pair of shoes fixed to the floor is installed on the plate of the device so that the toe of the shoe is under the tip with the ball segment.

Further testing is repeated.

The position of a fixed, semi-pair of shoes shall remain constant throughout the test.

The indicator of the total deformation of the toe and heel is the difference between the initial reading of the indicator and the reading after a load has been applied for 30 s.

General deformation of the toe and heel ( $\Delta_{\text{общ}}$ ) in millimeters is calculated by the formula:

$$\Delta_{\text{общ}} = \Delta_1 - \Delta_2, \quad (1)$$

where  $\Delta_1$  - initial indication of the indicator (before loading), mm;

$\Delta_2$  - indicator reading after loading for 30 s, mm.

The indicator of the permanent deformation of the toe-cap and the counter is the difference between the initial reading of the indicator (before loading) and the reading 3 minutes after the load is removed.

Permanent deformation of the toe and heel ( $\Delta_{\text{ocm}}$ ) in millimeters is calculated by the formula:

$$\Delta_{\text{ocm}} = \Delta_1 - \Delta_3, \quad (2)$$

where  $\Delta_1$  - initial indication of the indicator (before loading), mm;

$\Delta_3$  - indicator reading 3 minutes after removing the load, mm.

The total and permanent deformation of the backdrop is determined as the arithmetic mean of the test results of the backdrop from the outside and inside.

2) Determination of the heel attachment strength - in accordance with GOST 9136-72.

Sampling is carried out in accordance with GOST 9289 - 59.

Equipment: a device for determining the strength of the fastening of a medium and high heel consists of two nodes: pliers, which are a lever for gripping the heel, and a device for fastening shoes. The shank of the pincers is fixed in the upper clamps of the tensile testing machine, and the shoe securing device is mounted on the screw shaft instead of the lower clamps.

The device for securing shoes consists of a metal shoe and two movable cheeks, the distance of which from the shoe is adjusted with screws. The shoe is installed on a bracket guide, along which it can move in the horizontal direction and be fixed with a screw in the required position. A tightening screw is attached to the bracket, which has a nut at one end and a toothed washer at the other. A lug is put on the tightening screw, the other end of which is attached instead of the lower clamps to the rod of the tensile testing machine. The toothed clutch of the eyelet of the eyelet and the washer allows the block attached to the bracket to be rotated at the required angle relative to the rod of the tensile testing machine.

The separation of the heel is carried out on a tensile testing machine with the help of devices. The lowering speed of the lower clamps should be 50mm per minute. The ultimate load of the tensile testing machine according to the corresponding scale should not exceed the breakout load by more than 10 times.

Test preparation: n Before testing, each half-pair of shoes is marked with a serial number in any way in two places: on the running or lateral surface of the heel and on the top. In the presence of a crocodile sole, it is separated from the heel before testing. A small



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groove with a depth is made in the sample of low-heeled shoes to be tested along the line of separation between the sole and heel using a knife. 2 mm...

Testing: To test the strength of the fastening of a low heel, shoes, with the heel facing up, are brought to the lower jaws of the device, which, when the handle is rotated clockwise, grip the sole. Then, the lower bracket is lifted together with the shoes to the level of the jaws of the upper bracket and, by rotating the handles of the upper bracket, its lips are brought together until the grip or heel is along the groove line. After installing the shoes in the device, the jaws of the upper and lower braces must be brought to contact and only then the machine must be started. During the detachment of the heel, it is necessary to additionally bring the upper and lower jaws of the device closer together to avoid slipping of the sample, since at the beginning, when the sample is fixed, the contact surface of the sponges with the surface of the sole and heel is insignificant. For testing the fastening strength of medium and high for whom the shoes are put on the block of the device and, with the help of movable cheeks and screws, are firmly fixed in the heel area. When pulling off a medium to high heel, the pulling force should be applied at an angle of 75° to the heel area. The angle of rotation is determined by the risk applied to the surface of the washer head; a turn of the lug by one tooth corresponds to a turn of the block by 150.

3) *Determination of the fastening strength of the bottom parts - in accordance with GOST 9134-78 and GOST 9292-82.*

Sampling is carried out in accordance with GOST 9289 - 78.

Applied devices

The test is carried out on a tensile testing machine with a special aptitude. The power of the machine should not exceed the load times collapse by more than 10 times. The lower clamps must move with speed. height 200 mm / min. The device is a pair of hinged pliers, the shanks of which are fixed in the upper and lower clamps of the tensile testing machine. The length of the jaws of the pliers is 40 mm... The pliers have 2 screws that adjust the distance between the jaws of the pliers.

Samples from the bottom of the shoe are cut in such a way that each of them includes all the elements that form the fastening, i.e. outsole, lining or edging, insole and pulling hem. Sample must be long 40 mm, and its width can fluctuate depending on the distance of the attachment line from the edge of the sole, because the seam should be located along the sample approximately in its middle. Before testing, the samples shall be conditioned to constant weight under normal conditions of temperature and relative humidity.

Testing

The test specimens are loaded into the pliers so that the jaws of the lower pliers grip the edges of the

plantar layer of the specimen, and the jaws of the upper pliers - the edges of the insole of the specimen together with the tightening edge.

Calculation of test results

Strength  $q$ , in N / cm (breaking strength at 1 cm attachment length) is determined by the formula:

$$q = \frac{P}{l}, \quad (3)$$

where  $P$  is the load at seam rupture;  
 $l$  is the length of the sample.

4) Determination of flexibility - according to GOST 9718-88.

Shoes must be ripped before testing. Jean in conditions of normal relative humidity ( $65 \pm 5\%$ ) and temperature ( $20 \pm 2^\circ \text{C}$ ) for at least 48 hours.

On each half-pair to be tested a bending (fastening) line is drawn perpendicular to the longitudinal axis of the track at a distance of 0.67 of the length of the foot from the edge of the heel of the shoe.

On distance 60 mm from the line of bending (fastening) of the shoe towards the toe, parallel to it, draw a line of application of the bending force.

The shoe flexibility tester is clamped into a tensile testing machine. The tested half-pair of shoes is fixed in the device so that the downforce acts along the bending line. The toe bending device is positioned along the line of the bending force.

The tensile testing machine is activated and the stop is brought up to contact with the running surface of the sole. The elongation scale is set to zero.

By reactivating the tensile machine, the shoes are bent. When the elongation scale reaches 25 mm, which corresponds to the bending of the shoe at an angle of  $25^\circ$ , the machine is stopped and the value of the applied force is noted on the scale of loads.

On one half pair, four of measurements with an interval of no more than 3 minutes.

When carrying out tests, it is necessary to observe the established rules for the exploitation of tensile machines.

Installation and removal of samples is carried out with the machine turned off.

The flexibility of the shoe is expressed by the force in Newtons, measured on the fourth-dimensional load scale.

5) Determination of footwear mass in accordance with GOST 98735-2005.

For testing footwear (except for special ones), laboratory scales are used in accordance with GOST 24104-2004 of high accuracy class (2) with the maximum weighing limit of 2 kg or other scales that are not inferior to them in accuracy. Permissible weighing error  $\pm 1 \text{ G}$ .

For testing safety footwear, a mechanical or electronic balance with a maximum weighing limit of

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up to 15 Kginclusive, manufactured according to a normative document, approved in accordance with the established procedure. Additional weighing error  $\pm 5$  G.

Sampling in accordance with GOST 9289-78. The sample should consist of shoes of the same size (initial for a given age and gender group) and the same fullness.

To determine the mass, a half pair of shoes is weighed on a balance with an accuracy of 1 g...

The test result is taken as the value obtained by weighing each half pair of shoes, expressed in grams. In accordance with GOST R 51000.3-96 "General requirements for testing laboratories" the following requirements are imposed on testing laboratories:

- testing laboratories and their personnel should not be subject to commercial, financial, administrative or other pressures that may influence conclusions or estimates. Any influence on the test results by external organizations or persons should be excluded;

- the remuneration of the personnel assigned to carry out the tests should not depend on the number of tests and their results;

- the testing laboratory must be competent to carry out the relevant tests. In the absence of an established test method, an agreement must be documented between the customer and the laboratory on the test method to be used;

- the testing laboratory must have: an organizational structure that provides for each employee a specific area of activity and the limits of his authority (duties and responsibilities); a technical manager who is responsible for all technical tasks related to testing; documented Regulations containing a description of the organization of the laboratory's activities, the distribution of responsibilities of employees, as well as other information about the organization of the laboratory's work (functions performed, interaction with other organizations, etc.);

- The testing laboratory shall conduct an internal audit to assess its conformity with the requirements of this standard. The inspection should be carried out by competent persons familiar with the test methods, their objectives and the evaluation of the results;

- for each specialist there must be a job description that establishes functions, duties, rights and responsibilities, qualification requirements for education, technical knowledge and work experience;

- specialists and experts directly involved in conducting tests and evaluations must be certified in accordance with the established procedure for the right to conduct them;

- the testing laboratory must be equipped with equipment, as well as consumables (chemicals, substances, etc.) for the correct testing and measurements, which is required to recognize its

competence. In exceptional cases, it is possible to use equipment that does not belong to the laboratory on a contractual basis, provided that this equipment is certified and the measuring instruments are verified in accordance with the established procedure;

- test equipment, measuring instruments and measurement techniques must comply with the requirements of the standards of the state system for ensuring the uniformity of measurements, regulatory documents for test methods;

- the environment in which the tests are carried out should not adversely affect the results and distort the required measurement accuracy. Rooms for testing must be protected from the effects of such factors as high temperatures, dust, humidity, steam, noise, vibration, electromagnetic disturbances, and meet the requirements of the applied test methods, sanitary norms and rules, labor safety and environmental protection requirements. The premises should be spacious enough to eliminate the risk of damage to equipment and the occurrence of dangerous situations, to provide employees with freedom of movement and accuracy of actions;

- Test rooms should be equipped with the necessary equipment and energy sources and, if necessary, devices for regulating the conditions in which the tests are carried out. Access to and use of test areas should be appropriately controlled; the conditions for the admission of persons not related to the personnel of this laboratory should also be determined;

- Defective equipment that gives questionable test results should be taken out of service and labeled appropriately to indicate that it is unusable. Such equipment should be stored in a specially designated place until it is repaired and its suitability is confirmed by tests (verification, calibration);

- each piece of equipment for testing or measurement must have a registration card containing the following information: name of equipment; name of the manufacturer (firm), type (brand), serial and inventory number; dates of receipt and commissioning; location at present - if necessary; condition at the time of receipt (new, worn, extended, etc.); repair and maintenance data; a description of any damage or failure, alteration or repair. Calibration of measuring and test equipment, if necessary, is carried out before putting it into operation and further in accordance with the established program;

- model substances should, where possible, be monitored for compliance with national or international standards for model substances;

- the testing laboratory must have the necessary documentation for the operation and functioning of the relevant equipment, for handling the tested products and preparing them for testing (if necessary);

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- the testing laboratory must use the methods and procedures established by the standards and (or) specifications in accordance with which the products are tested. These documents should be at the disposal of the personnel responsible for conducting the tests;
- if non-standardized test methods and procedures have been used where necessary, the laboratory shall fully record this;
- the laboratory must have an internal quality system corresponding to the scope of accreditation of the testing laboratory;
- elements of this system should be included in the Quality Manual provided for use by laboratory personnel. The updating of the Quality Manual is the responsibility of the responsible employee of the laboratory;
- When preparing the test report, special attention should be paid to the presentation of the test results and the elimination of difficulties in their perception by the user. The content of the protocol for each type of test carried out may differ, but the headings should be standardized;
- quantitative results should be presented with an indication of the calculated or estimated error;
- the testing laboratory must have a system for recording test results that complies with the established rules and ensures the registration of initial observations, calculations, derived data, verification reports and the final test report within a specified period. The records of each test should include the necessary information to enable satisfactory retests to be carried out. Registration includes data on testing and sample handling personnel;
- product samples submitted for testing must be identified for compliance with regulatory documents and accompanied by an appropriate selection protocol;
- at all stages of storage, transportation and preparation of products for testing, take the necessary precautions to prevent damage to products as a result of contamination, corrosion or excessive loads that adversely affect the test results;
- receipt, storage, return (or disposal) of samples are carried out according to clearly established rules;
- the staff of the testing laboratory must keep professional confidentiality in relation to information obtained in the performance of their functions;
- the testing laboratory must have a clearly defined complaint procedure, which must be documented and provided at the request of the customer;
- the testing laboratory shall assist the accrediting body and its representatives in the control of compliance with the requirements in accordance with GOST R 51000.3-96 "General requirements for testing laboratories" and other additional requirements. This assistance includes: providing the

- representative with access to the appropriate premises of the testing laboratory to monitor the progress of the tests; Conducting proof tests that allow the accrediting body to verify the laboratory's suitability for testing; participation in an appropriate laboratory quality assurance or interlaboratory comparison program that may be organized by the accrediting body; providing the accrediting body with the opportunity to familiarize itself with the results of its internal laboratory tests; submission to the accrediting body of information on the activities of the testing laboratory;
- an accredited testing laboratory must: meet the requirements in accordance with GOST R 51000.3-96 "General requirements for testing laboratories" and other criteria established by the accrediting body; declare accreditation only for those tests that fall within the scope of accreditation; bear the financial costs associated with the submission of the application, membership, participation, evaluation, supervision and other services, periodically determined by the accrediting body, taking into account the corresponding cost; not to use the received accreditation to the detriment of the accrediting body; to cease activities immediately after the expiration date, and also not to invoke accreditation in the laboratory's advertising; in all contracts with customers, indicate that laboratory accreditation or its test reports do not automatically mean that a product (service, process) is approved by the accrediting body or other organization as meeting the established requirements; ensure that the test report or part of the test report is not used by the customer or another party with the customer's permission for their own development or advertising, if the accrediting body considers such use to be incorrect. In any case, the test report cannot be partially reprinted without the written permission of the accrediting body and the testing laboratory; immediately inform the accrediting body of any changes affecting compliance with the requirements of this standard or any criterion defining the competence or scope of a testing laboratory. that the test report or part of the test report is not used by the customer or another party with the customer's permission for its own development or advertising, if the accrediting body considers such use to be incorrect. In any case, the test report cannot be partially reprinted without the written permission of the accrediting body and the testing laboratory; immediately inform the accrediting body of any changes affecting compliance with the requirements of this standard or any criterion defining the competence or scope of a testing laboratory. that the test report or part of the test report is not used by the customer or another party with the customer's permission for its own development or advertising, if the accrediting body considers such use to be incorrect. In any case, the test report cannot be partially reprinted without the written permission of

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As noted earlier, the need to create a center for standardization, certification and quality management really exists, since it is due to the need to ensure and manage the quality of footwear, maintain footwear production at the highest level and enter the international market.

It is recommended that the Center for Standardization, Certification and Quality Management (TsSSiUK) be created as a limited liability company so that the center can maintain and develop itself. Consequently, the center must be registered as LLC "TsSSiUK". The center will be headed by the general director.

The creation of the center is possible on the territory of the Rostov region, since it is here that the largest number of shoe enterprises are concentrated, moreover, it is the Rostov region that is the center of the Southern Federal District.

It would be rational to buy a premise for the center. But it should be borne in mind that the dimensions of the room must be appropriate for the location of the center.

The center should include a testing laboratory, within which tests will be carried out directly, not only certification tests, but also acceptance, periodic, standard and inspection tests, if necessary.

Also in this center it would be rational to create marketing and management departments to expand the range of commercial services provided.

In general, the center should include the following divisions:

- department of standardization;
- certification department;
- testing laboratory;
- quality management department;
- quality management department;
- marketing department;
- Human Resources Department;
- accounting.

The quality management department should be subordinate to the quality management department.

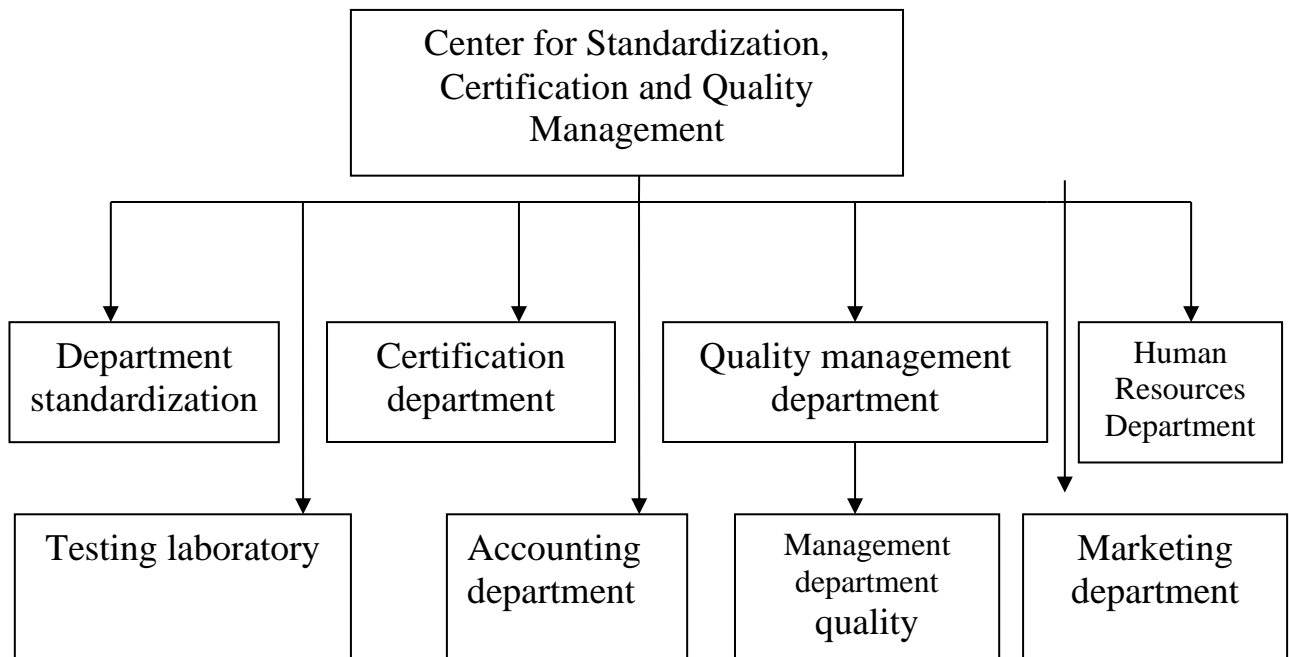
The organizational chart of management of the center for standardization, certification and quality management is shown in Figure 9.

The center is recommended to provide services not only to enterprises within the cluster, but also to other enterprises, whether or not related to the production of footwear. The testing laboratory must expand the list of tests carried out.

In general, the activities of the center should be aimed at maintaining shoe production at a high level, managing the quality of products of the enterprises of the shoe cluster, promoting the creation, implementation and certification of quality management systems of enterprises in accordance with the requirements of ISO 9001: 2015, as well as protecting consumers from low-quality goods. and facilitate the entry of the cluster's products into the international market.



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**Figure 9. Organizational chart of the center for standardization, certification and quality management**

The departments of standardization and certification should cooperate closely, since it is the department of standardization that will have to supply all the necessary normative and technical documentation to the department of certification.

In general, the standardization department will have to assume the following functions:

- maintaining (storing) a fund of normative and technical documentation of a shoe cluster, as well as normative and technical documentation of other spheres of production;

- development of standards of organizations for manufactured footwear, and development of standards of organizations commissioned by other enterprises, whether or not related to the production of footwear;

- carrying out examinations and approval of drafts of normative and technical documents received by enterprises from outside.

The personnel composition of the staff of the standardization department required at the initial stages of the center's functioning is shown in Table 19.

**Table 19. Personnel composition of the standardization department**

Position	Kind of activity	Education	Work experience
Head of department	Reporting to the CEO, material responsibility, responsibility for the services provided	Higher	At least three years in a similar position
Standardization Engineer (2 persons)	Development of organization standards	Higher	At least two years
Specialist in normative and technical documentation	Examination of incoming documents	Higher	About six months

The role of the certification department in the center will be as follows: based on the tests carried out in the testing laboratory of the center, it will issue GOST R certificates of conformity, register declarations of conformity, prepare exemption letters for customs and for sale, carry out certification of the quality management system for compliance with ISO

9001 requirements : 2015, as well as, together with the standardization department, agree and register the standards of the organizations.

The certification department must be accredited without fail. For this, the certification department will need to send an accreditation application to the Ministry of Labor of Russia, previously agreed upon



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with the relevant executive authority of the constituent entity of the Russian Federation in charge of labor protection issues, or the central body of the sectoral subsystem of the SSOT.

Simultaneously with the application, the following documents must be sent:

- a copy of the charter or regulations of the organization;
- a certificate of the organization's activities, attesting to its competence in the declared field of activity;
- draft regulation on the certification body;
- a copy of the charter or regulations on the organization (if the certification body is created as part of an organization that is a legal entity);

- information about the employees of the certification body;
- draft quality manual;
- list of organizations interacting with the certification body;
- draft agreement for accreditation;
- draft order on the functioning of the certification body;
- other materials at the discretion of the applicant.

All documents are submitted in duplicate on paper, as well as on magnetic media.

The certification department should include the following employees, the staffing of which is shown in Table 20.

**Table 20. Personnel composition of the certification department**

Position	Kind of activity	Education	Work experience
Head of department	Responsible for the services provided, provides reporting to the CEO	Higher	At least three years in a similar position
Certification experts (3 persons)	Document analysis, decision making	Higher	From three years
Secretary	Acceptance of applications, issuance of documents	Specialized secondary	Doesn't matter

It should be noted that the certification department must necessarily meet the requirements given in GOST R 51000.5-96 "General requirements for bodies for certification of products and services" (Approved by the Resolution of the State Standard of the Russian Federation (Federal Agency for Technical Regulation and Metrology) dated 02.29.96 N 138).

The testing laboratory plays an important role in confirming the conformity of products, since it is on the basis of the results obtained from the tests carried out in the laboratory that the certification department will decide whether to issue (refuse) a certificate or register a declaration of conformity. The testing laboratory must be accredited without fail. To do this, she will need to apply for non-accreditation and draw up a list of necessary documentation in the form of a table.

This list must include legislative and other regulatory legal acts on labor protection and other documents regulating the activities of the testing

laboratory in accordance with the scope of accreditation (including the provision on the procedure for certification of workplaces for working conditions, approved by the decree of the Ministry of Labor of Russia of 14 March 1997 year... No. 12 - recognized as not requiring state registration by the letter of the Ministry of Justice of Russia dated April 28 1997 year... No. 07-02-541-97), regulations on the testing laboratory, quality manual, job descriptions, labor protection instructions, etc.

The tables should contain the following information:

- types of measurements carried out by the testing (measuring) laboratory;
- equipping with measuring instruments (SI);
- staffing of employees.

The personnel composition of the testing laboratory workers required at the initial stage of the testing laboratory functioning is shown in Table 21.

**Table 21. Personnel composition of IL staff**

Position	Kind of activity	Education	Work experience
Head of IL	Material and technical responsibility, responsibility for the availability of the necessary documentation	Higher	From three years in a similar position

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Laboratory assistant (3 people)	Testing	Technical	Doesn't matter
Secretary	Maintaining test reports	Specialized secondary	Doesn't matter

The testing laboratory must necessarily meet the requirements given in GOST R 51000.3-96 "General requirements for testing laboratories."

Tests should be carried out in accordance with the normative and technical documentation and according to the following scheme, shown in Figure 17.

For testing, the laboratory must be equipped with modern testing equipment, namely:

- to determine the flexibility of a shoe - a special device for a tensile testing machine, consisting of a device for attaching the tested semi-pair and a device that bends the toe of the shoe along the bending line at an angle of 25 degrees (a diagram of a special device is shown in Figure 10);

- the strength of the fastening of the bottom parts of the shoe is determined using a tensile testing machine;

- the strength of the fastening of the heels is determined using a special device for a tensile testing machine;

- general and permanent deformation of the toe cap and backdrop is determined using the ZhNZO - 2 device;

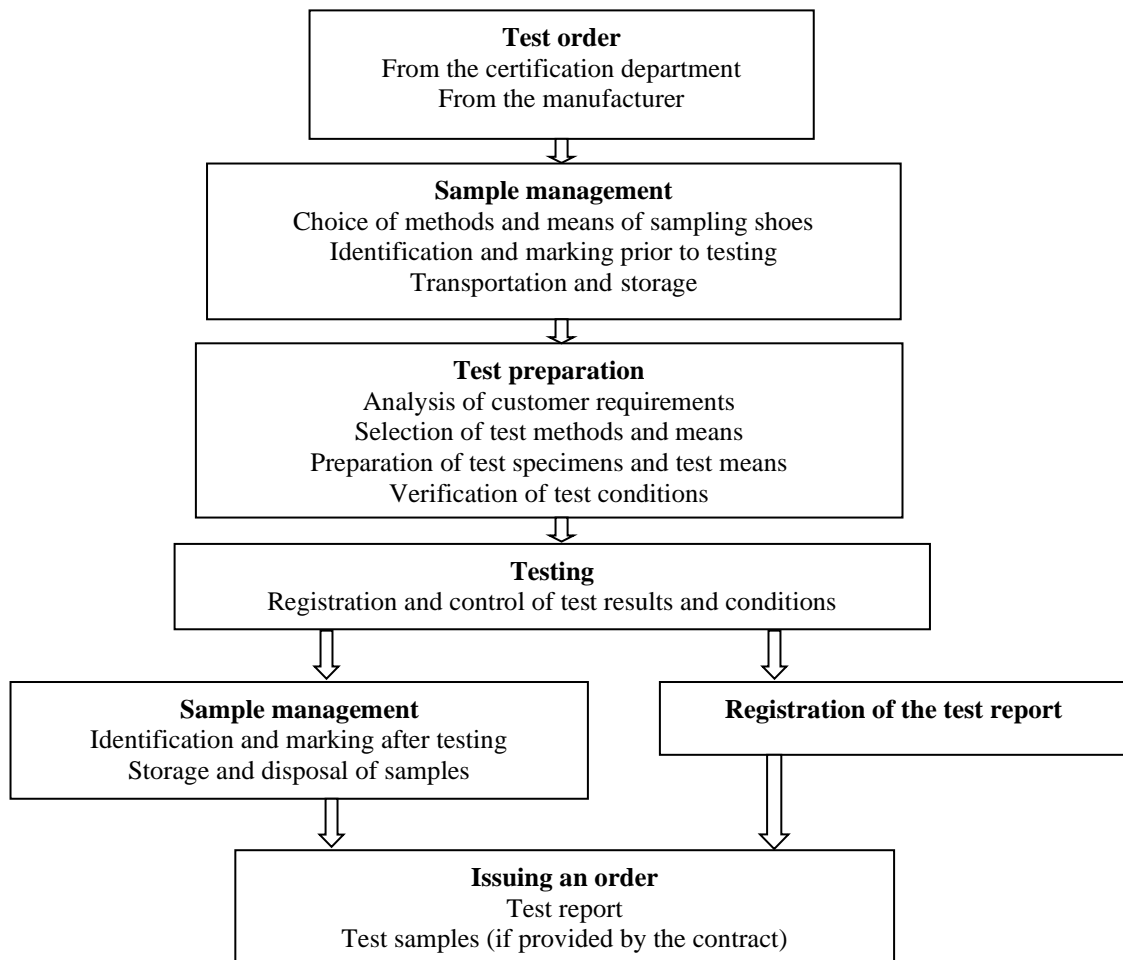
- the weight of the shoes is determined on a laboratory balance of the 2nd accuracy class;

- determination of the strength of the seams of the shoe upper blank - tensile machine;

- determination of linear dimensions - ruler, thickness gauge

Recommended equipment for testing the following brands and a set of characteristics:

The thickness gauge is designed to measure the thickness of leather, felt, felt and other materials.



**Figure 10. Structure of the certification process tests in IL0**

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It consists of a bracket, in the upper part of which there is a measuring mechanism, and in the lower part - a heel. A tip is installed on the measuring rod of the

indicator. The measuring rod with the tip is raised to the upper position by the lever. Table 22 lists the specifications for the thickness gauge.

**Table 22. Specifications**

Parameter	Meaning
Measurement limit, mm	0-50
Scale of the indicator, mm	0.1
Departure not less, mm	250
The greatest measuring force, N	3
Limits of the permissible basic absolute error, mm: - in the area from 0 to 1 mm - on the site over 1 mm before 50 mm	$\pm 0.1 \pm 0.2$
Overall dimensions, mm	370x120x270
Weight, no more, kg	

The technical characteristics of ZhNZO-2 are shown in Table 23.

**Table 23. Technical characteristics of ZhNZO-2**

Deformation measurement range, mm	0 to 25
Scale division, mm	0.01
Measurement error, mm	$\pm 0.1$
Effort of deformation of shoes, kgf	$5 \pm 0.100$ $eight \pm 0.160$
Tip radius, mm	$17.5 \pm 0.1$
Dimensions of the device, mm	300x400x570
Weight of the device with accessories, kg, no more	40

The machine is designed to determine the deformation and strength characteristics of various materials. The machine is equipped with a quiet, high torque, precision, gearless drive.

- stretching;
- compression;
- bending;
- other types of tests.

Types of tests (using the necessary fixtures):

The scope of delivery is shown in Table 24.

**Table 24. Basic supply of tensile testing machine IP 5158**

Components	IR5145-500-10	IR5145-500-11
Test setup	+	+
Instrument rack	+	+
Operator panel PO-3	+	+
Grips (type IV, GOST1497)	+	+
Strain gage force meter	+	+
a printer	+	-
Software and hardware complex	-	+

Additional Information:

Execution - desktop. At the request of the customer, the machine can be supplied in the required completeness, fully adapted to the specified methods and specific test conditions, additionally equipped

with devices, a computer, a printer (EPSON) and software.

Verification tools are not included in the machine package and can be supplied additionally. The machine provides mathematical processing of test results and displays the following information:

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	<b>GIF (Australia) = 0.564</b>	<b>ESJI (KZ) = 9.035</b>	<b>IBI (India) = 4.260</b>
	<b>JIF = 1.500</b>	<b>SJIF (Morocco) = 7.184</b>	<b>OAJI (USA) = 0.350</b>

- maximum load, N;
  - breaking load, N;
  - ultimate strength, MPa (kg / mm 2);
  - relative extension, %;
  - specific tensile strength, kN / m (kgf / mm);
  - tensile strength index; arithmetic mean.
- The technical characteristics of the tensile testing machine are shown in table 25.

**Table 25. Specifications**

Parameter	Parameter values for models	
	IP 5158-0.1	SP 5158-0.5
1	2	3
Type of force meter	strain gage	
Maximum ultimate load, N	100	500
Measurement range of loads with an error of 1% of the measured value	4 - 100	20 - 500
Active gripper movement speed, mm / min	from 1 to 500	
Deviation of speed from the set value, no more,%	± 5	± 5
Division value when measuring displacement, microns	1	1
Height of the working space without grippers and accessories, mm	800	800
Power consumption, kW	0.2	0.2
Overall dimensions, mm	650x500x1200	650x500x1200
Weight, kg	120	120

**Table 26. LP 2200S laboratory scale technical characteristics**

Parameter	Parameter value
1	2
Functional classification	Professional
Number of weighing ranges	1
Division value, g	0.01
The largest limit of weighing electronic scales, g:	2200
Calibration type	full built-in self-calibration of scales without operator intervention
Accuracy class according to GOST 24104-1988	3
Accuracy class according to GOST 24104-2001	II
Weighing pan design	rectangular open weighing pan

Double-sided caliper with depth gauge IIIИИ-I with indication of measurement results onliquid crystal digital display, designed to measure external and internal dimensions, intervals, as well as for measuring depths using the absolute method.

Outside measurements are made using the lower jaws, internal measurements are made using “sharp” jaws, and the depth is done using a depth gauge.

An example of a symbol for a digital caliper type SCC-I with measuring range 0-150 mm and the reading value of the liquid crystal digital display 0.01mm:

Vernier caliper IIIИИ-I-150-0,01.

Double-sided calipers with a depth gauge IIIИИ-I with indication of measurement results onliquid

crystal digital display made of carbon and stainless steel, with inch and metric scales. Calipers are made of two types by type stopping: with locking screw and trigger mechanism.

Vernier calipers IIIИИ-I according to ISO 9002 or DIN862 are made of carbon steel with chrome plating and stainless steel, with a graduation of 0.01 mm. The hardness of the measuring surfaces of tool and structural steel is not less than 51.5 HRC.

An additional zero setting allows the measurement of relative values.

The electronic unit of the vernier caliper makes it easier to take readings, both in metric units of measurement and in inches.

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Battery: Lithium battery 3V CR 2032, current consumption - 18  $\mu$ A.

There is a possibility of data output to a computer or controller of the automated process control system of the workplace from the electronic

unit of the caliper via the RS232 serial interface (COM - port).

Measurement repeatability - 0.01mm.

Execution according to the protection class IP65.

Technical characteristics of calipers are shown in table 27.

**Table 27. Technical characteristics of the caliper**

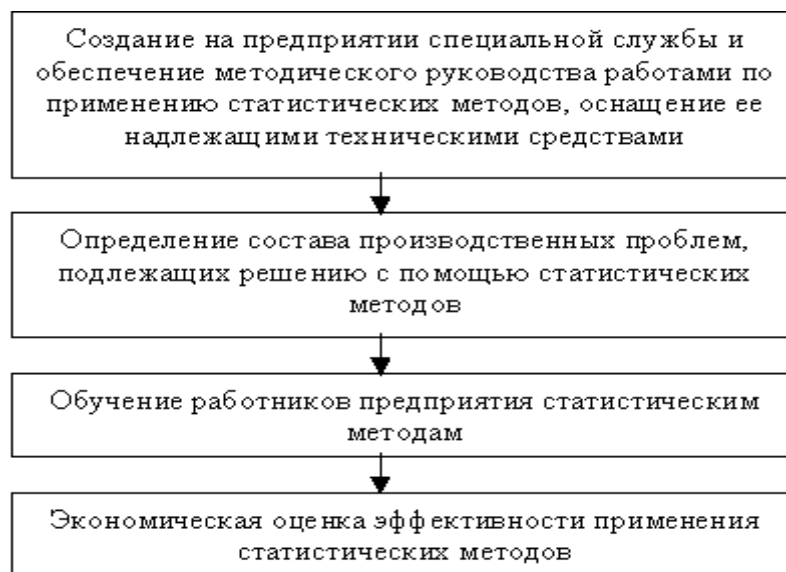
Model	Measurement limits, mm (inch)	Readout resolution, mm (inch)	Measurement error, mm (inch)	Weight, kg
ShTsTs-I-150-0.01	0-150 (0-6 ")	0.01 (0.005 ")	$\pm 0.03 (\pm 0.001)$	0.2

The quality management department in the center for standardization, certification and quality management should take the leading place, since it will be he who will have to assume the responsibility for quality management at the shoe factories of the TOP.

The quality management department will have to coordinate all the actions of the technical control departments at enterprises, collect information on the

activities carried out, analyze and develop quality improvement tactics specifically for each enterprise, as well as the introduction of new control methods according to the developed program specifically for each enterprise, taking into account the available equipment.

An approximate scheme for the implementation of new control methods can be as follows, shown in Figure 12.



**Figure 12. General scheme for the implementation of new control methods**

The quality management department will have to have the following staffing, shown in table 28

To carry out all the functions of ensuring and controlling the quality of footwear at enterprises, it

would be rational to include a quality management department in the department.

**Table 28. Personnel composition of the quality management department**

Position	Kind of activity	Education	Work experience
Head of department	Control of departments: management, marketing and advertising, reporting to the CEO	Higher	At least three years in a similar position



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Quality Engineer (2 persons)	Implementation of new control methods at enterprises	Higher	From one year
Analyst	Enterprise analysis	Higher	From one year

*Hotel quality management* should will coordinate the activities of all divisions of enterprises for the development and implementation of a quality management system (QMS) in the following stages:

- development of a draft quality management policy;
- development of a plan for creation and implementation;
- development and implementation of the organizational structure of the QMS;
- development of proposals for work with personnel (professional development and certification of personnel);
- development of QMS documentation, including the necessary forms and records, documented procedures, Quality Manual, in conjunction with quality authorized and quality groups of enterprises;
- streamlining of work processes in production, determination of measured parameters and characteristics of their quality, methods of their measurement and collection of information;
- participation in the QMS certification process (if necessary);
- maintaining effective functioning and management.

Main functions quality management department:

- implementation of quality policy;
- organization of work to improve quality;
- distribution of responsibility and authority, coordination of activities of all divisions of enterprises

in accordance with the policy and strategic goals of management in the field of quality;

- together with other structures of the quality system of enterprises, conduct training, internal methodological advice to heads of structural divisions of enterprises in the development and implementation of quality management methods and QMS documentation;
- development of preventive and corrective measures;
- preparation of proposals for eliminating inconsistencies, improving the qualifications and motivation of personnel, improving the material base, management at enterprises;
- creation of regulatory documents that meet the requirements of GOST R ISO, regulating the activities of enterprises in the field of quality management;
- ensuring the conduct of internal and external audits of the quality management system at enterprises;
- participation in seminars, conferences on quality problems held in external organizations on the territory of the Russian Federation;
- organization and holding of seminars, conferences on quality problems at enterprises;
- interaction with educational institutions, state and non-state public organizations in the Russian Federation, whose activities are aimed at improving quality.

The staffing of the management department is shown in Table 29.

**Table 29. Personnel composition of the quality management department**

Position	Kind of activity	Education	Work experience
Quality manager	Monitoring the work of other employees of the department	Higher	From two years
Quality Analyst	Enterprise analysis	Higher	From one year
QMS development analyst	Development of QMS at enterprises	Higher	From two years
QMS implementation analyst	Implementation of QMS at enterprises	Higher	From one year

In the center for standardization, certification and quality management, you can create a marketing department to expand the range of commercial services provided.

**Conclusion**

- Together with other divisions of the enterprise and the management of the enterprise, the

marketing department will help develop a strategy for the market activity of the enterprise:

- the goal of the marketing department will be to develop recommendations and coordinate activities for the formation and implementation of procurement, sales and service policies of enterprises;
- the functions of the marketing department will include the analysis of the internal and external

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environment of enterprises, [competitor analysis](#), market segmentation and product positioning, pricing, assortment formation and formulation of requirements for product quality and customer service, product promotion, formation and maintenance of the company's image and brands;

– the sales divisions will provide the marketing manager with information on the nature and results of their operations. The marketing department will provide all divisions of the enterprise with the information necessary for their market orientation of their activities;

– by order of the heads of enterprises and product groups, the marketing department will carry out certain types of marketing activities;

– the marketing department and marketing managers of enterprises will actively interact with the

advertising department (TsSSiUK) to form an advertising company;

– decisions influencing the market orientation of the enterprise will be made by all enterprises on the basis of recommendations and in agreement with the marketing department.

For the proper functioning of the marketing department, there should be the following staffing, shown in table 30.

The payback period of the center of the DCS and the management company depends on the costs spent on the creation of the center and the estimated income received from the provision of services by this center.

The costs of creating a center should be divided into capital and current. Capital includes: purchase of buildings and equipment. Current ones consist of salary payments, utility bills, etc.

**Table 30. Personnel structure of the marketing department**

Position	Kind of activity	Education	Work experience
Marketer (2 people)	Providing marketing services	Higher	From one year
Analyst (2 persons)	Collection of information, analysis	Higher	From one year
Internet Marketing Manager	Organizes communication with other enterprises,	Higher	From one year

The capital expenditures for the establishment of the center are shown in Table 31.

**Table 31. Capital expenditures**

Expenses	Amount (rubles)
1	2
Purchase of a building 600 m <sup>2</sup> (at the rate of 1 m <sup>2</sup> × 27000)	16,200,000
Office equipment:	1,020,000
34 computers for 30,000 rubles.	10,000
4 scanners for 2500 rubles.	
4 printers for 4000 rubles.	16,000
1 fax	10,000
4 photocopiers 3500 rubles each	14,000
6 split systems 11000 each	66,000
Furniture:	
37 tables for 4200 rubles.	155,400
70 chairs, 1500 rubles.	105,000
40 table lamps	14,000
40 shelves	21,000
15 wardrobes	205,000
Equipment for IL:	
Tearing machine	1,700,000
Laboratory balance	45,000
ZhNZO-2	7,000
Thickness gauge	3,850
Calipers	1,380
Other	556,000
Total:	20,149,630

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Operating costs are shown in table 32.

**Table 32. Running costs**

Expenses	Amount (rubles)
1	2
Company registration	78000
Accreditation of the certification department and testing laboratory	170,000
QMS implementation	156000
Electricity payment	3000
Internet connection	25500
Internet	7000
Stationery	12000
Wage:	
General manager	45000
Secretary-assistant	15000
Head of the department of standardization	20,000
Standardization Engineer (2 persons)	34000
Specialist in normative and technical documentation	15000
Head of the Certification Department	21000
Certification experts (3 persons)	48000
Secretary	6000
Head of IL	17000
Laboratory assistant (3 people)	24000
Secretary	5500
Head of Quality Management Department	25000
Quality Engineer (2 persons)	35000
Analyst	16500
Marketer (2 people)	30,000
Analyst (2 persons)	28000
Internet Marketing Manager	19000
Quality manager	16000
Quality Analyst	16000
QMS development analyst	16500
QMS implementation analyst	16000
Accountant (2 people)	25000
Programmer	17800
Document expert	12000
Electrician	7800
Cleaning woman	9000
Handyman (3 persons)	17300
Total per month:	557400
Total per month + 26% for the uniform social tax	702324
Total per year:	8427888
<b>Total:</b>	<b>88793888</b>

Estimated sales volume:  
 taking into account the production of 60,653,000 pairs of men's shoes, 94,021,000 pairs of women's and 35,482,000 pairs of children's shoes per year by TOP, the introduction of new technologies, the use of new materials, a constant change of assortment and the issuance of a certificate of registration of a declaration

of conformity for a period of 3 years, approximately, about 2,500 should be received annually applications for only certification tests, that is, sampling will amount to 7,500 pairs per year.

About 24 pairs of shoes will be tested per day.  
 The prices for testing are shown in table 33.

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**Table 33. Test rates**

Test type	Number of tests per year	Cost (rubles)
Determination of mass	277	170
Determination of total and permanent deformation	277	693
Definition of flexibility	833	403
Determination of the fastening strength of the bottom parts	833	688
Determination of the fastening strength of the heel	556	738

Taking into account the fact that for carrying out certification tests for women's and men's shoes, only three indicators are required, and for children's four, on average, testing for men's and women's shoes will cost 1,829 rubles, and for children's 1954 rubles. On average, the volume of sales from certification tests will be about 1,558,182 rubles.

The scope of implementation of the certification department:

- acceptance of applications for certification:  $277 \times 7,000 = 1,939,000$  rubles;
- registration of declarations:  $556 \times 5,500 = 3,058,000$  rubles;
- paperwork:  $833 \times 1,500 = 1,249,500$  rubles;
- miscellaneous: 154,000 rubles;
- total per year: 6,400,500 rubles.

The scope of implementation of the standardization department when servicing 12 enterprises:

- development of standards of organizations:  $12 \times 200,000 = 2,400,000$  rubles.

The volume of implementation of the quality management department when servicing 12 enterprises:

- introduction of new control methods (the price will depend on the enterprise, on average 55,000 rubles):  $12 \times 55,000 = 660,000$  rubles;
- development and implementation of QMS (the price will depend on the characteristics of the enterprise, on average 75,000):  $12 \times 75,000 = 900,000$  rubles;
- QMS certification:  $12 \times 45,000 = 540,000$  rubles;
- provision of marketing services: 1,345,000 rubles;
- miscellaneous: 875,400 rubles.

On average, the annual sales volume will be:  
 $1558182 + 6400500 + 2400000 + 660000 + 900000 + 540000 + 1345000 + 875400 = 14679082$  rubles

Let's calculate the approximate annual income of the center:

$$14679082 - 8879388 = 5799694 \text{ rubles.}$$

The payback period of the center will be approximately:

$$\frac{20149630}{5799694} = 3.5 \text{ years}$$

The center will have an approximate payback period of 3.5 years.

In the future, the profit can be used to expand the center, increase salaries for employees, repair and purchase new equipment.

As a result of the creation of TORs in the regions of the Southern Federal District and the North Caucasus Federal District, it is planned to achieve an economic effect, which is characterized by a decrease in logistics costs, stimulates the creation of enterprises for the production of components within TORs, and creates conditions for import substitution. But it is not enough just to create a TOP in the regions of the Southern Federal District of the North Caucasus Federal District, it is necessary to ensure its sustainable development in a certain market segment and the potential for its expansion in the future. Why is it necessary to use a set of marketing techniques: branding, participation in industry exhibitions, the creation of various advertising options, assortment policy. That will increase the volume of sales of products through recognition, increase the prestige, image of enterprises producing domestic footwear, which can also be achieved by improving the quality of products, focusing on advanced standardization, controlling the production of footwear at every stage of production, subjecting the incoming materials and raw materials to strict control. The final result of the research performed was the development of recommendations for ensuring the quality of manufactured footwear at enterprises that are going to enter the territory of advanced socio - economic development, which is being created in the regions of the Southern Federal District and the North Caucasus Federal District, namely, a proposal to create a center for standardization, certification and quality management.

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## References:

- (2021). *Methodological and socio-cultural aspects of the formation of an effective economic policy for the production of high-quality and affordable products in the domestic and international markets*: monograph / O.A. Golubev [and others]; with the participation and under the general. ed. can. philosopher. Sciences, prof. Mishina Yu.D., Dr. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.379). Novocherkassk: Lik.
- (2015). *GOST R ISO 9001-2015 Quality management systems. Requirements*. [Electronic resource] / Access mode: <http://www.glaysert.ru/articles/976/>, free, Cap. from the screen. - language Russian (date of treatment 05/03/2017).
- (2012). *Restructuring of enterprises - as one of the most effective forms of increasing the competitiveness of enterprises in markets with unstable demand*: monograph / N.M. Balandyuk [and others]; under total. ed. Doctor of Technical Sciences, prof. V.T. Prokhorov. FGBOU VPO Yuzhno-Ros. state University of Economics and Service". (p.347). Mines: FGBOU VPO "YURGUES".
- (2014). *Quality revolution: through advertising quality or through real quality*: monograph by V.T. Prokhorov [and others]; under total. ed. Doctor of Technical Sciences, prof. V.T. Prokhorov; ISOiP (branch) DSTU. (p.384). Novocherkassk: YRSPU (NPI).
- (2015). *Advertising as a tool to promote the philosophy of the quality of production of competitive products* / Kompanchenko EV, [and others]; under total. ed. Doctor of Technical Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University in Shakhty: ISO and P (branch) of the DSTU, (p. 623).
- (2015). *Assortment and assortment policy*: monograph / V.T. Prokhorov, T.M. Osina, E.V. Kompanchenko [and others]; under total. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the service sector and entrepreneurship (fil.) Feder. state budget. educated. institutions of higher. prof. education "Donskoy state. tech. unt "in the city of Shakhty Rost. region (ISOiP (branch) DSTU). (p.503). Novocherkassk: YRSPU (NPI).
- (2017). *The concept of import substitution of light industry products: preconditions, tasks, innovations*: monograph / VT Prokhorov [and others]; under total. ed. Doctor of Engineering Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.334). Novocherkassk: Lik.
- (2018). *The competitiveness of the enterprise and the competitiveness of products is the key to successful import substitution of goods demanded by consumers in the regions of the Southern Federal District and the North Caucasus Federal District*: collective monograph / VT Prokhorov [and others]; under total. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.337). Novocherkassk: Lik.
- (2018). *Management of the real quality of products and not advertising through the motivation of the behavior of the leader of the collective of a light industry enterprise*: monograph / O.A. Surovtseva [and others]; under total. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.384). Novocherkassk: YRSPU (NPI).
- (2019). *The quality management system is the basis of technical regulation for the production of import-substituting products*: monograph / A.V. Golovko [and others]; under total. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.326). Novocherkassk: YRSPU (NPI).
- (2019). *On the possibilities of regulatory documentation developed within the framework of the quality management system (QMS) for digital production of defect-free import-substituting products*: monograph / A.V. Golovko [and others]; under total. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.227). Novocherkassk: Lik.
- Aleshin, B.S. (2004). *Philosophy and social aspects of quality* / B.S. Aleshin et al. - Moscow: Logos.



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**Daniil Sergeevich Shcherbakov**

Institute of Service and Entrepreneurship (branch) DSTU  
bachelor

**Artyom Alexandrovich Tikhonov**

Institute of Service and Entrepreneurship (branch) DSTU  
bachelor

**Vladimir Timofeevich Prokhorov**

Institute of Service and Entrepreneurship (branch) DSTU  
Doctor of Technical Sciences, Professor  
Shakhty, Russia

**Galina Yurievna Volkova**

LLC TsPOSN «Orthomoda»  
Doctor of Economics, Professor  
Moscow, Russia

## ON THE PECULIARITIES OF THE RELATIONSHIP BETWEEN THE COMPETITIVENESS OF AN ENTERPRISE AND THE COMPETITIVENESS OF PRODUCTS FOR THE FORMATION OF ITS PRIORITY AND PREFERENCES BY CONSUMERS IN THE REGIONS OF THE SOUTHERN FEDERAL DISTRICT AND THE NORTH CAUCASUS FEDERAL DISTRICT

**Abstract:** in the article, the authors believe that the need to improve the quality management system at light industry enterprises is due to the following important reasons. Firstly, it is an increase in the confidence of potential consumers in the products that this company produces. Secondly, it is an opportunity to significantly strengthen its position in existing markets, as well as significantly expand its spheres of influence by entering new domestic and foreign markets. And thirdly, it is a significant increase in labor productivity of any industrial enterprise, where the QMS is supposed to be implemented using effective management. The authors analyze the possibilities of the company's policy and goals in the field of quality within the quality management system (QMS). The use of the Pareto diagram made it possible to visualize the effectiveness and efficiency of the quality policy and goals developed by the authors within the framework of the QMS to ensure defect-free production with a significant reduction in the output of defective products.

**Key words:** quality, import substitution, demand, competitiveness, market, profit, demand, buyer, manufacturer, financial stability, sustainable TPP, attractiveness, assortment, assortment policy, demand, sales. paradigm, economic policy, economic analysis, team, success.

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## Introduction

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The need to study topical problems of improving the activities of an important branch of the public economy - light industry - by leading Russian and foreign experts is of considerable interest. Such a transformation, despite all its conventionality, is not so harmless for objectivity in its understanding. Even such a wonderful thinker like G. Hegel sinned, willingly or unwillingly substituting opponents, so that it would be more convenient to criticize them. This article presents the author's approach and opens up an opportunity to find out the most significant first-hand, without intermediaries, who often darken the creative relationship, in order to make the right decision about finding answers to the questions posed. The quality is "written by nature" to be at all times in the epicenter of scientific and amateurish reflections. The problem of ensuring the quality of activities is not just universally relevant, it is strategic. The dilemma in relation to quality is reasonable only within the limits of opposing the ratio of actions "direct" and "mediated". The saying "it's all about him" owes its origin to quality. It is possible to "forget" about the problem of quality only because any fruitful and luminous activity is ultimately aimed at improving quality. Quality is either "on the mind" or "implied." From the relationship in the dynamics of these projections of the quality problem in creative thinking, an appropriate schedule is built, reflecting the relevance and profitability of activities aimed at the development of production. The dilemma in relation to quality is reasonable only within the limits of opposing the ratio of actions "direct" and "mediated". The saying "it's all about him" owes its origin to quality. It is possible to "forget" about the problem of quality only because any fruitful and luminous activity is ultimately aimed at improving quality. Quality is either "on the mind" or "implied." From the relationship in the dynamics of these projections of the quality problem in creative thinking, an appropriate schedule is built, reflecting the relevance and profitability of activities aimed at the development of production. The dilemma in relation to quality is reasonable only within the limits of opposing the ratio of actions "direct" and "mediated". The saying "it's all about him" owes its origin to quality. It is possible to "forget" about the problem of quality only because any fruitful and luminous activity is ultimately aimed at improving quality. Quality is either "on the mind" or "implied." From the relationship in the dynamics of these projections of the quality problem in creative

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The wise Buddha laid down four key steps in the eightfold path: correct understanding; making the right decision; finding the right words and, finally, the right actions aimed at implementing the right decisions. The fate of the light industry now depends on what this last step will be. Its execution is the function of the Government. The political paradigm is extremely simple - we should not compete with anyone in the fight for the world market, especially with the Chinese. The Chinese rightfully want to shoe and dress the whole world. One fifth of the world's population lives in the PRC. Our task is completely different. We need to make sure that the Chinese do not put shoes or clothe us. To transfer purchasing demand to our own Russian production, to interest in goods produced in the country. We are quite capable of such a task, as the manufacturers say. And the Government needs to do its direct work consistently and in a timely manner, that is, think, make a decision, bring everything to a result, work in a team and, most importantly, respect each other in this team. The results of studies assessing the competitive potential of shoe enterprises in the regions of the Southern Federal District and the North Caucasus Federal District with the participation of parents, children, buyers and manufacturers turned out to be significant. Their analysis confirmed the importance of marketing services in the formation of sustainable demand for domestic products within the framework of their preferences and priorities. And the more often these services interact with manufacturers and consumers, the more effective the results of these enterprises will be in ensuring they have a stable demand for their products and obtaining stable technical and economic indicators from their activities.

## Main part

The nature of the new competition in the modern world economy, due to the processes of globalization, sets high demands on manufacturers to increase the competitiveness of goods and enterprises. Increasing the competitiveness of enterprises and industries is one of the most important areas of real economic growth, both in Russia and in the regions of the Southern Federal District and the North Caucasus Federal District, which is reflected in the program document, namely, in the strategy for the development of light industry in Russia for the period up to 2025. In this regard, the problem of the competitiveness of domestic footwear requires the development of

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conceptual foundations of theoretical, methodological and practical recommendations adequate to the forthcoming changes in the organizational and economic mechanism of the functioning of the entire industrial complex of the country.

In modern conditions of market relations, a competitive environment and direct interaction of Russian and foreign manufacturers, solving the problem of combining state and market mechanisms for managing competitiveness is becoming a strategic resource for the economy of the regions of the Southern Federal District and the North Caucasus Federal District. In the world economy, the place of price competitiveness was taken by the competitiveness of quality levels, which will increase its relevance with Russia's entry into the WTO. An increase in the quality factor of the results of the production of domestic footwear in the strategy of competition in world markets is a long-term trend.

The task of increasing competitiveness is especially urgent for shoe enterprises, which, due to external factors (increased competition due to globalization, the global financial crisis) and internal (ineffective management), have lost their competitive positions in the domestic and foreign markets. In response to negative processes in the external environment, the processes of regionalization and the creation of various network structures are intensified, one of which is the union of commodity producers and the state.

Today, in the volume of sales of light industry goods in the Russian market, only 23.2% falls on the share of domestic manufacturers, on official imports - 27.1%, and the remaining 49.7% are goods of shadow production or illegally imported into the territory of Russia, mainly Chinese. and Turkish production. Almost 650 billion rubles are being withdrawn from taxes. Thus, the Russian market for light industry products is semi-criminal in nature. "Competing" with smuggled and counterfeit products, Russian manufacturers today are deliberately in a losing position.

Russian producers are almost completely ousted from the cheap sector of the market, and the supplied cheap imported goods, which are successfully sold by trade, are not always safe for human health. In general, the contribution of light industry to industrial production in Russia has decreased since 1990 by more than 10 times and today is just over 1%. Hundreds of enterprises went bankrupt and ceased to exist, including city-forming ones, on which the fate of small towns depends.

If the prevailing trends in the industry continue, according to international experts, in 5-10 years the Russian light industry may cease to exist. More than 80% of those working in the light industry are women. During the period from 1990 to 2020, the number of workers employed in light production decreased from 1,932 thousand people. up to 202.3 thousand people

The age structure of the labor contingent is extremely unfavorable. The level of wages in the light industry is still significantly lower (almost 2 times) than the average wages in the manufacturing industries and amounts to a little more than 9300 rubles per month.

This gives rise to a whole tangle of social and industrial problems. Their solution is hindered by the tense financial and economic situation of the enterprises of the industry. The profit of enterprises, light industry in 2020 decreased by 29.3% and amounted to 2.933 billion rubles, the loss of unprofitable organizations increased by 56.3%.

In addition, the share of wages, with its minimum absolute value, in the cost of light industry products is quite large, and a simple increase in wages will cause a radical decrease in the competitiveness of products.

A common problem of light industry enterprises is the use of morally and physically obsolete technological equipment. According to Rosstat, at the beginning of 2021 the share of equipment operated up to 5 years was 1.8%, 6-10 years - 33.5%, 11-20 years - 55.0%, over 20 years - 9.7% ... This not only prevents the production of a modern range of competitive products, but also leads to unsatisfactory working conditions and increased industrial injuries. It is impossible to rectify the situation without a radical technological re-equipment of the industry and tightening state control over the observance of legislation in the field of labor protection. Of course, the decisive factor in relation to light industry is the competitiveness of products in the context of virtually global competition in all markets. For,

- unbundling of enterprises and the predominance in the structure of production of small enterprises with up to 300 people, capable of quickly responding to market demands;

- unification of industry enterprises into holdings with a closed production cycle, associations and unions that develop common approaches to solving industry problems;

- orientation of the light industry to the tastes and needs of specific segments of the population, the age of consumers, climatic conditions, etc.

As the analysis shows, in fact, the only way to solve both economic and social problems associated with light industry, including improving the standard of living and social protection of its workers, is the accelerated modernization of the industry and its supporting infrastructures.

An increase in the standard of living and social protection of workers in the light industry should be based on the innovative development of the industry, through the introduction of highly efficient technological equipment into production, which allows saving labor, material and energy costs. The second direction of development is to increase the efficiency of the results of the light industry enterprises, which can be achieved through the use of

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more efficient technological processes, including through "horizontal" and "vertical" cooperation and integration of enterprises.

A balanced increase in the level of wages is possible only with an increase in labor productivity and an improvement in the quality of materials and products, which will make it possible to bring its average level to 30.0 thousand rubles. Thus, the modernization of the enterprise will increase the productivity of equipment and labor by 2.5 - 3 times. In addition, the replacement of outdated equipment will lead not only to an increase in labor productivity, but also to an increase in production automation, ultimately to a decrease in the intensity and monotony of labor, which will positively affect the health and motivation of workers in the industry.

A positive factor and feature of the light industry is the quick return on investment. The high mobility of production and the technological capabilities of enterprises allow for a quick change in the assortment of products and not reduce the volume of its output and, consequently, the volume of sales and tax deductions in the event of changes in market conditions associated with seasonal changes in demand and changes in fashion. The turnover in the industry, despite the actual absence of wholesale trade, occurs 2-4 times a year. The large share of final products sold in the retail network provides a quick return on investment, which makes it possible to effectively use borrowed and subsidized funds. Each additional 100 million rubles of working capital provides an increase in production volume for the year in the amount of 350-500 million.

Light industry is one of the most natural spheres for the establishment and development of small businesses. Small businesses today are concentrated in the retail area. Meanwhile, as world practice shows, the margin of safety of private entrepreneurial activity cannot be based solely on trade. Sewing and shoe production can be effectively organized with less than 100 employees and very modest start-up investments.

In our Russian conditions, the gap in prices of producers and sellers of certain groups of light industry products diverges several times (from 2 to 4 times). Thus, not only the consumer suffers due to the increase in prices, but all the profits obtained mainly remain in trade, while manufacturers, working at the lower limit of profitability, do not have the means to develop production and increase competitiveness of their products. This discriminatory distribution of profits leads to a monopoly of sellers and seriously hinders the development of the domestic processing industry.

The Ministry of Economic Development and Trade of the Russian Federation developed and adopted the Concept of Long-Term Socio-Economic Development of Russia until 2025, but unfortunately, in the document prepared by the Ministry of Economic Development and Trade of the Russian

Federation, along with many serious studies, there is no integral concept of state policy, aimed at the development of the country's industry, which would ensure Russia's breakthrough into the number of highly developed post-industrial powers and a decent standard of living for the population. This is possible if the components of the Russian light industry development strategy until 2025 are implemented, namely:

- to develop and legislatively consolidate the foundations of an effective state industrial policy as a system of agreed goals, priorities and actions of state bodies, business and science to improve the efficiency of industry, ensure high competitiveness of products, goods and services and a steady growth of production. When forming it, provide for outrunning growth in all sectors of high-tech products with an increase in its share in the total volume of industrial production by 2025 at least 50%, equality of subjects of industrial policy, guarantees of property rights;

- by ensuring the implementation of special measures to support priority high-tech industries (growth points) such as the aviation industry and engine building, rocket and space, radio-electronic, shipbuilding, nuclear energy, information and communication, create conditions for the effective development of the entire industry in Russia. In order to increase the volume of investments, create economic and legal prerequisites for the introduction and use of high technologies and new materials, primarily developed in Russia: to legislatively consolidate the foundations of the national innovation system in the Russian Federation; to establish a multiplying factor for R&D expenses included in the cost price; reduce VAT to 12%; to exempt from taxation the profits of enterprises invested in production; to create institutions of long-term crediting of modernization and technical re-equipment of industry at a low interest rate; to improve the system of VAT administration, to change the procedure and terms for paying taxes to replenish their own working capital by industrial enterprises; make the transition to a differentiated tax rate for the extraction of minerals depending on natural conditions, the degree of depletion of deposits, etc. ; to develop a competitive environment, develop and implement measures to combat price monopoly, to stabilize tariffs for the services of natural monopolies, to prepare and adopt a federal law "On Pricing and Tariff Policy"; to promote the creation and promotion of domestic national, regional and corporate brands of domestic products; in order to create competitive products, ensure the introduction of quality systems, facilitate the implementation of programs aimed at identifying, independent assessment of the quality and promotion of domestic products, intensify work on standardization, including the cost of research in this area to develop new and adjust existing national standards; to create conditions for the massive



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introduction of advanced technologies and equipment, to normatively fix the transition from the conciliation regime to the declarative one in most cases, with the exception of those necessary to ensure the safety of citizens and the country; including the cost of research in this area to develop new and adjust existing national standards; to create conditions for the massive introduction of advanced technologies and equipment, to normatively fix the transition from the conciliation regime to the declarative one in most cases, with the exception of those necessary to ensure the safety of citizens and the country; including the cost of research in this area to develop new and adjust existing national standards; to create conditions for the massive introduction of advanced technologies and equipment, to normatively fix the transition from the conciliation regime to the declarative one in most cases, with the exception of those necessary to ensure the safety of citizens and the country;

– Considering that mechanical engineering is a backbone complex, ensure its modernization in a short time and restore the technological basis of the national mechanical engineering complex - machine tool industry. To this end, use both domestic developments and the purchase of foreign equipment and technologies, using the international division of labor, and use the leasing mechanism more broadly. In addition to general measures to support industry, it is necessary to additionally prepare and adopt a state strategy for the development of the machine tool industry for the period up to 2025, including the implementation of special targeted programs aimed at financing promising scientific developments; modify the size and procedure for levying customs duties to stimulate the import of the latest technological equipment while promoting the revival of domestic production of such equipment, in particular, abolish customs duties and VAT on the import of new imported technological equipment not produced in the country; to develop and adopt a set of special measures to provide mechanical engineering and machine-tool building with scientific and engineering personnel, highly qualified workers, especially in the field of scientific research and applied developments, to form a system of employment of young specialists; develop and adopt amendments to the Tax Code (Chapter 25), establishing regimes of accelerated depreciation and preferences (premiums), allowing the amortization of the active part of fixed assets in the amount, exceeding their book value; to take measures to stimulate the system of state and commercial leasing of technological equipment for the purpose of technical re-equipment of the engineering industries; consider the possibility of a preliminary 100% payment from the federal budget for the cost of deliveries to enterprises of unique imported equipment, including on a lease basis, necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into

practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises; to take measures to stimulate the system of state and commercial leasing of technological equipment for the purpose of technical re-equipment of the engineering industries; consider the possibility of a preliminary 100% payment from the federal budget for the cost of deliveries to enterprises of unique imported equipment, including on a lease basis, necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises; to take measures to stimulate the system of state and commercial leasing of technological equipment for the purpose of technical re-equipment of the engineering industries; consider the possibility of a preliminary 100% payment from the federal budget for the cost of deliveries to enterprises of unique imported equipment, including on a lease basis, necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises; necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises; necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises; necessary for the purposes of technical re-equipment of machine building and machine tool building; to introduce into practice the conduct of a systematic all-Russian census of metalworking equipment, which will make it possible to have objective data on the state of the machine tool park of machine-building enterprises;

– to develop and implement a set of measures to solve the problem of a shortage of qualified personnel in industry, to improve the quality of training in higher educational institutions, to provide young specialists with housing on preferential terms, to introduce into practice the training of specialists under the state order, to provide modern equipment and dormitories of vocational schools, allow enterprises to allocate funds spent on personnel training to production costs in full, adopt special legislative and regulatory documents aimed at ensuring the industrial development of Siberia and the Far East;

– develop and legislate a set of measures to ensure the interest of business entities in actively



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participating in projects to improve resource and energy efficiency, including elements of monetary policy, currency and investment regulation, subsidy mechanisms, special tax and depreciation regimes;

- implement a set of measures aimed at the massive development of small and medium-sized enterprises in industrial production, innovation and services, primarily in terms of providing small and medium-sized enterprises with access to production facilities, purchasing equipment, including on a lease basis, development of microfinance and credit cooperation;

- to take measures to create the Russian processing industry of equal competitive conditions with importers, to accelerate the development and adoption of the federal law "On Trade" and accompanying regulations on the organization of the effective functioning of the Russian wholesale and retail trade;

- develop a strategy for regional industrial development of the constituent entities of the Russian Federation, including the territorial distribution of productive forces in the long term, link the development of regional infrastructure with the location of industrial facilities;

- clearly define the system for the implementation of the fundamental goals of the state industrial policy, ensuring the solution of systemic problems of the real sector of the economy, to correlate the need for investment, sources of investment and actually achievable socio-economic results.

In conclusion, I would like to once again draw your attention to the fact that all this will become a reality if one condition is fulfilled, namely, the products of the light industry will be produced of high quality.

As can be seen from Figure 1, the quality of products produced and supplied to the market is formed in the process of its production as a result of measures to improve production, improve the quality of products and services carried out by the quality service and quality management units, the purposeful actions of which, in turn, are determined by the results of product assessment in the process of competitions. Thus, in an unconventional way, we came to the traditional conclusion about the need to expand the work on the implementation of the quality management system at the enterprises of the region. Quality is the most ancient value of humanity. And it is precisely in the quality of Russian goods and services, in the quality of management that we are losing in global competition. Have you seen sophisticated products with the inscription made in Russia anywhere in the world? We, too. Long hoped for a worldwide ISO system. Alas, in Russian conditions it slipped into a crisis. Sorry, dear colleagues from the world of quality certification, but it's time to publicly list what it has become and what is almost recognized among themselves:

- an immense number of documents, in which there is no strength to navigate;

- the senselessness of many of them (for example, according to the terms of ISO, job descriptions are required, and everyone rushes to sketch something on the go, and then they forget them without a trace);

- one entrepreneur once said, "We are ISO certified." And then he added: "Do not think, we were certified by such and such a Norwegian company." Can you guess what this is about? Yes, selling certificates. Not everyone sells, of course, but reputation is never accidental.

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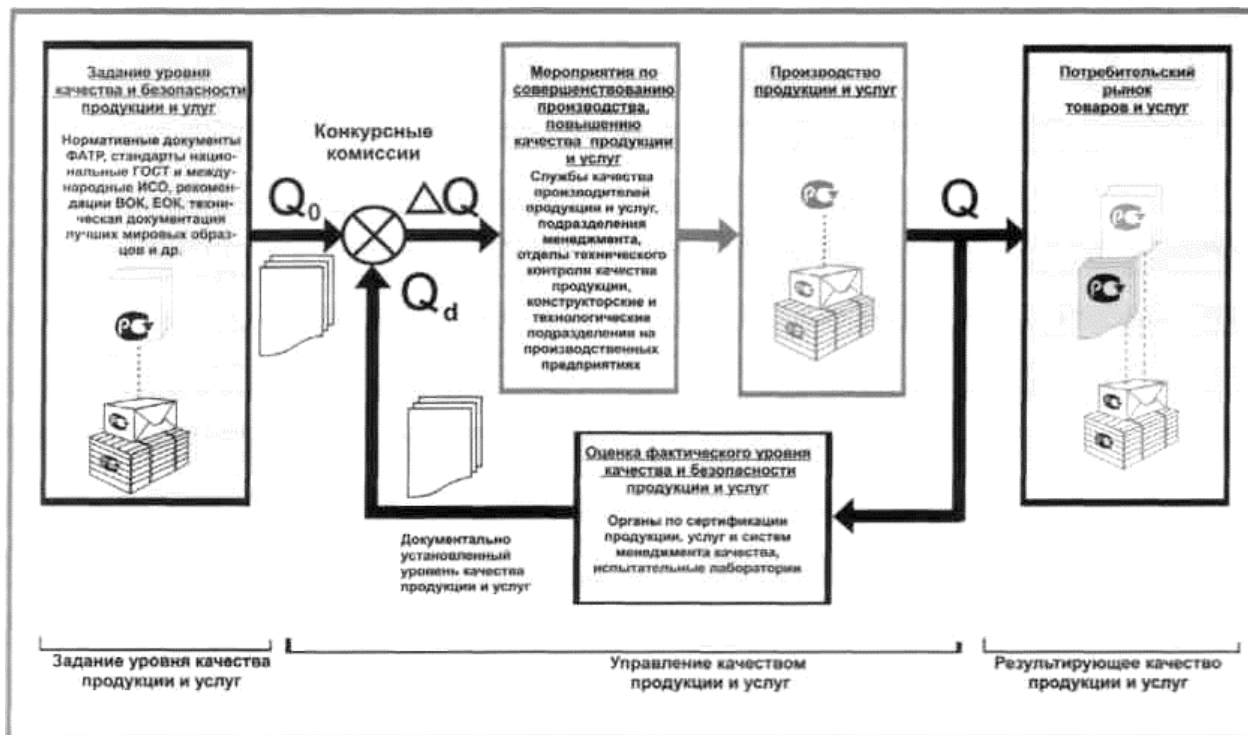


Figure 1. Scheme of the production of quality products.

So now, you say, don't you want to deal with quality? No, you just need to understand that the light has not converged like a wedge at ISO.

Let's agree on terms. What is quality? Compliance with standards, most will answer. Of course, where standards are possible, they are. Although the standards have tolerances. And the difference between the upper and lower divisions in these tolerances can be significant. And there are also limits to standardization. Let's say customer contact. Everyone knows that the quality of such a contact is critically important for the success of a business, when prices, assortment, terms are aligned under the pressure of competition. A certain set of friendly words, dress code, etc. can be considered a standard. Although we know very well what is covered by them. The current passion for describing business processes is also gradually approaching absurdity. And somewhere it has already reached it: at different firms we already meet a rigid description of the interview, not only when applying for a job, but even the standard for meeting and negotiating.

Now a different approach appears: quality is compliance with the needs of the client, the user. Whoever buys is the one who evaluates. It is only necessary to understand more precisely what exactly he values. If you hit it - here it is, the required quality, that is, the degree of customer satisfaction with the properties of the product. But this approach is also limited and stretches from the last century. Then the formula was considered indisputable: the buyer is always right. In our time, another imperative is much more true: the buyer does not know our capabilities.

Where are we heading? The understanding of quality as conformity (to a standard, a need) is outdated. Today, understanding it as a comparison is becoming much more capacious - with another product or with the same, but the same one. Comparison gives superiority of product over product, service over service, specialist over specialist, organization over organization. Comparison with a standard or need does not imply superiority. Only equality is possible there. The standard and the need indicate the minimum. And for whom is the minimum enough? Few. But superiority is interesting to everyone, because the law of increasing needs is inexorable. In practice, this means switching the quality assessment system to levels. For instance:

A. Sufficient quality, below which the defect goes, that is, the minimum acceptable, the use of which will not cause damage.

B. Reference quality - according to the principle of conformity to the reference, that is, the best available. A standard can appear from a standard, but any sample can serve as it: from what we have live in our company, from competitors, or at least somewhere in the form we know.

B. Avant-garde quality - something that is achieved for the first time, surpasses the standards, but can count on effective demand and an exit to profitability immediately or in the future.

This is the vertical of quality. She may admit more degrees. And one more thing: it's time to give up the idea that any quality can be measured. You can evaluate everything, but little that is important to us lends itself to measurement. Russia has entered the

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World Trade Organization and should be ready to accept its rules and regulations in order to remove technical barriers in trade and economic relations with other countries and in order to increase the competitiveness of its production. The analysis shows that one of the reasons for the low competitiveness of many sectors of the Russian economy is precisely the preservation of outdated state standards (GOSTs), which no longer contribute to the achievement of modern requirements for the quality of goods and services, technical and technological modernization of production. Under the system of state standardization existing in the Russian Federation, the manufacturer (entrepreneur) is actually excluded from the decision-making process to update the standards that determine quality, technical level and, ultimately, competitiveness.

Given the low international rating of the competitiveness of the Russian economy, an urgent need arose to reform the existing system of standardization and certification, the basis of which was formed back in Soviet times in the conditions of undeveloped market relations.

The characteristic features of the modern world economy are unstable production and unstable demand. Traditionally, it is believed that the former is determined by the latter. This formed the "cornerstone" in the foundation of economic theory, which replaced classical political economy. According to the dominant economic concepts of the 20th century, the locomotive of development is the demand for goods, i.e. it is not production but the market that drives the economy. The famous formula of K. Marx - one of the pillars of classical political economy - T – D – T today is perceived locally, as it looks in final terms: the sale of goods depends on the amount of money circulating in the market, in other words, the real purchasing power of consumers. From the proceeds received by the seller, in turn, the quantity and quality of the new batch of goods - the prospect of production - depends.

The market should strive to be self-sufficient. It requires maximum freedom to function properly. The idea of the founder of classical political economy, A. Smith, about the need for freedom of activity of the producer of goods in the newest - non-classical economic theory was transformed into a provision on freedom of the market in accordance with the shift of ideological priorities from production to distribution.

A. Smith was certainly right in the struggle for the freedom of the commodity producer, while the freedom of the market is far from identical with the freedom of the one who creates the real wealth of mankind. In conditions of complete freedom, the self-movement of the market, starting from the scale of the region, is doomed to instability. Unlike manufacturers who have the opportunity to enter into real cooperative relations and regulate the production of goods by assortment, quantity, price range and other

parameters, sellers, most of whom are resellers, intermediaries, speculators, are not heavily burdened with production interests. They have long become professional sellers, resellers. They don't care what to sell, the main thing is to get good and quick money. The future of specific production does not bother them at all.

The viciousness of the market we are dealing with in Russia is as follows: instead of providing normal opportunities for interaction between the buyer and the manufacturer (through the product and demonstration of the culture of its production), our market "divorces" the main market actors, making the figure of an intermediary absolute, usually uninterested in the fate of the manufacturer. One gets the impression that the market exists, so that the buyer does not "take a steam bath" with the interests and real culture of a particular manufacturer, existence is quite enough a businessman, by the way, in essence, has little responsibility for anything.

"Freedom of the manufacturer" and "freedom to organize commercial activities" (formal legal, financial and narrow organizational tools for controlling the latter have nothing to do with our problem; they do not significantly affect the achievement of production stability, stabilization of financial flows, mutual satisfaction of the producer and consumer) - freedom of a fundamentally different order. The state should not consider the market only as a source of tax revenues, a condition for a healthy lifestyle and safety of consumption.

The market is a link in the normal development of regional and national production. It is this function of the market that should be recorded as the first line in all documents of state economic policy. The very same economic activity must be built in the form of a policy aimed at consistently protecting the interests of producers, and not so much from foreign competitors, but from fellow countrymen-officials and all kinds of a kind of officials who have adapted to the practice, legalized with the help of officials, criminal organizations, who have replaced crimson jackets and gold chains for couturier suits and pectoral crosses, not hiding on "raspberries", since no one is going to look for them - they are well known, they "Legal" niche in the structure of administrative and financial mechanisms. Our laws allow them to legally earn more than on the "hop-stop".

The fantasy of a restless comrade Bendera limited herself to four hundred ways to circumvent the articles of the criminal code. How many such methods are now, hardly anyone will undertake to count. The saddest thing is that today Ostap Ibragimovich's extraordinary creative abilities are not needed, and therefore there are much more fraudsters than manufacturers of goods. The anti-hero Ilf and Petrov understood the futility of being a millionaire in his country, fled to Romania and lost a million at the border. For today's millionaires, the episode with the

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crossing of the border and the robbery of the enterprising "son" of Lieutenant Schmidt is the funniest passage in the novel.

Historical parallels are arbitrary, but instructive. It is senseless to repeat history, it is reasonable to draw lessons from history, to learn from historical experience, mainly national, without disdaining the past practice of other peoples. More than ever, in the experience of Peter I is relevant to the 21st century. Peter received the addition "Great", having settled the no less difficult situation that had developed in the country by the end of the 17th century.

The western borders of Russia, for the Europeans of that era, were the border where civilization ended and barbarism began. Something like this, two thousand years earlier, the Greeks and Romans considered their borders in the north, west and east. Almost everything was in decline: education, education, science, industry, agriculture, construction. The arguments of the church leaders, who suggested that the fate of Russia to be the "third Rome", spoke to few people about something. And to be the "third Rome", having inherited the faded greatness of Byzantium, did not seem to be a very tempting prospect. Byzantium became an ordinary stronghold of Orthodoxy and, under the influence of the Church, was selective about the scientific and philosophical acquisitions of Antiquity. In the culture of Byzantium, the ideas of Aristotle, medieval patristism and scholasticism were mixed. The understanding of science, which was formed in Western Europe in the 16th-17th centuries, was resolutely rejected by the Byzantine heirs.

Orientation towards Byzantium was reasonable in VIII-X centuries. The adoption of Christianity and the alliance with a powerful patron contributed to the integration of the Slavs, the formation of Russia as a single state. At that time, such an alliance was progressive in all aspects of cultural development.

Peter accepted Russia in a state of extreme backwardness, Europe was accelerating forward, leaving Russia with an Asian fate. The greatness of Peter, in contrast to contemporary politicians and spiritual leaders, did not appear in greater suffering and prayers, but in the ability to understand the intricacies of real life, to identify and take under personal control the nodal links of the socio-economic chain of events - past and present. He correctly assessed the situation, focusing his efforts on the economic revival of the country, and in essence began to build a new economy. Economic construction showed him a lack of enlightenment and education, a general cultural component. Peter launched a cultural "revolution".

The church did not like radical cultural innovations. Peter showed character here too. He did not try to persuade anyone and to adapt to no one. The tsar entrusted himself with the rank of patriarch.

Politics cannot be effective if it only adapts to the specifics of the economy and culture. Politics in everything should be a locomotive, act ahead, guide. It is deadly for politics to accompany a socio-economic movement.

Western ideologists are cunning, portraying the state as an intermediary between production and consumption. They argue that the task of politics is to ensure social justice in the distribution of national wealth, the state should not interfere in the economic movement - it is self-sufficient. The lies of such lobbying concepts become apparent in times of crisis. As soon as a recession begins, a decline in production, debts grow, a shortage of liquidity arises, producers, especially financial intermediaries, go directly to the state for help and are the first to receive it.

Peter ruled the country with decrees. As a rule, he wrote the text of the decrees himself, necessarily explaining what exactly the purpose of this decree has, how it should be carried out and what awaits those who do not. A.S. Pushkin, who studied the archive of Peter I, noticed that the decrees were often not fully thought out, the fruit of an impromptu. The great poet and thinker is right in his own way, with the proviso that Pushkin was not a great sovereign. Peter was forced to be operatively cruel. He was responsible for the fate of the Fatherland. Those who took upon themselves such a fate should not constantly look back at the laws in force and are afraid not to fit into their letter.

The historical routes are not laid by God, they are not developed a priori, they have to be laid, mastering a new historical space. The professional traveler does not hide behind the laws of nature while exploring unknown. And politics should be innovative, improve the legal order of things. Laws are not absolute, they reflect reality generalized in legal terms. Politics, on the other hand, is the art of managing a historically concrete reality that changes over time. Situational, problem thinking is important here. Realizing that it was impossible to build a new industry, to activate agricultural production without free access to sea transportation, the first Russian emperor resorted to extreme measures. In our time, there is no such need - thanks to Peter I - that makes the fate of politicians easier, without reducing the level of responsibility of actions and their innovativeness.

The easiest way to write off the crisis of traditional Russian industries on instability and economic transition. The transitional period, which has clearly been prolonged due to vague politics, will come to an end someday. As far as instability is concerned, politicians will be disappointed. In all likelihood, the cyclical crises discovered and explained by Karl Marx have been left behind by capitalism. Modern crises testify not so much to the peculiarities of the dynamics of industrially developed countries as to the crisis of the system of the bourgeois



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mode of production itself and the weakness of the social superstructure to take control of the growing negative trends.

The separation of finance from real production, the absolutization of the freedom of financial capital, the concentration of financial flows lead development to a dead end, cause anarchy provoked by stock market speculations. Instability is made stable, a common feature and it is time to talk about the nature of instability, which, like everything else, is changeable, to hope that instability will not gallop.

A significant part of the traditional Russian crafts has developed in the Non-Black Earth Region, primarily around Moscow. The geography of the history of light industry is understandable. There was a stable sales market and there was no shortage of workers, and the Lord did not deprive the Russians of talent. For twenty years of returning to capitalism for centuries, the perfected production is either already lost, or survives, having lost hope.

None of the politicians "ring the bells" that it is not factories, workshops, workshops that are dying, but that a layer of national labor culture is crumbling. Kuznetsov porcelain, Ivanovo textiles, Kostroma lace, Palekh, Mstera, Kholui, Fedoskino, Zhostkovo, Gus-Khrustalny, Dymkovo, Khokhloma - all this made us Russians. What is being done by politicians to save and stabilize the economic situation? Former assistant Yu.M. Luzhkova, Resin, who changed the office of an official to a place in the State Duma of the Russian Federation, reports to the whole country: a plan has been approved for the construction of 200 (!) Churches in the capital, so that the temple is within walking distance for Muscovites. The explanation that the project will not require budgetary money is a lie. They may not take money from the Moscow budget, but the Russians will still have to pay. Why not invest in the salvation of the Russian national industry (there was such a concept as "local industry"), villages, old towns - the mainstay, among other things, of Orthodox culture. Tourists will not go to typical temple buildings, but the lack of world-famous products of local industry will cause them deep disappointment. Shoes can be sewn anywhere, for example, in China, clothes - in Kyrgyzstan and in the same China. But there are many household products that have grown into the culture of the people who invented them. Their originality is unique.

Talk about cheap labor in China is yet another myth. In non-capital Russia, they earn no more than ordinary citizens in China. The essence is in the organization of production, in economic policy. In the People's Republic of China, the interests of the people and the country really come first. Economic activity in China has a clear and political landmark. In the Russian Federation, economic benefit is elevated to an absolute criterion, which is absurd, because the economy is not the goal of social development, it is

just a means of this development. In China, the manufacturer is maximally protected from "assaults", the law serves as a "roof" for him; the procedure for communicating with the buyer (customer) is extremely simplified, which significantly reduces the time of the transaction and the execution of the order, minimizes non-production costs; relations in the market are close to normaloviyam of its functioning.

Russian laws regulate the market space. The market space is a legally formalized reality, conventionally built according to the formula "it should be so", and this does not mean at all that it is and will be so.

The actual market reality is built as an environment for the interdependent coexistence of the producer, the seller (if the producer himself does not act as such) and the buyer - consumer (the inclusion of a reseller is highly undesirable). Market liberals led by E. Gaidar created an imaginary market, an ideal object outside the historical context, therefore they did not reform, but ruined the country's economy. Yeltsin and his company legalized looting. The economy that did not fall victim to the shock was thrown like a bone from the master's table to ordinary bandits, thieves and swindlers. From the economic hell of the 1990s only those who reckoned with the law and conscience least of all came out alive, strong and rich. That is why the economic collapse was followed by a spiritual crisis that continues to this day.

Russia has always been strong in the spirit of its provinces. The capitals accumulate the spiritual forces of the outskirts. It is these forces, like springs and small rivers, that give birth to large ones. The current flourishing of Moscow and St. Petersburg should not be misleading. Real life continues in the vastness of the country. 130 million Russians still live and work where our real power of the people is concentrated. What is encouraging? Strength of character of people. J.I. Alferov's foreign colleagues-scientists asked: "Are you an optimist?" He replied: "Yes, and my optimism is invincible." "Why?" - was the next question. "Because, the famous physicist explained, there are more and more optimists around me. Pessimists have moved to your countries. With which I congratulate you."

The authorities do not want to see the specifics of the Russian model of unstable demand for consumer goods: footwear, clothing, food, furniture, and household items. In Europe, the USA, Canada, during the crisis, the purchasing power of the bulk of the population decreases and, accordingly, the prices of goods go down, compensating, at least in part, for the satisfaction of essential living needs. The dynamics of prices for consumer goods in our country is always directed in one direction - increasing. Oscillations, of course, are observed, they are only noticeable in the official statistics. A normal market cannot change regardless of the state of production and consumption.



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The Russian market reacts to changes in the exchange rate, but again only in terms of price increases. One gets the impression that the market is being run by "puppeteers". The version is not indisputable, nevertheless, it is logically quite admissible. The authorities do not show activity, explaining that the desire to use regulatory mechanisms will inevitably lead to the impoverishment of the market and a shortage of goods. The natural question is: where will they go? No answer. Indeed, try to explain where the Chinese, Turkish, Latin American goods, products of Poland, Hungary, Ukraine, Moldova, Azerbaijan, Uzbekistan, the Baltic states will go from the Russian market? Who else needs them?

We need the protection of our own producers, who feed us, put on shoes, and clothe us. Russians in the last decade of the last century understood the advantages of domestic food products. The next step is the quality of light industry goods. And the state can promote their sustainable appearance on store shelves. What needs to be done for this? Develop a specific program and strictly monitor its implementation by officials.

The program for the return of Russian manufacturers to the market should provide for reciprocal steps by the state and enterprises. Going back to what and how they sewed before is pointless. An internal restructuring of production is required, and the market begins to feel it. Shoe and garment enterprises have appeared in Russia, supplying products that are quite competitive. The buyer, however, is still more surprised to find such products. Nevertheless, the process has begun and it needs to be promoted.

Of course, we are not talking about additional funding for the industry. "Industry" is a collective concept, generalizing not achievements in assortment, design art, quality, color. All manufacturers of certain products fall under the general concept. Both those who seek to modernize production and those who do not rely on their own strength are accustomed to asking for help from the state. Only innovators deserve additional financial assistance; it is effective in targeted implementation. We must help preserve traditional folk crafts. They are technically and technologically conservative, with limited innovation.

The government responded to the appeal for help from VAZ, St. Petersburg, Ural, Far Eastern enterprises, referring to their city-forming and national importance. Everything is correct, except for one thing - what kind of patriotism, what national pride can we talk about if a Russian is dressed and shod with foreign manufacturers, foreigners will also feed and water him. A great power starts small - with the realization that we can do everyday things ourselves, no worse than anyone else. We are surrounded by little things, they are in everything, and

their meaning is not always fully visible, but it is they that create our mood.

Outdated VAZ products were exchanged for new cars, the state subsidized the exchange. An old suit cannot be returned in exchange for a new one, and shoes that fail to meet the requirements cannot be taken back to the factory. There is another option - the state is able to compensate the buyer of domestic clothing and footwear products, say, 15-20 percent of the price. This particular form of protectionism will turn the buyer towards domestic goods and help speed up the sale of products.

It is no secret that the Russian consumer of footwear, unlike the manufacturer, expects to carry the purchased goods for more than one or two seasons. Products will need updating, repair. Why not, following the example of branded service stations, organize a branded network to support the operation of footwear and clothing. The repair would be cheaper and better. Equally important, such service would enhance the manufacturer's reputation. The average buyer, purchasing domestic shoes for 1500-2000 rubles, naturally thinks that he will wear them for a long time. His choice of repair addresses is small: to do it yourself, to go to a shoemaker-handicraftsman or to a company workshop. It is advisable to make workshops consolidated, so it will be less costly.

The state should take upon itself the lion's share of the costs of organizing the economic and industrial educational program. Branded foreign shoes are not worth the declared price, so sellers easily carry out various promotions and markdowns. The buyer, who is not privy to the intricacies of the market, naively believes that the difference in price is proportional to the difference in the quality of the goods and saves money, takes out a loan in order not to make a mistake with the choice, advertising constantly reminds him - "the miser pays twice!" Next to branded shoes there are fashionable, made of genuine leather, tastefully finished Russian products, the price of which is one and a half to two times lower, but who would explain that they are of the same quality. On the contrary, the advertising policy paid for by branded companies purposefully creates the idea that it is impossible to produce quality at Russian enterprises. military modern goods.

The program "Habitat" was launched on television, debunking myths about the usefulness of foreign products. We need a similar program dedicated to the quality of light industry products. Rospotrebnadzor regularly restricts the import of food products into the country due to exceeding the maximum permissible levels of ingredients that are harmful or hazardous to health. The dangers of shoes and clothing made in China are reported in Turkey sporadically in connection with any high-profile incidents. The suspicion of the strangeness of such a policy involuntarily arises. Someone benefits from shielding the main

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competitors of domestic manufacturers. And, after all, you will not find fault. Lobbying in Russia is legalized and has become a good business for officials hiding behind world practice.

Scattered and still weak enterprises find it difficult to resist a large-scale, well-developed policy that facilitates the occupation of the Russian market by foreign producers. This is also facilitated by the abolition of the mandatory certification of goods. The measure is probably appropriate for Western Europe with its consumer culture, but not for Russia, which is littered with counterfeit products from the most problematic manufacturers. There is no need to wait for a decline in market tension in order to win a place in the market, to gain stability, you need to act assertively and comprehensively, to revive the former Soviet experience of organizing work with a potential consumer. Fortunately, the development of the economy opens up prospects for tWhat kind of activity.

Practice is effective when theory sanctifies its path. At first glance, turning to theory amid anarchy in the marketplace is not entirely timely. On a fire, you need to extinguish, not reason. It depends on what the fire is. Sometimes it is important to think about how to act, develop a plan, and determine possible plots for the development of the process. As for the conquest of the market, there is no way to act without a systematic understanding of the situation. It will turn out to be too primitive and ineffective.

Economy XX century was formed as an economy of mass production. The organization of mass production was an outstanding achievement that provided access to material benefits for a significant part of humanity - there were a lot of goods, they became cheap. But mass production made the quality problem of the manufactured goods actual.

The growth of prosperity, the development of education, cultural progress, the increasing technical range of products naturally shifted the interest of consumers in the direction of the quality of products offered on the market. Quality problem out of pureproduction was transformed into socio-economic and political. "The large-scale crises in Japan and Germany in the late 1940s were overcome with the help of government policies focused on improving quality. The crisis situations in the US and European markets that arose in the late 80s - early 90s forced not only individual corporations, but entire countries - Sweden, Great Britain, the United States - to pay attention to quality improvement as the only means of helping national economy to resist the onslaught of competitors. "

Quality is a systemic characteristic of a product, in which the product appears in its holistic expression. In its most general form, "quality" is "what Hegel wrote, losing that, the phenomenon ceases to be itself." It is reasonable to assume that the understanding of quality is due to the nature of the

phenomenon. Phenomena of natural origin, that is, arising without human participation, are entirely objective and the quality of such phenomena is exceptional.the result of their self-movement.

The phenomena associated with the origin of human activities are also objectively qualitative, but the objectivity of the quality of these phenomena is dualistic. An objectified part is added to the natural basis of a commodity produced by a person, as a rule, a reified expression of the creative component of labor - knowledge, considerations, feelings, skills, in a word, what in the aggregate appears in the concept of the qualifying contribution of the subject of labor to the process of creating a commodity from an object.

The quality of an object turned into a commodity is formed by the interaction of the natural, humanitarian and social. As a result, a person has a natural right to see the quality of a product in the system of his, human, values. From this we get the opportunity to draw a very important conclusion: the quality of natural phenomena is given, the quality of created goods (products) is built simultaneously with the formation of the ability to feel quality. The upbringing of high-quality ideas can be spontaneous, incidental, or directed, modulated. Once the famous French artist E. Delacroix was asked if he could paint a portrait of Madonna with mud? Yes, he replied, only I need an appropriate background. Consumer education is not only a matter of the consumer himself. It is also an opportunity for a manufacturer to have a permanent customer.

Investigating the problem of the characteristics of the quality of goods, we did not find works devoted to the system analysis of quality - considering it in a system that links production, market and consumption, namely, it contains the opportunity to find an answer to the fundamental question: how to achieve a stable position in an unstable environment of existence.

The literature mainly deals with the quality of production of goods. And in this direction, the theory has reached the state of development that is required for practical progress in quality management. But this is clearly not enough to manage the activities of enterprises taking into account volatility of market dynamics.

The solution to the problem of the quality of goods - really key in the modern economy, must be approached: innovatively, combining the sequence of analysis with its comprehensiveness, as shown in Figure 2.

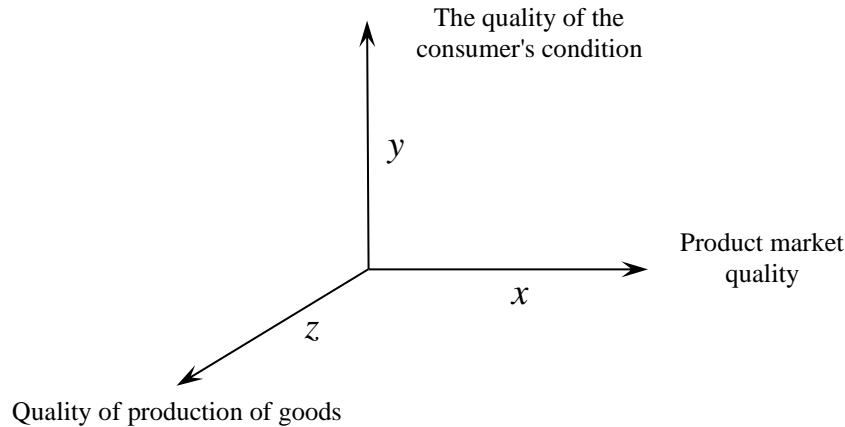
The demand for goods produced at enterprises of the light and food industries (and not only!) Is due not only to an expert assessment of the quality made by the production or at its request. The fate of a product is decided at the crossroads of interests and financial capabilities of three subjects: the manufacturer, the consumer and the market that connects the first two. In concrete terms, it looks like this: everyone solves

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his own problem, but should not absolutize his status, remembering his systemic position, which obliges him to act with an eye to the potential of “partners” - whether they are ready for the proposed solution to the

problem. That is why it is so important today to stay ahead of practical steps with balanced assessments of the current situation.



**Figure 2. Scheme of quality management of goods.**

The manufacturer is traditionally preoccupied with thinking about how to ensure the maximum possible conformity of commercial products to model samples. In the conditions of mass production, such a problem is quite costly, since it requires the organization of a special detailed service, and most importantly, where to find a significant number of qualified workers. The Japanese, faced with the problem of providing production with qualified performers, were forced to solve it in a very peculiar way - the most advanced equipment was supplied to their enterprises located in neighboring states: Malaysia, Thailand, Singapore, Indonesia in order to minimize manual labor. Not everyone is ready to follow Japan's example. The linear development of the economy would surely lead to a dead end - mass production would become extremely costly over time. No comprehensive mechanization and automation helped. Firstly, the reduction in personnel would cause an increase in unemployment with all the ensuing social negativities, and secondly, qualified workers would still be needed in large numbers.

Salvation came from the nonlinearity inherent in the dialectic of progress. The economy of mass production has exhausted its resource and, like the next stage of a rocket, has lost the need for existence. The economic paradigm has changed. Irrational in various aspects - environmental, humanitarian, economic, mass production has given way to "lean economy" (lean production). Manufacturing fundamentally changes its purpose. The traditional task of manufacturing a large number of products of the same type that meet the requirements of regulatory documents, from which the consumer is asked to choose the most suitable ones, is replaced by the task

of manufacturing exactly such a product that is needed by this consumer and exactly in the required volume and at a certain time.

The "lean" (sparing) economy draws the attention of the producer to the state of consumer sentiment. A manufacturer needs to study demand, look for a niche in consumer demand, "educate" through advertising, educational work, and the organization of customer service.

The new economic philosophy brings the producer and the consumer closer together, emphasizes the dialectic nature of their relationship - they are opposites, but such that exist only in unity. Initially, the producer and the consumer were generally in one person. The division of labor and the increase in its productivity physically separated one from the other, but the essence of the relationship did not change. They are naturally attached to each other, should be mutually close. The market opposed them, strives to further distance them, complicating the system of spatial relations with intermediary, transport and other tools. The task that unites the producer and the consumer is not to lose sight of each other, to clean up market superstructures, to make ourselves direct financial partners, reducing the financial burden on production.

At the same time, the manufacturer and the consumer in the system of market relations generated by the commodity economy are opposed to each other, therefore their understanding of the quality of production, goods partially coincide, which is also important to consider when setting up a presence on the market, hoping to gain a foothold there for the rest of their lives.

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Common signs of the quality of a product for a manufacturer and a consumer will be its usefulness, convenience, hygiene, ergonomics, resistance to deformation, ease of use, compliance with fashion. The consumer, in contrast to the manufacturer, is of little interest in the quality of the production of the goods, although the "promoted", that is, the enlightened consumer should not, according to the logic of changing things, completely ignore the technology, the organization of production. The connection between the quality of the product and the quality of production is of a causal nature, and this is quite accessible to the amateurish understanding.

For its part, the manufacturer runs the risk of being out of work if he underestimates the specifics of consumers' ideas about the quality of goods. E. Deming - the author of the classification of "fatal diseases" for the manufacturer - among the seven deaths named under No. 1 "orientation of production to such goods that are not in demand in the market", that is, are not in demand by the consumer; # 2 - "focus on short-term profits and short-term benefits." In both cases, the producer commits the same methodological error - he removes his activity from the system of relationships, makes "his area" universal, for which he pays in full measure.

The consumer's idea of the quality of the consumer goods is less objective, in comparison with the producer's understanding. A conscientious manufacturer, assuming professional obligations, attracts scientific knowledge, independent expertise, etc. The consumer, as opposed to the professional producer, is in the general mass an "amateur". His views on the quality of goods, to put it simply, philistine, are based not on scientific knowledge, but on common sense. They are dominated by a pragmatic approach, a subjective assessment. In theory, the manufacturer should always be right; practically - then there would be no normal market, so everyone knows the opposite statement: the buyer is always right.

The dominance of a pragmatic approach to the quality of a product from a consumer is a kind of cost in relations between the main market actors. We have to put up with this, otherwise, apparently, it is impossible to build a system-forming link in market practice. The consumer, as a buyer, is limited by his ability to pay. The manufacturer has certain theoretical resources, for example, to increase sales, working capital, cut costs, etc. The consumer-buyer has no real reserves - loans will only increase his expenses, and in the Russian Federation it is very significant. Based on his situation, the consumer looks at the quality of the goods through the sight of the amount of rubles set by the seller as the equivalent of quality. To the above we add the skepticism that awakens in the mind of the buyer the annoying repetition: "the price corresponds to the quality." The price can be equivalent to the quality only in a special case. A pack of middlemen feeds on the market.

"Quality" and "price" are basic concepts for both the producer and the consumer, but they are woven into systemic considerations in different ways, depending on the opposite of the market situation. Each of the subjects measures the quality of the goods based on their own status.

The third subject of relations between the producer and the consumer, and one more "evaluator" of the quality of the goods, is the market, which is a tool for regulating the relations between the producer and the consumer. The role of the market has historically strengthened with the development of national economies and the creation of transnational companies. The market from an episodic limited in time instrument, has become a completely independent economic phenomenon. The growth of the market was accompanied by its structural evolution; it eventually built up into a complex pyramid of direct, indirect participation; retail trade completed wholesale; transactions from the present have gone into the future. A leader has emerged on the market - the financial transactions market, which should be considered as a symptom, because the financial market, by definition, is remote from the subject and quality is presented here in a generalized, conditional way.

"Product quality", from the point of view of the market, is conventionally specific. This is a sign of the liquidity of the product. The product is not stale, therefore, the desired quality has been achieved. The market does not care if the quality of the product really satisfies the consumer. In the market, the "king" is not the buyer, but the seller, and the quality criterion is the time of sale of the goods. What will happen next? - the seller does not really care. That is why such a "deadly disease" as striving for immediate results is so widespread. Nevertheless, the "market theory" of quality takes place and must be reckoned with when determining economic policy.

Production, consumption and the market, which turned out to be the subject of their relations, are cultural phenomena, their historical concreteness is determined by time, national and regional characteristics of development. The word combinations "culture of production" and "culture of consumption" have long and firmly entered the professional vocabulary, which cannot be said about the "culture of the market". The difference is not difficult to explain. Production and modern consumption are based on scientific knowledge that reflects the objective order of things, it is easy to trace the influence of cultural traditions in them.

The history of the market is not so long and the attitude to the market is somewhat different in culture. The markets of the 20th century and the new century undoubtedly absorbed elements of culture, but turned out to be the very activity that does not have fundamental cultural values. The motto of Russian merchants: "Our goal is profit, but honor is higher!"



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took root thanks to the inherent and culturally designed guile. Honest and conscientious sellers in the market have never lingered - not their place. If the art of deceiving is counted among the totality of cultural phenomena, then the market is a form of reality of mass culturally shaped deception. They deceive everyone, always and in every way. And there is no less deception in the art market than in the theater, where, in their own way, they deceive too.

Subjective, with unstable, multidirectional dynamics of movement, the market is poorly predictable. The attempts that are made in predicting the behavior of the market are unproductive precisely because of the lack of objective indicators of the systemic type. So the market reserves, as an area of real quality management, are small, especially in the absence of the state's desire to actively intervene in the architectonics of market relations.

For a specific enterprise (better than an association, a group of enterprises), the prospects for promoting marketable products to the market are associated with the development of resources for understanding quality in the coordinates of production - looking for a quality compromise, and educating its consumer.

It is easier for European and North American manufacturers to settle in the market with their products. The experience of communicating with the consumer has been accumulated over the course of two or three centuries, the consumer has dealt with the producers, found "his own" according to his interests and pocket; the market has balanced, adjusted to the requirements of the legislation; the state does not put pressure on the market, the manufacturer and the buyer, but where it is present, it does it toughly. Corruption, arrivals, monopoly claims are not over, but the struggle is real, not decorative, fake, which greatly facilitates the availability of the market, unifies the conditions of competition.

Satisfaction with the quality of consumer goods is among the main problems of European theorists and practitioners. The problem, in schematic terms, is simple - it is necessary to qualitatively satisfy the end customer's need for a product. On closer analysis, simplicity turns out to be conditional - composite, in order to obtain the desired result, it will be necessary to build an ensemble in the market of the value of the

product (1), price (2) and the consumer's purchasing power.

In this sense, the market really acquires a key value for economic development, with the clarification that it is not so much the market in general as the market status of the consumer of the product. This emphasis of the economic policy of producers can explain the concentration of interests on the consumer. It is not important to wait for the consumer, he must be actively sought and "converted".

In foreign analytical reviews, information appeared that avant-garde marketers representing large companies producing mass-market goods propose to significantly expand the format of participation with product consumers up to discussing the recommended price for an economy-class product. The idea is quite reasonable and practically feasible at no special cost. Buyer's conferences are not realistic here, but the detailed practice of holding promotions, advertising actions with a device for displaying goods, communicating the estimated price and asking for a consumer assessment of the plans are quite promising and can be effective. One should not underestimate the modern buyer, his financial readiness, just as one should not force him to pay for the unqualified policy of the manufacturer with overstating the price. The agreed prices are also not fatal for the enterprise. There are always unused resources: materials science, technological, organizational, activating which the manufacturer makes the process profitable. There is a price to pay for a stable market position in the face of increased competition and volatility. Perhaps it makes sense to rationally modernize what is called "bargaining" on a "market" such as a bazaar.

The quality of a product, in practical consciousness, is determined through its ability to meet the needs and expectations of a particular consumer. The quality of a product consists of many useful properties. Figure 3 highlights the main qualitative properties of the product.

New for economic theory, the concept of "product value" is defined as "a set of quality parameters expected by the consumer for the product he needs." From the concept of "product value", the "Consumer Satisfaction Tree" was "grown".



## Impact Factor:

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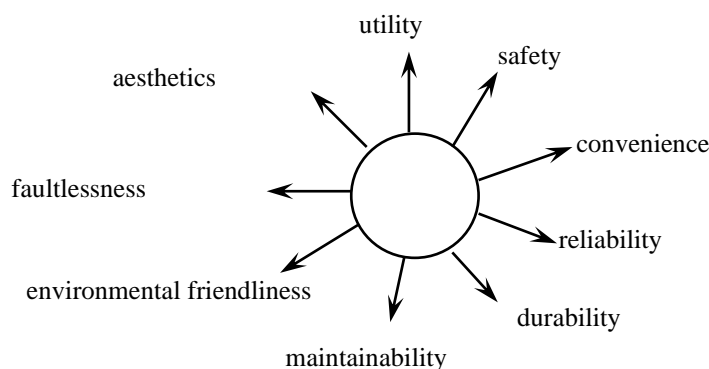


Figure 3 - The main quality properties of the goods

The value of a product consists of the degree of necessity for its consumer and the level of quality (the presence of the required characteristics of the product). The purchasing decision is also influenced by:

- the buyer's confidence in the supplier;
- trust in the manufacturer;
- information from other consumers;
- accumulated experience of using a similar product.

The consumer makes a purchase decision by weighing the ratio of the proposed price of the product to the estimated cost. The higher the level of customer satisfaction, the more opportunities for business development, the more stable its market position. But today, domestically produced goods in the domestic market of the country account for only 19% of the volume of all sold goods of the light industry, the rest is imports, the volumes of which are growing from year to year. In the first half of 2021 alone, imports of industry goods from non-CIS countries grew 1.6 times. Let's add to this the share of official imports - 24%. The rest of the goods - 57% - are illegally imported or illegally produced, the value of which is estimated at more than 800 billion rubles. in year. Losses of the state in this situation with the import of goods from the shortfall in duties and taxes amount to about 200 billion rubles. a year - a huge figure. In addition, this is a huge pressure on the domestic producer, which cannot compete with the product, the price of which is at least 38% lower than that of the domestic one.

First of all, these are the problems of unjustified import of the domestic market and an extremely slow decrease in the size of the import of contraband goods. Despite the measures taken, this huge share of imports in the country's domestic market has hardly declined. But the industry is ready to make up for a significant share of the goods of mass demand that are imported. And we proved it in 2008 year., when a small trade niche of duty import of goods by shuttles and other measures allowed us to dramatically increase production volumes, while all the goods were sold. But today this niche has already been exhausted, and

it is necessary to quickly make new decisions in order to give the domestic manufacturer its rightful place in the domestic market. In this situation, we are most worried about China, which supplies our market with a large share of imported products under gray and black schemes.

What should be done? Take advantage of the experience of other countries. For example, the experience of the European Union, which, in order to restrict the import of goods from China, concludes "Textile Agreements" with it, determining the size of the import of goods of this nomenclature into its territory. But they went even further, having agreed on the implementation of joint monitoring of Chinese textile exports to Europe, that is, they will monitor the real volumes of supplies. We recently hosted a delegation of Chinese officials. They assured us that they are also interested in honest, not smuggling, supply of industry goods to Russia. The Russian-Chinese Chamber for Promotion of Trade in Machine-Technical and Innovative Products has just been formed, and the Russian Union of Industrialists and Entrepreneurs (RUIE) has joined it. This body should also be involved in resolving our issues. Therefore, we believe that it is necessary to ask the FCS, The Ministry of Economic Development, the Ministry of Foreign Affairs and the Ministry of Industry and Energy take similar actions. Apparently, when we have accurate data on the actual export of goods by foreign economic activity groups from China, we will be able to use the law on special, protective and anti-dumping market protection measures.

In addition, we cannot but emphasize that with such a large share of exports in the domestic market, which is 81%, it is unreasonable to follow the path of lowering duties on the import of finished goods in the industry. But this was done for footwear, in spite of the well-reasoned objections of the industry business. And no matter how much the industry community raises this issue, they do not hear us. Today we ask the Russian Union of Industrialists and Entrepreneurs to once again contact the Ministry of Economic Development and the Federal Customs Service to reconsider this approach, which will allow the shoe

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industry to develop, otherwise we will lose the industry. Our point of view is to have high duties on the import of finished goods and low on the import of raw materials and equipment. Protective measures should be applied to those goods that the domestic industry is not capable of making. This is a worldwide practice. The state should think about domestic producers and protect them.

Therefore, the position in trade is so important for us. A trade law is being drafted. It is good that a decision has finally been made on such a law. But according to operational information, our problems have not yet been taken into account in the project side work of the law. Russian trade should be primarily interested in selling domestic products. This direction is not spelled out. In addition, so far no measures have been taken to eliminate discrimination against domestic producers in large retail chains. The Russian market is not protected from the flow of not only low-quality goods, but even dangerous goods, in particular, in the children's assortment, the underwear group, and toys. There is no service that can identify such goods and block their access to the market. How can you stop the flow of such goods from abroad? In these conditions, it seems necessary to revive the product safety and quality control service or to assign these functions to existing departments.

Industry also experiences unequal competition when trading its goods, since all profits from trade margins go only to trade, and industry does not get it. And these margins bring profits that exceed the profits of the industry by 100, and in some cases, even 300 times. (In our industry there is also a wide variation in consumption prices and production prices. For example, for shoes - 2.45 times, for calicoes - 2.4 times, for shirts - 1.85 times, children's shoes - 2.2 times. times and similarly for other types of products, the price of consumption exceeds the price of producers.) But no one has been granted the right to use separate regulators in matters of distribution of excess profits. But even the developed countries of the world have such regulators. For example, Japan has an upper limit on the trade markup.

The problem of creating a normal transparent civilized market and its protection, creating a system of checks and balances for adjusting the situation in this market, creating equal competitive conditions for manufacturers, importers and trade - this is a difficult long-term complex work. In our opinion, a special comprehensive program is needed to organize a civilized domestic market for non-food products. Such a program must be created. But this can be done only under the conditions of coordinated work of many federal ministries and departments, industry business and trade.

Moreover, this is especially important in the context of the WTO. Measures in this direction should be as follows:

First, we need to figure out what our internal market for industry products is, and for this we need to conduct monitoring.

Secondly, it is necessary to isolate which products should be used in the first place, and for this to link information about our own production and real imports.

And, thirdly, to predict and track the effectiveness of the decisions made.

I would like to note with satisfaction that on October 27 2007 year... a government decision was issued, in accordance with which the Government Commission on protective measures in foreign trade was created. Deputy Chairman of the Government of the Russian Federation Aleksey Leonidovich Kudrin was then appointed the chairman of this commission. Therefore, we can consider that we have achieved an increase in the status of an interdepartmental working group for coordinating the actions of federal authorities in solving the problem of protecting the domestic market from the illegal import of goods of the light and textile industries, which operates successfully in the Ministry of Industry and Energy. Today, the RUE and the Ministry of Industry and Energy should be asked to join this Commission of the Government in order to protect the interests of the domestic industry, and the industry business should prepare and substantiate sectoral issues for consideration by the Commission.

It would be advisable to create within the framework of this Commission a task-based coordination group to develop a program for protecting the consumer market for light and textile goods, including regional representatives. I would like the Duma not to "blab out" this problem when the law on the consumer market is adopted. Moreover, such a share of imports (80% of the volume of sales of goods) exceeds the threshold values of the country's economic security and indicates the need to take measures to protect this market and ensure its transparency and civilization, since the task of the state is to create general favorable stimulating conditions for the activities of market subjects - national firms - in order to significantly increase their ability to increase the export of goods, on the one hand,

In solving this issue, the role of trade and the law, which should regulate its activities, is great. In addition, it is necessary to ensure such a level of prices and tariffs that would guarantee both the manufacturer and the trade not only reimbursement of justified costs, but also the accumulation of funds for the development of production. It should be noted the positive progress in terms of improving domestic trade, measures that are planned by the Government of the Russian Federation in this matter, and, first of all, the development of a law "On state regulation of trade activities", the creation of a special department

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in the Ministry of Economic Development of the Russian Federation.

For light industry enterprises that supply products mainly to the domestic market, the issues of transparency, establishing fair rules for the “game” of market participants, equal access to the market for domestic and foreign manufacturers, eliminating unequal competition of its participants are very important and directly affect the results of the industry business. It seems to us that a significant side of the state's trade activities is the sale of products of the domestic processing industry as a stable channel for the constant filling of the budget, ensuring employment of the population, effective functioning of domestic business, as well as preserving the conditions for the qualification growth of workers and preserving the traditional centuries-old national industrial knowledge.

For domestic suppliers, these are the material and financial conditions for the access of suppliers of domestic products to work with retail trade. These requirements should be uniform for all suppliers of products to the domestic market. Today, large retail chains put forward requirements for the delivery of products without prepayment, restrictions on admission to delivery without paying special fees and other bonuses, which are essentially compensation for part of the costs of trade, requirements for a minimum restriction of delivery prices and their unification by regions, 100% return of unsold products and other discriminatory requirements. The regulation of these issues was not reflected either in the draft law or in the action plans to address the problem of improving domestic trade in general.

At the same time, foreign countries (Japan, China) operating under the WTO conditions allow themselves to set limits on trade markups, as well as restrict the admission of large retail chains to their markets without burdening them with the obligation to have on their counters a certain share of domestically produced products, seizures excess profits received from the use of winding up trade margins.

In our Russian conditions, the gap in prices of producers and sellers of certain groups of light industry products diverges several times (from 2 to 4 times). Thus, not only the consumer suffers due to the increase in prices, but all the profits obtained mainly remain in trade, while the producers, working at the lower limit of profitability, do not have the funds to develop production and increase the competitiveness of their products. This discriminatory distribution of profits leads to a monopoly of sellers and seriously hinders the development of the domestic processing industry.

1. To define as one of the goals of the new law the obligation of domestic trade not only to ensure the satisfaction of the needs of consumers of products, but also to provide favorable conditions for the sale of

domestically produced products, the obligatory availability of these products on the shelves and to create conditions for equal admission to the shelves of both domestic suppliers and importers ...

2. Provide in the law or other regulatory documents:

- obligatory minimum amount of an advance payment when concluding supply contracts;
- the maximum limited period of payment for the delivered products (no more than 45 days);
- prohibition of requirements to stimulate the seller with special "bonuses";
- a prerequisite for the prohibition of attributing all expenses for advertising, placement on counters, accounting for products in trade to the seller;
- introduce penalties for violation of these rules;
- to determine that the manufacturers of products have the priority right when concluding supply contracts.

3. To support the proposals of the Ministry of Agriculture of Russia on antimonopoly regulation of trade activities in the following issues:

- The Government of the Russian Federation sets limits on the size of the trade margin for the sale of certain types of products of the textile and light industry of mass consumption (as for agro-industrial products);
- the trade organization is not entitled to return unsold products to the supplier;
- to allow regional authorities to establish the minimum required level of availability of domestically produced products in network trade organizations, both for textile and light industry goods, and for agro-industrial products.

4. Introduce into the practice of Rosstat the conduct of periodic monitoring of the state of the domestic market in the context of the most massive types of textile and light industry products, in conjunction with imports and domestic production, which will allow assessing the need for additional measures to ensure market transparency and the need to protect it.

5. To eliminate the number of resellers, make a decision that wholesale companies that do not carry out operations with goods that do not lead to an increase in their added value are not entitled to set trade markups higher than the minimum level established by the Government of the Russian Federation.

6. Limit the number of wholesale links along the entire route of movement of goods to two. To oblige the supplier to provide all import-export documentation with a customs mark when supplying goods of import origin.

7. To ask the RF Ministry of Economic Development and Trade to work out the issue of quoting the share of imported goods (in terms of the

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mass range of textile and light industry products) in retail chains, providing for a progressive increase in taxes with an increase in the established quota.

The Ministry of Economic Development and Trade of the Russian Federation has developed and submitted for discussion a draft Concept for the long-term socio-economic development of Russia until 2025, but, unfortunately, in the document prepared by the Ministry of Economic Development and Trade of the Russian Federation, along with many serious studies, there is no complete the concept of state policy aimed at developing the country's industry, which would ensure Russia's breakthrough into the number of highly developed post-industrial powers and a decent standard of living for the population. This is possible if the components of Russia's development strategy until 2025 are implemented, namely:

- to develop and legislatively consolidate the foundations of an effective state industrial policy as a system of agreed goals, priorities and actions of state bodies, business and science to improve the efficiency of industry, ensure high competitiveness of products, goods and services and a steady growth of production. In its formation, provide for outrunning growth in all sectors of high-tech products with an increase in its share in the total volume of industrial production by 2025 at least 50%, equality of subjects of industrial policy, guarantees of property rights;

- by ensuring the implementation of special measures to support priority high-tech industries (growth points), such as the aviation industry and engine building, rocket and space, radio-electronic, shipbuilding, nuclear energy, information and communication, create conditions for the effective development of the entire industry of Russia. In order to increase the volume of investments, create economic and legal prerequisites for the introduction and use of high technologies and new materials, primarily developed in Russia: to legislatively consolidate the foundations of the national innovation system in the Russian Federation; to establish a multiplying factor for R&D expenses included in the cost price; reduce VAT to 12%; to exempt from taxation the profits of enterprises invested in production; to create institutions of long-term crediting of modernization and technical re-equipment of industry at a low interest rate; to improve the system of VAT administration, to change the procedure and terms for paying taxes to replenish their own working capital by industrial enterprises; make the transition to a differentiated tax rate for the extraction of minerals depending on natural conditions, the degree of depletion of deposits, etc .; to develop a competitive environment, develop and implement measures to combat price monopoly, to stabilize tariffs for the services of natural monopolies, to prepare and adopt a federal law "On Pricing and Tariff Policy"; to promote the creation and promotion of domestic national, regional and corporate brands of

domestic products; in order to create competitive products, ensure the introduction of quality systems, promote the implementation of programs aimed at identifying, independent assessment of the quality and promotion of domestic products, intensify work on standardization, including the cost of research in this area to develop new and adjust existing national standards; to create conditions for the massive introduction of advanced technologies and equipment, to normatively fix the transition from the conciliation regime to the declarative one in most cases, with the exception of those necessary to ensure the safety of citizens and the country; including the cost of research in this area to develop new and adjust existing national standards; to create conditions for the massive introduction of advanced technologies and equipment, to normatively fix the transition from the conciliation regime to the declarative one in most cases, with the exception of those necessary to ensure the safety of citizens and the country;

- Considering that mechanical engineering is a backbone complex, ensure its modernization and restoration of the technological basis of the national mechanical engineering complex - machine-tool industry in a short time. To this end, use both domestic developments and the purchase of foreign equipment and technologies, using the international division of labor, and use the leasing mechanism more broadly. In addition to general measures to support industry, it is necessary to additionally prepare and adopt a state strategy for the development of the machine tool industry for the period up to 2020 year., including the implementation of special targeted programs aimed at financing promising scientific developments; modify the size and procedure for collecting customs duties to stimulate the import of the latest technological equipment while promoting the revival of domestic production of such equipment, in particular, abolish customs duties and VAT on the import of new imported technological equipment not produced in the country; to develop and adopt a set of special measures to provide mechanical engineering and machine tool construction with scientific and engineering personnel, highly qualified workers, especially in the field of scientific research and applied developments, to form a system of employment of young specialists; to develop and adopt amendments to the Tax Code (Chapter 25), establishing accelerated depreciation regimes and preferences (bonuses), allowing to amortize the active part of fixed assets in excess of their book value; to take measures to stimulate the system of state and



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commercial leasing of technological equipment for the purpose of technical re-equipment of machine-building industries; to consider the possibility of a preliminary 100% payment from the federal budget for the cost of supplying enterprises with unique imported equipment, including on a leasing basis, necessary for the purposes of technical re-equipment of machine-building and machine-tool construction; to put into practice a systematic All-Russian census of metalworking equipment, which will allow you to have objective data on the state of the machine park of machine-building enterprises; to develop and implement a set of measures to solve the problem of a lack of qualified personnel in industry, to improve the quality of training in higher educational institutions, to provide young specialists with housing on preferential terms, to introduce into practice the training of specialists on state orders, to provide modern equipment and dormitories of vocational schools, allow enterprises to allocate funds spent on personnel training to production costs in full, adopt special legislative and regulatory documents aimed at ensuring the industrial development of Siberia and the Far East;

- develop and legislate a set of measures to ensure the interest of business entities in actively participating in projects to improve resource and energy efficiency, including elements of monetary policy, currency and investment regulation, subsidy mechanisms, special tax and depreciation regimes;

- implement a set of measures aimed at the massive development of small and medium-sized enterprises in industrial production, innovation and services, primarily in terms of providing small and medium-sized enterprises with access to production facilities, purchasing equipment, including on a lease basis, development of microfinance and credit cooperation;

- to take measures to create the Russian processing industry of equal competitive conditions with importers, to accelerate the development and adoption of the federal law "On Trade" and accompanying regulations on organizing the effective functioning of the Russian wholesale and retail trade;

- develop a strategy for regional industrial development of the constituent entities of the Russian Federation, including the territorial distribution of productive forces in the long term, link the development of regional infrastructure with the location of industrial facilities;

- clearly define the system for the implementation of the fundamental goals of the state industrial policy, ensuring the solution of systemic problems of the real sector of the economy, correlate the need for investment, sources of investment and actually achievable socio-economic results.

Quality is the most ancient value of humanity. And it is precisely in the quality of Russian goods and services, in the quality of management that we are

losing in global competition. Have you seen sophisticated products with the inscription made in Russia anywhere in the world? We, too.

Long hoped for a worldwide ISO system. Alas, in Russian conditions it slipped into a crisis. Sorry, dear colleagues from the world of quality certification, but it's time to publicly list what it has become and what almost everyone recognizes among themselves:

- an immense number of documents, in which there is no strength to navigate;

- the senselessness of many of them (for example, according to the terms of ISO, job descriptions are required, and everyone rushes to sketch something on the go, and then they forget them without a trace);

- one entrepreneur once said, "We are ISO certified." And then he added: "Do not think, we were certified by such and such a Norwegian company." Can you guess what this is about? Yes, selling certificates. Not everyone sells, of course, but reputation is never accidental.

So now, you say, don't you want to deal with quality? No, you just need to understand that the light did not converge like a wedge at ISO.

Let's agree on terms. What is quality? Compliance with standards, most will answer. Of course, where standards are possible, they are. Although the standards have tolerances. And the difference between the upper and lower divisions in these tolerances can be significant. And there are also limits to standardization. Let's say customer contact. Everyone knows that the quality of such a contact is critically important for the success of a business, when prices, assortment, terms are aligned under the pressure of competition. A certain set of friendly words, dress code, etc., can be considered a standard, although we know well what they cover.

The current passion for describing business processes is also gradually approaching absurdity. And somewhere it has already reached it: at different firms we meet already a rigid description of the interview, not only when applying for a job, but even the standard for meeting and negotiating.

Now a different approach appears: quality is compliance with the needs of the client, the user. Whoever buys is the one who evaluates. It is only necessary to understand more precisely what exactly he values. If you hit - here it is, the required quality, i.e. the degree of consumer satisfaction with the properties of the product.

But this approach is also limited and stretches from the last century. Then the formula was considered indisputable: the buyer is always right. In our time, another imperative is much more true: the buyer does not know our capabilities.

Where are we heading? The understanding of quality as conformity (to a standard, a need) is outdated. Today, it is becoming much more capacious understanding of it as a comparison - with another



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product or with the same, but the same. Comparison gives superiority of product over product, service over service, specialist over specialist, organization over organization. Comparison with a standard or need does not imply superiority. Only equality is possible there. The standard and the need indicate the minimum. And for whom is the minimum enough? Not many. But superiority is interesting to everyone, because the law of increasing needs is inexorable. In practice, this means switching the quality assessment system to levels. For instance:

A. Sufficient quality, below which the defect goes, i.e. the minimum permissible, the use of which will not cause damage.

B. Reference quality - according to the principle of conformity to the reference, i.e. the best available. A standard can appear from a standard, but any sample can serve as it: from what we have live in our company, from competitors, or at least somewhere in the form we know.

B. Avant-garde quality - something that is achieved for the first time, surpasses the standards, but can count on effective demand and an exit to profitability immediately or in the future.

This is the vertical of quality. She may admit more degrees. And one more thing: it's time to give up the idea that any quality can be measured. You can evaluate everything, but little of what is important to us lends itself to measurement.

Today, the problem of high-quality special-purpose footwear exists apart, where, in fact, both assessment and measurement go side by side, hand in hand. The potential demand of the domestic market for such footwear is growing from year to year, and an increase in capacities for its production would be justified. Today, its production in Russia is within 14 million pairs per year, with a total demand of 50-60 million pairs.

The technical level of domestic footwear for special purposes basically corresponds to similar foreign products. In terms of price parameters, our footwear is close to foreign ones, with the exception of special footwear from China, which has a lower price level. The analysis shows that in a number of cases, both domestic and foreign safety footwear does not meet the requirements of operation, for example, in terms of the strength of fastening the bottom of the footwear, the used component materials, and the necessary protective properties.

The current regulatory and technical documentation for special footwear has 50 GOSTs, OSTs and a huge number of technical specifications. Most of the regulatory and technical documentation requires revision due to the expiration of the validity period, the emergence of new materials and modern fastening methods, which should be included in the technical documentation.

To increase the specific advantages of domestic products in the Russian Federation, scientific

developments should be carried out to create new and improve existing types of special-purpose footwear on the basis of modern materials, designs, technologies: for example, such as anti-static footwear: vibration-proof; for protection against aggressive media and exposure to low temperatures in extreme conditions, etc.

In this regard, it would be advisable to include in the developed program of strategic development of light industry until 2025:

- development of Technical Regulations "On the safety of footwear for special purposes";

- development, revision of the changes and additions made to the regulatory documentation for special footwear with their simultaneous harmonization with international standards;

- development of amendments and additions to the normative documentation for test methods, measurements and assessment of the domestic assortment of footwear for special purposes;

- development of national standards for the entire range of footwear for special purposes;

- adjusting the legal framework in the field of standardization and certification of safety footwear in order to bring it in line with the Federal Law "On Technical Regulation" and the adopted amendments to it, as well as international norms and rules;

- creation of an internationally accredited national center for certification and testing of special-purpose footwear;

- R&D to create new and improve existing technologies for the production of footwear for special purposes in order to ensure their competitiveness both in the domestic and foreign sales markets;

- to develop a control system for the compliance of imported special-purpose footwear to the domestic market with domestic regulatory documents, declared in them indicators of properties and quality.

The need to develop technical regulations for special footwear due to the fact that on the domestic market of personal protective equipment, in particular special footwear, Russia is one of the largest consumers of products. The climatic and operating conditions of footwear in Russia differ significantly from the corresponding conditions in most foreign countries: low temperatures, a high level of potential injury hazard in a number of industries with insufficient funding for labor protection and safety measures.

The analysis of the operational and protective properties, as well as the results of laboratory tests, including certification tests, show that there is practically no state control over the fulfillment of technical requirements, the materials used, and special manufacturing technologies. shoes. In addition, the analysis of the "Norms for the free issuance of personal protective equipment" of a number of the

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largest enterprises showed that there are no well-formulated requirements for the protective properties of special footwear, which leads to the operation of this type of footwear, inappropriate for its intended purpose and does not provide the necessary level of protection. The same can be said about the comfort of the special shoes. Simultaneously with the creation of technical regulations, the development of national standards for all types of footwear for special purposes should be carried out.

### Conclusion

An integral part of the implementation of the technical regulation system is the conduct of certification tests of both domestic and imported special-purpose footwear, which will eliminate the supply of low-quality products to consumers, and improve the overall technical level of products.

To this end, it is advisable to create a national "Center for Certification of Special Purpose Shoes" accredited in accordance with Russian and international requirements, equipped with modern devices and equipment. The implementation of the proposed activities will allow:

- create a new regulatory framework for special footwear;
- increase the competitiveness of products;
- to increase the volume of production of footwear for special purposes in the Russian Federation;
- provide workers with footwear with high protective properties;
- improve the health and working conditions of workers in various professions and industries;

- to clarify the norms of free issuance of special footwear, adjusting the requirements for it in accordance with modern conditions.

In the new economic conditions, only such production is progressive that actively and dynamically responds to emerging tasks. The principle "to produce only what is needed, when needed, and as much as needed" requires shoe enterprises to adapt to the conditions of production in small batches with frequent changes in the assortment of shoes, ie. to the conditions of many assortment small-scale production. The efficiency of the footwear enterprise, and in many respects the ability to survive in the competition, depends on the ability, in a short time and with minimal costs, to reorganize to the production of footwear in accordance with fluctuations in demand. The development and implementation of flexible production systems opens up great opportunities for this. The technological and organizational flexibility of production systems determines the variable potential of enterprises, their ability to quickly and adequately respond to changes in market conditions and acts as a mechanism for optimizing the structure of the technological system in order to reduce the cost of footwear. Thus, the development of flexible technological processes for the production of leather goods ensures high efficiency with a large assortment of footwear and will provoke a sharp increase in demand for the products of shoe enterprises in the regions of the Southern Federal District and the North Caucasus Federal District.

### References:

1. (2021). *Methodological and socio-cultural aspects of the formation of an effective economic policy for the production of high-quality and affordable products in the domestic and international markets*: monograph / O.A. Golubev [and others]; with the participation and under the general. ed. can. philosopher. Sciences, prof. Mishina Yu.D., Dr. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. - Novochockassk: Lik.
2. (2020). *Features of quality management; manufacturing of import-substituting products at enterprises of the regions of the Southern Federal District and the North Caucasus Federal District using innovative technologies based on digital production*: monograph / O.A. Golubev [and others]; with the participation and under the general. ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. - Novochockassk: Lik.
3. (2009). *Modern approaches to meet the demand for shoe products enterprises of the Southern Federal District monograph* [Text] [and others] / V.T. Prokhorov and others; under the general editorship of prof. V.T. Prokhorov. (pp.29-137). Shakhty: Publishing House of GOU VPO "YURGU-ES".
4. (2009). *How to ensure a steady demand for domestic products of the fashion industry*: monograph / Mishin Yu.D. [and etc.]. (p.443). Mines: Publishing house of YURGUES.

**Impact Factor:**

**ISRA (India) = 6.317**  
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**ICV (Poland) = 6.630**  
**PIF (India) = 1.940**  
**IBI (India) = 4.260**  
**OAJI (USA) = 0.350**

5. (2012). *Control production of competitive and demanded products*: / V.T. Prokhorov [and others]; under the general ed. Doctor of Technical Sciences, prof. V.T. Prokhorov. (p.280). Novocherkassk: YRSTU (NPI).
6. (2012). *Enterprise restructuring is one of the most effective forms of increasing the competitiveness of enterprises in markets with unstable demand*: monograph / N.M. Balandyuk [and others]; under the general ed. Doctor of Technical Sciences, prof. V.T. Prokhorov. FGBOU VPO Yuzhno-Ros. state University of Economics and Service ". (p.347). Mines: FGBOU VPO "YURGUES".
7. (2012). *The influence of cash flow on the efficiency of a cluster formed on the basis of shoe enterprises in the Southern Federal District and the North Caucasus Federal District* / L.G. Gretskaya [and others]; under the general ed. Doctor of Technical Sciences, prof. V.T. Prokhorov. (p.354). Mines: FGBOU VPO "YURGUES".
8. (2012). *Innovative technological processes in light industry for the production of competitive and demanded products*: monograph / V.T. Prokhorov, T.M. Osina, L.G. Gretskaya; under total. ed. Doctor of Technical Sciences, prof. V.T. Prokhorov; ISOiP (branch) DSTU. (p.435). Mines: ISOiP (branch) DSTU.
9. (2015). *Science-intensive technologies at the service of human ecology* [monograph] / IV Cherunova, SA Kolesnik, S.Sh. Tashpulatov, AD Chorny. and others .. - Under the general editorship of Doctor of Technical Sciences, prof. Cherunovoy I.V. - Based on the materials of the II International Scientific and Technical Conference "Science-intensive technologies at the service of human ecology, ISOiP (branch) of DSTU in Shakhty. (p.144). Novocherkassk: Lik.
10. (2015). *Assortment and assortment policy*: monograph / V.T. Prokhorov, T.M. Osina, E.V. Kompanchenko [and others]; under the general ed. Dr. tech. Sciences, prof. V.T. Prokhorov; ISOiP (branch) DSTU. (p.246). Novocherkassk: YRSPU (NPI).
11. (2015). *On the new opportunities of the regions of the Southern Federal District and the North Caucasus Federal District on the formation of consumer preferences for products manufactured at light industry enterprises*: monograph / V.T. Prokhorov, T.M. Osina, E.V. Kompanchenko [and others]; according to the general ed. Doctor of Technical Sciences, prof. V.T. Prokhorov; Institute of the service sector and entrepreneurship (fil.) Feder. state budget. educated. institutions of higher. prof. education "Donskoy state. tech. un-t "in the city of Shakhty Rost.obl. (ISOiP (branch) DSTU). (p.316). Novocherkassk: YRSPU (NPI).
12. (2014). On the influence of nanomaterials and technologies on the casting properties of polymer compositions based on ethylene with vinyl acetate VT Prokhorov, NV Tikhonova, TM Osina, DV Reva, AA Tartanov, PN Kozachenko. *Bulletin of Kazan Technological University*, Vol. 17, No. 19, pp. 130-135.
13. (2017). *The concept of import substitution of light industry products: preconditions, tasks, innovations*: monograph / VT Prokhorov [and others]; under the general ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the service sector and entrepreneurship (branch) of the Don State Technical University. (p.334). Mines: ISOiP (branch) DSTU.
14. (2014). *Quality revolution: through advertising quality or through real quality*: monograph by V.T. Prokhorov [and others]; under the general ed. Doctor of Technical Sciences, prof. V.T. Prokhorov; ISOiP (branch) DSTU. (p.384). Novocherkassk: YRSPU (NPI).
15. (2015). *Assortment and assortment policy*: monograph / V.T. Prokhorov, T.M. Osina, E.V. Kompanchenko [and others]; under the general ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the service sector and entrepreneurship (fil.) Feder. state budget. educated. institutions of higher. prof. education "Don state. tech. un-t "in the city of Shakhty Rost.obl. (ISOiP (branch) DSTU). (p.503). Novocherkassk: YRSPU (NPI).
16. (2018). *Management of the real quality of products and not advertising through the motivation of the behavior of the leader of the collective of a light industry enterprise*: monograph / O.A. Surovtseva [and others]; under the general ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (p.384). Novocherkassk: YRSPU (NPI).
17. (2018). *The competitiveness of the enterprise and the competitiveness of products is the key to successful import substitution of goods demanded by consumers in the regions of the Southern Federal District and the North Caucasus Federal District*: collective monograph / VT Prokhorov [and others]; under the general ed. Dr. tech. Sciences, prof. V.T. Prokhorov; Institute of the Service Sector and Entrepreneurship (branch) of the Don State Technical University. (2018). Mines: ISOiP (branch) of the DSTU.
18. (2018). *Management of the real quality of products and not advertising through the motivation of the behavior of the leader of the collective of a light industry enterprise*: monograph / O.A. Surovtseva [and others]; under total. ed. Dr. tech. Sciences, prof. V.T.

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**Dildora Ibrokhimovna Kambarova**  
Ferghana State University  
student in Doctoral Studies (PhD),  
Uzbekistan, Ferghana city

## PODCASTS AS AN INNOVATIVE MEANS OF TEACHING ENGLISH IN HIGHER EDUCATIONAL INSTITUTIONS

**Abstract:** The article under discussion examines podcasts as an innovative means of teaching English in higher educational institutions. At the present stage pedagogical science and practice solve the problem of improving the methods and forms of teaching a foreign language, aimed at solving problems of modernization of education, increasing the quality and effectiveness of foreign language professional training. The article deals with the possibility of using one of the innovative means of teaching English - podcasts. The aim of the research is to reveal theoretically and experimentally test the didactic capabilities of podcasts in teaching English.

**Key words:** podcasts, innovation, English, higher education, information technology, motivation, video, audio commentary, blog.

**Language:** English

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### Introduction

Educational podcast as a media carrier is a technical means of teaching a foreign language, allowing you to solve complex problems of foreign language education. The use of podcasts in education demonstrates the mobility of the modern education system in general, its adaptive nature.

### Main part

The term "podcast" first appeared in 2005. It owes its appearance to the famous MTV host Adam Kerry. He combined two words: *iPod* - trademark of portable media players produced by Apple (USA) and *broadcasting* - wide-screen broadcasting. The term "podcasting" acquired the following meaning: it is a method of distributing audio or video information on the Internet.

In other words, a podcast is an audio text of some genre, of some time duration, in some cases accompanied by video material. Podcasts are also called audio blogs or programs published on the Web in the form of issues; regularly updated series of files published at one address on the Internet [7, p.19]. Despite the fact that podcasts appeared less than 17

years ago, today they are very popular among absolutely different groups of users: from people who use them for entertainment (watching news, TV shows, creating diaries) to leading universities integrating podcasts into the educational process, especially in distance education.

For ease of differentiation, podcasts are usually divided into several types, each of which has its own characteristic features: audio podcast, video podcast, screencast. The essence of screencast is that with the help of a special program, actions are recorded on the computer screen along with audio comments. Audio files are the most used because they have several advantages over video format, namely:

- 1) no eye strain (students spend a lot of time at the computer, so there is an opportunity to listen, while you can close your eyes, give them a rest);
- 2) small file size (is quicker to absorb and easier to store);
- 3) ease of use.

You can listen to a podcast on almost any device (computer, phone).

As a rule, podcasts have definite themes and periodicity of publication. There are following main



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genres of podcasts: audio blogs (analogue of online diary), comedy podcasts, technology, music, couple casts (covering personal life of the authors, often families), educational podcasts, audio books, news, scientific-fiction, interviews, radio plays and radio shows, politics, sports and games [3, p.76]. News, science, sports podcasts, interviews, radio shows, and other audioblog genres provide variation in listening instruction content. In this connection, the value of podcasts of all genres and categories should be emphasized, which allow the teacher to solve complex learning tasks. An undeniable advantage of podcasts is that they provide students with a great opportunity to listen to relevant contemporary authentic texts of different genres on any topic of interest to the student in a variety of performances (accent, timbre, rhythm, fluency of the speaker) [10, p.260].

The use of podcasts in foreign language teaching provides the following relevant opportunities:

1) the boundaries of the learning environment are expanded, and learning can take place both in the classroom and outside of class time;

2) the problem of intercultural communication and interaction is largely solved, there is a distribution and exchange of podcasts on the Internet;

3) there is a decrease in psychological difficulties and overcoming the language barrier;

4) additional and very fruitful language practice;

Podcasts can also help students who are visually impaired or dyslexic (a selective impairment in the ability to learn to read while retaining overall learning ability); podcasts may prove more appealing to a certain, traditionally low-motivated student population and promote a sense of "belonging" to the learning community for distance learners [9, p.9].

The effectiveness of the podcast is borne out by the fact that it provides more opportunities to analyze learning content. The podcast also helps develop communication skills, the ability to organize one's time, and the ability to structure and summarize the proposed material within a learning topic. It helps to improve critical and analytical thinking mechanisms. For example, the podcast may include discussion questions to be answered by the students for the next class. Thus, the podcast develops critical attitude to the proposed material and analytical skills of the students.

Educational podcasts used in the study of English allow solving a number of methodological problems:

- expansion and enrichment of vocabulary;
- formation and improvement of grammatical skills;
- development of speaking and writing skills.

The most acceptable and realistic task of using podcasts in educational purposes remains the formation of receptive listening skills when working with phonetic, lexical and grammatical material; the development of skills of understanding foreign

language speech by ear - to separate the main from the secondary, to determine the subject of the message, to divide the text into semantic pieces, to establish logical connections, to highlight the main idea, to perceive messages at a certain pace, a certain duration, to the end without omissions [7, p. 27].

To date, there are the following ways to use podcasts:

- listening without downloading files, online;
- listening offline, downloading a file;
- creation of your own podcasts.

Podcast, as a means of real communication in English, contains information that we perceive with different depth and accuracy of understanding [5, p.92]. Thus, when selecting podcasts for the listening comprehension content and developing tasks for them, teachers should follow the basic principles and requirements for working with audio texts and take into account the real needs and goals of listeners, depending on the specifics of the audio text. For example, specially created educational audio-blogs can be aimed not only at the development of listening comprehension skills, but also at the development and improvement of listening comprehension, lexical and grammatical skills, while authentic podcasts provide information for oral or written reflection or discussion.

Work with podcasts involves several stages, including preparation for comprehension, listening comprehension exercises, and practicing the listened material. In general, technology of work with podcasts coincides with technology of work with audio texts and has a clear sequence of teacher and student activities:

- preliminary instruction and preliminary task;
- the process of perception and comprehension of the information from the podcast;
- tasks controlling the understanding of the heard text.

There are many podcasts for learning English, which are narrated by a native speaker or a teacher with many years of experience. The most effective among them are:

1. The BBC Learning English Podcast. The advantage of this podcast is that it is only 6 minutes long, easy to listen to (intelligible speech, medium pace). Despite the fact that the audio recordings use rather complicated vocabulary, each podcast is accompanied by a transcript. If there is difficulty in listening, the text can be in front of you.

2. Audio English Podcast. This podcast can be useful both for those just starting to learn the language (English for beginners), and for those who are improving it (Practical English section). There is also an opportunity to choose a topic of interest (Travel English, Telephone English, Banking English, Accounting English).

3. Luke's ENGLISH Podcast. Luke is a qualified English teacher from London with 14 years

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teaching experience. He tries to invite friends and family to his podcast, so we can hear spontaneous dialogue from native speakers. Luke often defuses the atmosphere with jokes, and sometimes invents and includes games to make the topic more interesting. Most audio recordings are over an hour long and can be listened to while walking or driving. This podcast will be especially useful for English language students as it develops listening skills.

4. Effortless English Podcast. American A.Haug uses mini-stories with lots of English tenses. This is an effective way to acquire fluency in expressing thoughts in a non-native language. He is easy to understand even with beginning knowledge because he speaks slowly and articulately. A.Haug developed his own method how to quickly learn English (it is better to learn phrases, not words; it is senseless to take up grammar without a vocabulary of 1000 words; listening is essential).

5. I Will Teach You a Language Podcast. Ollie Richards, the podcast host, says that the most important thing in learning a language is to enjoy the process. Ollie speaks 8 languages and now gives practical tips and strategies for language learning. The blogger himself started learning foreign languages as an adult, now he is an example for all beginners - English can be learned by anyone.

6. English with Jennifer. Over 400 instructional videos from a real English teacher. Grammar, pronunciation, listening, tests, examples, assignments. Lessons are designed to be easy to follow and are taught at a relaxed pace.

7. Puzzle English. Tutors use different idioms, behavior in real life situations, interesting examples and unusual exceptions to the rules. Many users are attracted by the analysis of interesting expressions from popular songs, shows and TV series.

8. EngVid. This is one of the largest channels by the number of clips available here. At the moment EngVid has more than 900 videos narrated by eleven different teachers. Each one is 5-10 minutes long and focuses on one topic related to current news, life situations, interesting facts. There are also grammar lessons.

The most famous podcast server is YouTube. On YouTube service every registered user can post his video podcasts, view other ones, and participate in discussion/commenting on podcasts in microblogs.

The podcast service has the following didactic features:

- the ability to post users' personal podcasts online on the podcast service;
- the ability to create a personal user zone at the service of podcasts (personal user zone is required to organize an online discussion of the podcast);
- an opportunity to organize network discussion of the podcast in the service user's personal microblogging zone;
- creation of a personal user zone and its moderation are carried out by the podcast author;
- placement of comments when organizing an online discussion of the podcast is carried out chronologically;
- podcast is available for viewing by all the registered users of the service.

It should be noted that the use of podcasting increases motivation and interest in learning a foreign language, realizes the personal potential of the student, helps to master intercultural communicative competence.

Thus, the above features and capabilities of podcasts provide a new topical quality of the process of foreign language learning, namely, not only high motivation of students, but also contribute to the manifestation of their initiative, purposefulness, develop the ability to listen and hear, which certainly contributes to the effectiveness of the learning process.

### Conclusion

Podcasts, indeed, are innovative means of teaching English in the higher educational institutions, because they form language and speaking skills in various types of speech activity (listening, reading, writing, speaking), enrich vocabulary, improve grammar skills, increase motivation to learn English, allow to individualize training, promote differentiation activity for students and intensify the process of language learning.

It should be noted that we should not forget about the role of the teacher himself in the educational process. After all, only an ICT-competent teacher willing to use all kinds of Internet resources is able to organize the learning process competently and productively. With the proper application of the latest Internet technologies in the educational process, the efficiency of learning will increase, and the achievement of the set results will be carried out at a higher level.

### References:

1. Dmitriev, D. V., & Meshcheryakov, A. S. (2014). Formation of media competence of

future teachers of English in the process of professional training. *Modern problems of*

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**ISRA (India) = 6.317**  
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**IBI (India) = 4.260**  
**OAJI (USA) = 0.350**

- science and education*, № 2.  
<http://www.science-education.ru/116-12842>
2. Dudeney, G. (2007). How to teach English with technology / G. Dudeney, N. Hockly. (p.192). N. Y. : Pearson Longman.
  3. Fried-Booth, D. L. (2009). Modelling of teaching practice for future teachers of the English language. *Journal of linguistic studies*, № 2 (2), pp. 75-83.
  4. Robb, T.N. (2007). *Podcasting for ELT – What, Why and How?* // *Kyoto Sangyo University* [Electronic resource]. Retrieved from <http://www.cc.kyoto-su.ac.jp/~trobb/podcasting2.html>
  5. Salin, B. S. (2010). Some aspects of the use of podcasts in the teaching of English. *Modern problems of science and education*, № 4, pp.91-93.
  6. Solomatina, A. (2011). *Methodology of the development of speaking and listening skills of students through educational podcasts* : diss... Pedagogy: 13.00.02. (p.158). Tambov.
  7. Solovova, E. N. (2002). *Methodology of Teaching Foreign Languages: Basic Course of Lectures: Manual for students of pedagogical universities and teachers*. (pp.19-27). Moscow: Prosveshchenie.
  8. Sysoev, P. V. (2010). *Methodology of teaching foreign language using new information and communication Internet technologies: educational and methodological manual for teachers, graduate and undergraduate students.* / P. V. Sysoev, M. N. Evstigneev. (p.182). Rostov on Don: Phoenix; M.: Glossa-Press.
  9. Sysoev, P. V., & Evstigneev, M. N. (2009). Web 2.0 Technologies: Social service of podcasts in teaching foreign language. *Foreign languages at school*, № 6, pp. 8-11.
  10. Telegina, A. T. (2013). Foreign-language communicative activity is a process of active interaction at the level of intercultural communication, aimed at personal self-development in professional activity. *Proceedings of Higher Educational Institutions. Volga region. Humanities*, № 4, pp. 253-263.

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Impact Factor ISRA (India)		1.344				3.117	4.971		6.317
Impact Factor ISI (Dubai, UAE) based on International Citation Report (ICR)	0.307	0.829							1.582
Impact Factor GIF (Australia)	0.356	0.453	0.564						
Impact Factor SIS (USA)	0.438	0.912							
Impact Factor ПИИЦ (Russia)		0.179	0.224	0.207	0.156	0.126		3.939	
Impact Factor ESJI (KZ) based on Eurasian Citation Report (ECR)		1.042	1.950	3.860	4.102	6.015	8.716	8.997	9.035
Impact Factor SJIF (Morocco)		2.031				5.667			7.184
Impact Factor ICV (Poland)		6.630							
Impact Factor PIF (India)		1.619	1.940						
Impact Factor IBI (India)			4.260						
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	<b>GIF (Australia) = 0.564</b>	<b>ESJI (KZ) = 8.771</b>	<b>IBI (India) = 4.260</b>
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### Deadlines

	Steps of publication	Deadlines	
		min	max
1	Article delivered	-	
2	Plagiarism check	1 hour	2 hour
3	Review	1 day	30 days
4	Payment complete	-	
5	Publication of the article	1 day	5 days
	publication of the journal	30th of each month	
6	doi registration	before publication	
7	Publication of the journal	1 day	2 days
8	Shipping journals to authors	3 days	7 days
9	Database registration	5 days	6 months

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<https://www.collectiveip.com/>



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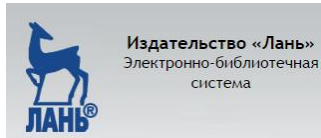
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