

SAJMMR

ISSN (online) : 2249-877X

## South Asian Journal of Marketing & Management Research



Published by  
**South Asian Academic Research Journals**  
A Publication of CDL College of Education, Jagadhri  
(Affiliated to Kurukshetra University, Kurukshetra, India)

**SAJMMR**

ISSN (online) : 2249 –877X

Editor-in-Chief : Dr. Dalbir Singh

Impact Factor : SJIF 2022 = 7.911

Frequency : Monthly

Country : India

Language : English

Start Year : 2011

Indexed/ Abstracted : Scientific Journal Impact Factor (SJIF 2022 - 7.911 ), Google Scholar, CNKI Scholar, EBSCO Discovery, Summon(ProQuest), ISC IRAN, Primo and Primo Central, I2OR, ESJI, IJIF, DRJI, Indian Science and ISRA-JIF.

E-mail id: saarjournal@gmail.com

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The vision of the journals is to provide an academic platform to scholars all over the world to publish their novel, original, empirical and high quality research work. It propose to encourage research relating to latest trends and practices in international business, finance, banking, service marketing, human resource management, corporate governance, social responsibility and emerging paradigms in allied areas of management including social sciences , education and information & technology. It intends to reach the researcher's with plethora of knowledge to generate a pool of research content and propose problem solving models to address the current and emerging issues at the national and international level. Further, it aims to share and disseminate the empirical research findings with academia, industry, policy makers, and consultants with an approach to incorporate the research recommendations for the benefit of one and all.

SR. NO.	PARTICULAR	PAGE NO.	DOI NUMBER
1.	“THE STUDY OF VIRAL MARKETING USING E-COMMERCE SERVICES” Deepak Mohapatra	1-9	10.5958/2249-877X.2022.00015.7
2.	ACCOUNTING OF LIABILITIES AND CREDIT OBLIGATIONS OF HIGHER EDUCATIONAL INSTITUTIONS FOR EXTRA BUDGETAL FUNDS Tilakov Navruz Mahmudovich	10-18	10.5958/2249-877X.2022.00013.3
3.	INDEX INSURANCE AS A MEANS OF FINANCIAL PROTECTION OF AGRICULTURE IN CLIMATE CHANGE Yadgarov Akram Akbarovich	19-25	10.5958/2249-877X.2022.00014.5
4.	A STUDY OF SOLVING RECURRENT SEQUENCES Ismatullayeva G, Qakhkhorova M, Eshbekov R.Kh	26-28	10.5958/2249-877X.2022.00016.9
5.	INCREASING THE EFFICIENCY OF REGIONAL INDUSTRIAL ENTERPRISES ON THE BASIS OF IMPROVING ADDITIONAL VALUE CHAIN Rakhmatova Shaxlo Olimovna	29-34	10.5958/2249-877X.2022.00017.0

## **“THE STUDY OF VIRAL MARKETING USING E-COMMERCE SERVICES”**

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**DOI: 10.5958/2249-877X.2022.00015.7**

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### **ABSTRACT**

*This paper reports development of a longitudinal exploring study on the provision of highly accessible and integrative electronic service on viral marketing , usually delivered through word-of-mouth or even enhanced by the network effects of the Internet and it is seen as a marketing "strategy", encouraging people to pass along a marketing passage voluntarily. Viral marketing is about marketing techniques that are meant to increase brand awareness, on the basis of preexisting social networks. It works by means of self-replicating viral processes, which might prove (in a more metaphorical way) similar to the spread of pathological viruses. This paper discusses how viral marketing spreads rapidly with a zero cost technique of social network and the significance of employing e-commerce strategy to it. The basic characteristics includes effortless transfer to others , Scales easily from small to very large ,Exploits common motivations and behaviors , Utilizes existing communication networks ,Takes advantage of others' resources etc.*

**KEYWORDS:** *E-Commerce, E-Business, Viral Marketing, Networking.*

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### **INTRODUCTION**

Viral marketing is a term coined to define the productive ways a marketing message is made available. And corporates are using the medium to circulate brands and brand messages. The idea has caught on like a virus, as efficiently as Information Technology has entered households and businesses. This technique describes any strategy that encourages individuals to pass on a marketing message to others, creating the potential for exponential growth in the message's exposure and influence. Off the Internet, viral marketing has been referred to as "word-of-mouth," "creating a buzz," "leveraging the media," "network marketing." But on the Internet, for better or worse, it's called "viral marketing" .

#### ***The Definition of Viral Marketing: -***

- 1. Simple to understand-** if you can't describe the concept in one sentence, it's probably not going to work.
  - 2. Simple to Use-** keeps it dead simple for the user to use - life is complicated enough.
  - 3. Simple to Find-** seeds your viral marketing campaign (blogs, emails, ads, websites, etc) and make it easy to find.
-



#### 4. **Simple to share** - make it easy for people to tell others.

What is unique about the concept is that where brands or brand ideas are exchanged within communities, they are idea-led, not advertising-led. There are some high-profile viral success stories. Like Google mail. By simply sending an e-mail, consumers hawked the service because every message contained a Google mail ad. That helped it grow to 50 million accounts in its first year, way back in 1992.

Viral marketing is successful because there are so many customers who are willing to pass along just about any message, as long as it is valuable or beneficial. Most people, who receive valuable viral messages, pass them on to other interested people. Word-of-mouth communication increases sales, brand awareness, and market coverage.

Word-of-mouth marketing provides you with benefits that you cannot get from any other form of online advertising. Through viral email marketing you get the best way to

- Reach the most targeted audience
- Increase sales and improve online awareness by many folds
- Cost-effectively build brand recognition and interest in your offerings

"Forward to a Friend" viral marketing is effective because it creates a personalized information-based relationship between your subscriber and new receptionist they forwarded.

Some key points to help you utilize the word-of-mouth viral marketing as a successful medium through your existing relationship network:

- Give away products or services to encourage referral
- Apply effortlessly a "Forward to a friend" utility to ease transfer to others
- Give the referral person a choice to opt-out

A viral marketing strategy need not contain ALL these elements, but the more elements it embraces, the more powerful the results are likely to be. An effective viral marketing strategy:

1. *Gives away products or services*
2. *Provides for effortless transfer to others*
3. *Scales easily from small to very large*
4. *Exploits common motivations and behaviors*
5. *Utilizes existing communication networks*
6. *Takes advantage of others' resources*

Let's examine at each of these elements briefly.

#### **1. Gives away valuable products or services**

The web expands the types of communication channels available including customer to customer communication using viral marketing services. Using "Free concept" is a most powerful word in a marketer's vocabulary. Most viral marketing programs give away valuable products or services to attract attention. Free e-mail services, free information, free "cool" buttons, free software programs that perform powerful functions but not as much as you get in the "pro" version.

Wilson's Second Law of Web Marketing is "The Law of Giving and Selling". "Cheap" or "inexpensive" may generate a wave of interest, but "free" will usually do it much faster. Viral marketers practice delayed gratification. They may not profit today, or tomorrow, but if they can generate a groundswell of interest from something free, they know they will profit "soon and for the rest of their lives" (with apologies to "Casablanca"). Patience, my friends. Free attracts eyeballs. Eyeballs then see other desirable things that you are selling, and, presto! you earn money. Eyeballs bring valuable e-mail addresses, advertising revenue, and e-commerce sales opportunities. Give away something, sell something.

## **2. Provides for effortless transfer to others**

A viral campaign could end up affecting several million highly targeted consumers, which to achieve using traditional media would potentially cost as many dollars, Pounds, or Euros as the amount of consumers reached. The medium that carries your marketing message must be easy to transfer and replicate: e-mail, website, graphic, software download. Viral marketing works famously on the Internet because instant communication has become so easy and inexpensive. Digital format make copying simple. From a marketing standpoint, you must simplify your marketing message so it can be transmitted easily and without degradation. Short is better. The classic is: "Get your private, free email at <http://www.hotmail.com>." The message is compelling, compressed, and copied at the bottom of every free e-mail message.

## **3. Scales easily from small to very large**

To spread like wildfire the transmission method must be rapidly scalable from small to very large. The weakness of the Hotmail model is that a free e-mail service requires its own mail servers to transmit the message. If the strategy is wildly successful, mail servers must be added very quickly or the rapid growth will bog down and die. If the virus multiplies only to kill the host before spreading, nothing is accomplished. So long as you have planned ahead of time how you can add mail servers rapidly you're okay. You must build in scalability to your viral model.

## **4. Exploits common motivations and behaviors**

Clever viral marketing plans take advantage of common human motivations. What proliferated "Netscape Now" buttons in the early days of the Web? The desire to be cool. Greed drives people. So does the hunger to be popular, loved, and understood. The resulting urge to communicate produces millions of websites and billions of e-mail messages. Design a marketing strategy that builds on common motivations and behaviors for its transmission, and you have a winner.

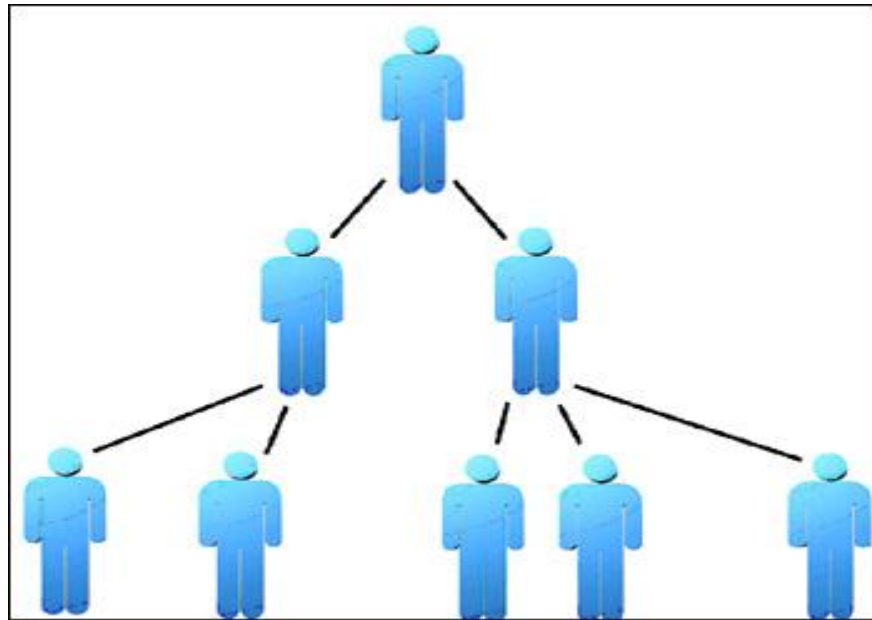
## **5. Utilizes existing communication networks**

It is possible for the first time such things as video on demand, live video, IPTV, and other formats of rich media interactivity. Those companies that are harnessing these trends in a creative and viral way are finding themselves to be moving ahead of competitors who perhaps previously held the greatest market share by spending large sums of money in the traditional media. Social scientists tell us that each person has a network of 8 to 12 people in their close network of friends, family, and associates. A person's broader network may consist of scores, hundreds, or thousands of people, depending upon her position in society. A waitress, for example, may communicate regularly with hundreds of customers in a given week. Network marketers have long understood the power of these human networks, both the strong, close networks as well as the weaker networked relationships. People on the Internet develop networks

of relationships, too. They collect e-mail addresses and favorite website URLs. Affiliate programs exploit such networks, as do permission e-mail lists. Learn to place your message into existing communications between people, and you rapidly multiply its dispersion.

#### **6. Takes advantage of others' resources**

The most creative viral marketing plans use others' resources to get the word out. Affiliate programs, for example, place text or graphic links on others' websites. Authors who give away free articles, seek to position their articles on others' webpages. A news release can be picked up by hundreds of periodicals and form the basis of articles seen by hundreds of thousands of readers. Now someone else's newsprint or webpage is relaying your marketing message. Someone else's resources are depleted rather than your own.



#### **Viral Marketing Techniques**

**1. Word of Mouth** - We have all seen this phenomenon displayed with many products. People spread the word about some great movie or gadget and suddenly everyone knows about it. Human nature dictates we tell our friends about some great product we have bought or found. Nature of the beast, it's just the way we are - so why not take full advantage of it?

If you have a web site - put up a simple 'tell a friend' form so your visitors can easily tell others about your great site. Easy and very simple to do but many webmasters don't do it. Similarly, if you have a newsletter, service, product or with any aspect of your site - just include a few sentences at the end of your copy - asking very politely, "if you found this service, product or web site helpful - why not tell your friends, family and colleagues about it."

**2. Branding** - Make sure you have a logo on your site or product. Branding your site is very important if you want your site or product to be noticed and talked about. For that matter, a catchy brand name can be a 'viral technique' in itself - so try and come up with one that springs from the lips with a distinctive ring to it!

People recognize brands; it gives them a clear image of your site or product. Include your brand or logo on every page of your site and on every product, service, material coming from your site or business.

**3. EBooks** - Savvy marketers jumped on this new invention very quickly, they knew the 'viral' power of these little ebooks. Ebooks are electronic files that can be downloaded from any web site and distributed easily around the web. You can also have other webmasters or marketers, 're-brand' these ebooks with their own links. High quality ebooks get passed along very quickly and are great viral tools.

Anyone can write a simple ebook on the topic of their site. If you can't write, just get permission to use a collection of articles from the numerous 'article directories' on the web such as [www.ezinearticles.com](http://www.ezinearticles.com) or [www.goarticles.com](http://www.goarticles.com). Ebook compiling software (in both .exe or pdf format) is relatively cheap or can be found for free on the net. Just Google to find it!

**4. Viral Software** - Some simple software products or applications can be very viral, often passed around or downloaded from the web by thousands each day. These have to be useful or handy products that the users will desire - ecalendars, organizers, personal planners, link checking software, and so on. Many are desktop products that sit on the computer user's desktop - prime location in the marketing arena.

And the best examples of this kind of viral software have the company logo, sales message and contact email - with LIVE LINKS to all of the above - conveniently displayed within the product. These simple software programs can be great viral promotional devices that spread like wildfire across the web. (get an example of this below in the author's resource box)

**5. RSS** - Newest player in the viral game! RSS which stands for 'Really Simple Syndication' and just by the nature of what it does; RSS is an awesome viral tool. Originally used by news organizations to syndicate their news stories, it is usually associated with Blogs because blogs use an RSS feed to distribute their content. Good quality RSS feeds are picked up and displayed by different web sites all across the web.

Internet Viral Marketing is an online marketing technique that is meant to increase your brand awareness or product sales through various online media such as video clips, ebooks, articles, or software. The goal is to create messages or content with a high probability of being passed along over and over to reach the most amount of people possible. So what are some specific examples of internet viral marketing and how can you use them? Read on for the top examples and tips that you can start using now!

#### **Examples of Internet Viral Marketing use in E-commerce :**

**1- Headlines and Tags:** Do keyword research to find catchy keywords for your headlines. They should provide a high search engine ranking but also make sense for your content.

**2- Blogs:** Don't just have a blog, be sure you are following other blogs and getting people to follow yours. The more people you have following your blog information, the more viral your content will be.

**3- Social Networks:** Be sure you have a presence on all the top social networks and provide regular updates as to what you are doing in your business. Provide valuable information,



develop a following of friends and contacts and your content will become more widespread and viral and drive more and more traffic to your website!

**4- Forums:** Become a source of valuable info! Start a thread or participate with great, helpful content. This is a great way to drive traffic to your website and build of a viral following of viewers.

**5- Email Lists:** This is another one of the top ways to build an internet viral marketing campaign. The bigger your list, the more people will see your content. And the potential for growth here is massive when you consider the possibility of the people on your list passing on your emails to their lists! This is a classic example of the good kind of virus.

Following are two companies have used viral marketing to spread their brand to the masses?

**1. Hotmail-** Hotmail is one of the most classic examples of successful viral marketing. They offered free e-mail to the masses, and simply attached a signature at the bottom of each e-mail message that promoted their free service. Every single e-mail sent by a Hotmail user contained this message, thus spreading it like a virus. Recipients would see the ad, and as a result, they too signed up for Hotmail.

**2. Watchmen-** One of the most recent examples on this list, Watchmen's viral campaign has consisted of fake newscasts and mock PSAs. Judging from the buzz online, these videos are doing their job. Fans are pumped up, and anxiously awaiting the movie's release.

#### **Benefits of Viral Marketing: -**

**1. Increased brand awareness.** By interacting with others through a social media channel, you are able to build awareness for your business. Increase your visibility through active interaction on many different levels, Networking drives traffic back to your website.

**2. Improved reputation.** By participating in forums or networking sites, your business gets positive feedback. You want to keep the communication channels open on all social media fronts. Your business can benefit from this by being consistently involved in discussions on topics that are relevant to your business.

**3. Personal Development.** Networking with the right people will keep you in the loop on the latest industry happenings and greatly improve on your knowledge levels. A big part of social networking is observation. Seeing how others reflect or participate in conversations is a great way to improve your own experience in the field.

**4. Relationships with benefits.** With healthy social networking, your business can extract future benefits such as testimonials, links and recommendations from others. If you want an effective Online Marketing campaign, Social Networking is the practical answer to reaching effective online relations.



### **Effective Viral Marketing Strategies**

Effective viral marketing strategies can help you snatch the attention of web users towards your online business venture.

### **Powerful promotion technique**

Viral marketing is a simple but powerful tool for promoting your products and resources to a wide majority of the audience. For successfully promoting your resources through viral advertising it is possible to make use of the existing social networks and other available resources. Through the information provided on these social networks, you are able to sort out your advertising requirements. The other viral advertising campaign tools and procedures that can be used to construct an effective promotion strategy for your online business include the following:

- Building easily transferable and simple promotion messages
- Presenting affiliate programs
- Designing free e-books
- Offering free services and products
- Providing video clippings and images
- Offering suitable rewards for the referrals
- Developing effective and interesting blogs
- Submitting interesting articles
- Granting access to online contests and games
- Offering free software downloads
- Providing newsletters and forums

The viral advertising campaign must be designed to exploit the general human inspiration and behavior. Consequently it is always necessary to update the website content and strategies according to the changing online marketing requirements.

## Conclusion

*Choosing the company's strategy towards Viral Marketing using e-commerce techniques* in general speaks, of three major options: (1) *Lead*: Conduct large-scale innovative ecommerce activities. (2) *Watch and wait*: Do nothing, but carefully watch what is going on in the field in order to determine when EC is mature enough to enter it. (3) *Experiment*: Start some e-commerce experimental projects (learn by doing). Each of these options has its advantages and risks.

To reach an unlimited number of potential clients and customers, at a very low or no cost, a viral marketing campaign is just what the doctor prescribes. Putting the power of the Internet resources of others to work for you will pay huge dividends in the future. By using e-mail links and referrals, a viral message can be sent from person to person at almost the speed of light. The word can be spread around the world in literally the blink of an eye. Traffic can be brought into your website the same day. Those visitors may not be immediate customers or clients, however. Like anything else in business, developing a strong customer base will take much longer.

The people who assist your viral marketing efforts will benefit as well. They can be part of something fun and exciting, or they may simply want to get something for free. In any case, any good viral system should have a solid personal benefit for the sender.

If your viral marketing concept catches on, you will need it to handle the infected visitors.

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See all the Website white papers at

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<http://ezinearticles.com/?Internet-Viral-Marketing---Top-5-Viral-Marketing-Examples-and-How-to-Use-Them!&id=2413508>

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### **Acknowledgements**

We acknowledge this paper's major supporters and contributors:

- □ Executive sponsor: Parija Library ,Utkal UniversityBhubaneswar
- □ The Viral Computing Architecture Board led by Dr.B.K.Rath,Utkal University,Bhubaneswar
- □ The programme Solutions Team that owns the Viral strategy led by Dr.P.K.Behera

## ACCOUNTING OF LIABILITIES AND CREDIT OBLIGATIONS OF HIGHER EDUCATIONAL INSTITUTIONS FOR EXTRA BUDGETAL FUNDS

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### ABSTRACT

*This article is about the budget in higher education institutions the emergence of receivables and payables related to the formation and expenditure of external funds has been theoretically studied. Extra-budgetary funds of higher education institutions accounts receivable and accounts payable the basics of accounting are described. The current situation with the calculation of receivables and payables in the context of an increase in the types and composition of extra-budgetary funds in higher education institutions is studied. Existing methodological problems in the formation of information on accounts receivable and accounts payable by sources of funding in higher education institutions have been identified and systematized. Scientific proposals and practical recommendations on improving the accounting of receivables and payables on extra-budgetary funds in higher education institutions.*

**KEYWORDS:** Budget Organization, Extra-Budgetary Funds, Income, Accounts Receivable, Accounts Payable, Funds, Financial Reporting, Expenses.

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### INTRODUCTION

Higher education institutions are an important link in the supply of qualified specialists to the economy, and the quality of educational services they provide has a direct impact on the labor market. For this reason, special attention is paid to the expansion and development of higher education institutions in the country, creating opportunities to increase funding not only from the budget, but also for the formation of extra-budgetary funds.

In particular, initially, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On improving the procedure for financing of budgetary organizations" allowed the formation of extra-budgetary funds, like all organizations [3], then introduced new principles of governance. On the basis of the study of foreign experience, the introduction of a procedure for the selection of potential higher education institutions and the gradual transition to a system of self-financing [1]. According to the Resolution of the President of the Republic of Uzbekistan "On measures to provide financial independence to public higher education institutions" from January 1, 2022, 35 higher education institutions will be granted financial independence, which will have a number of financial opportunities [2].

Granting financial independence to higher education institutions has expanded their opportunities to develop their activities through the formation of extra-budgetary funds. This, in turn, has led

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to an expansion of the scope of settlements related to the formation and expenditure of these funds, ie accounts receivable and accounts payable. For this reason, it is necessary to conduct research on the accounting of receivables and payables on extra-budgetary funds in higher education institutions.

### **Literature review**

It is found that there is a specific aspect in the study of research on credit accounts with creditors in higher education institutions. In other words, this topic is inherently complex and inextricably linked with almost all accounting objects in budget organizations, including the execution of estimates, revenue and expenditure accounting. Therefore, it is expedient to emphasize the interdependence of accounts receivable and accounts payable due to the processes of formation and expenditure of extra-budgetary funds. If we study the research of foreign scientists related to the object of research, there are specific aspects.

Including, M. Volchkova mortgages direct the debt of a particular budget organization to other organizations, workers, and so-called creditors. Debtors related to purchases from suppliers, tangible assets, goods, services. Compulsory payments to the budget, extra-budgetary funds, social funds and other similar payments to employees of the organization are considered mandatory. Borrowers arising from other transactions are referred to as other creditors [7].

Scientists led by IP Vorobeva, heads of budgetary and autonomous institutions will be administratively, criminally, disciplinary and financially responsible for their actions. Heads of budget organizations should monitor overdue debts. This is because if the maximum value of such debts is exceeded, the employment contract with the manager is terminated [8].

In the development of our scientists A. Ibragimov, M. Ostonokulov, S. Mehmonov, A. Tuychiev, A. Ostonokulov we can see the views on research on the calculation of receivables and payables in the budget, the calculation and reporting of extra-budgetary funds.

A. Ibragimov in his development noted that the registration in the treasury of contracts of suppliers of goods (works and services) with budgetary organizations on settlements with creditors means that the state is solvent on this budgetary organization and for the supplier means that payment is guaranteed [9].

M. Ostanakulov accounts payable - this is the organization's debts from other enterprises (advances for products (works and services) sold to buyers, products (works and services)) from suppliers, etc., from the budget, extra-budgetary funds (taxes, mandatory allocations and on deductions), from employees (on wages and equivalent payments, etc.) [10].

According to S. Mehmanov, accounts payable are accounts payable from other enterprises (advances for products (works and services) sold to customers, products (works and services) received from suppliers, etc.), budget, extra-budgetary funds (taxes, mandatory deductions and deductions) from employees (salaries and equivalent payments, etc.) [11].

A. Tuychiev is a depositor of trade unions, accountants, employees, scholarship recipients, on payments to suppliers and contractors for goods, works and services, budget and social insurance contributions. Amounts, accounts with their parents, as well as other debtors and creditors for the maintenance of children in educational institutions are kept in the form of accounts receivable and payable in budgetary organizations [12].

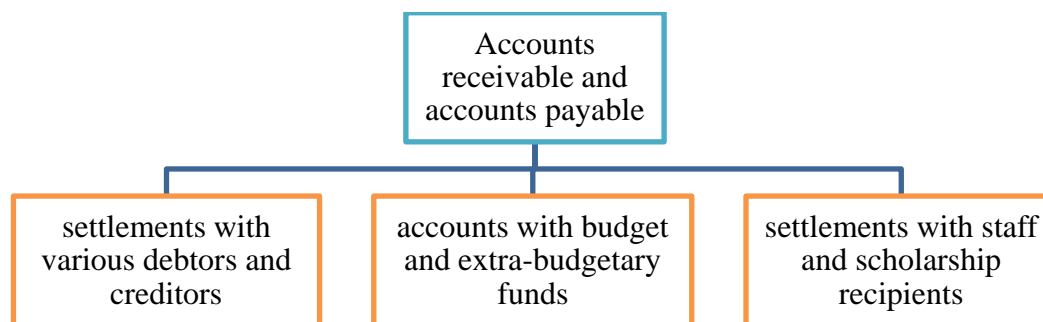
In his work, A. Ostonokulov conducted research on the organization and maintenance of extra-budgetary funds of budget organizations and the improvement of information supply. He developed proposals to increase the information capacity of reports on extra-budgetary funds, ensuring that the movement of extra-budgetary funds depends on other accounting entities [13].

In this study, the calculation of changes in receivables and payables in relation to extra-budgetary funds in the example of the activities of higher education institutions has not been studied as a separate object of study.

**Research methods.** The methods of abstract-logical thinking, induction and deduction, systematic approach, monographic observation, economic analysis were used in the research.

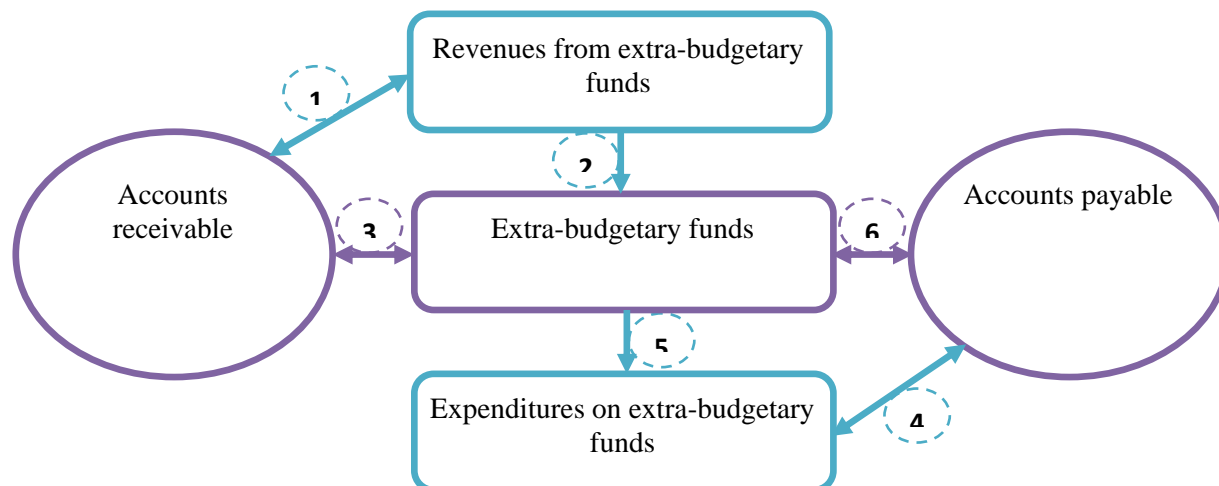
### Analysis and results

In the implementation of the activities of higher education institutions, settlements are made with employees and scholarship recipients, budget and extra-budgetary funds, as well as various other debtors and creditors. These calculations constitute accounts receivable and accounts payable (see Figure 1).



**Figure 1. In higher education institutions the structure of accounts with debtors and creditors<sup>1</sup>**

Liabilities arising during the operation of the institution are reflected in the account in the form of receivables or payables, as shown in Figure 1. At the same time, there is a need to separate receivables or payables, which arise in connection with the sources of financing of the budget organization. That is, accounts receivable and accounts payable are required to arise and be accounted for in the budget and extra-budgetary funds. Accounts receivable and accounts payable of higher education institutions are also directly linked to income and expenses (actual and cash expenses) and cash flows.



**Figure 2. Emergence of receivables and payables on extra-budgetary funds in higher education institutions and their settlement<sup>2</sup>**

We can see that the share of extra-budgetary funds in financing the activities of higher education institutions is growing every year. This further increases the importance and necessity of accounting for receivables and payables on extra-budgetary funds in higher education institutions, and requires special emphasis on accounting in this area. In this regard, there is a need for a separate study of the accounts of extra-budgetary funds.

If we consider the state of implementation of the calculation of extra-budgetary funds in higher education institutions, we can express it through Figure 2.

This figure represents all stages of the calculation of extra-budgetary funds of higher education institutions. In particular,

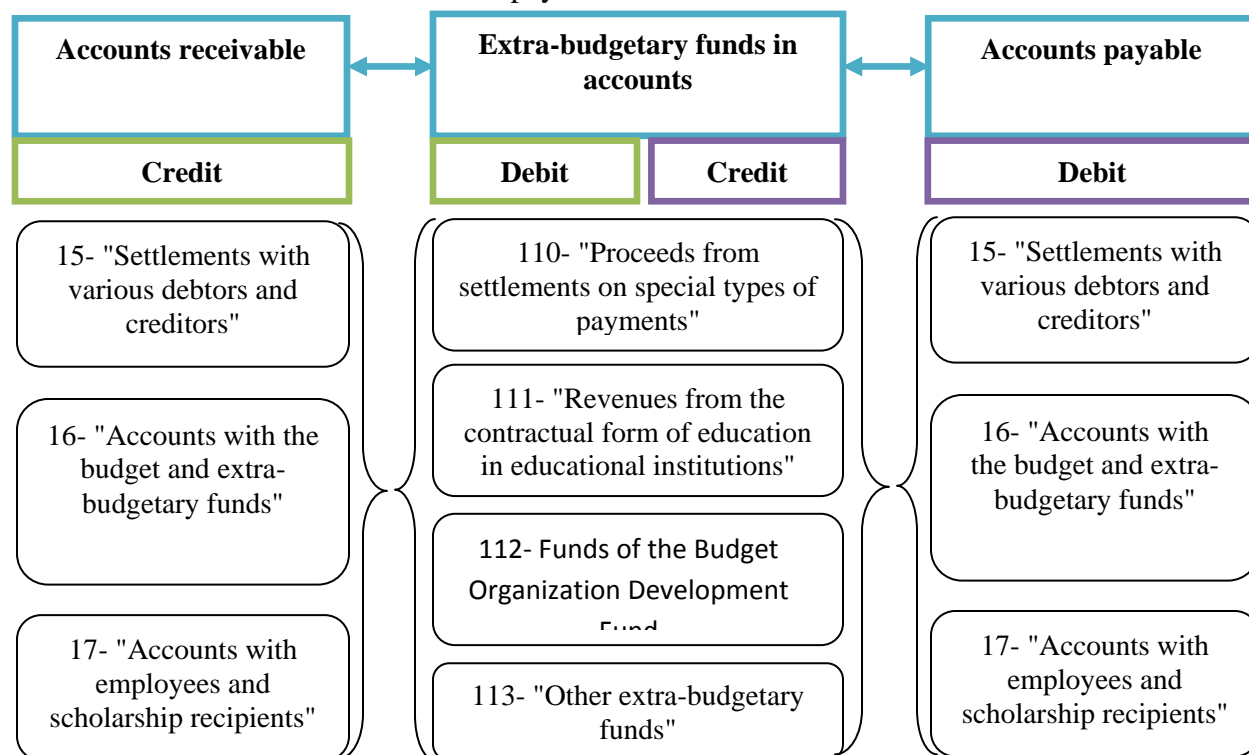
- (1) generation of extra-budgetary revenues in relation to receivables;
- (2) generation of extra-budgetary revenues in the case of cash inflows;
- (3) cash inflows as a result of collection of receivables;
- (4) occurrence of expenses on extra-budgetary funds in connection with accounts payable;
- (5) the occurrence of expenditures on extra-budgetary funds in connection with the expenditure of funds;
- (6) expenditure of funds as a result of payment of accounts payable.

The generation of income and expenses are directly linked to receivables and payables. Hence, we therefore examine the accounts receivable and accounts payable separately. To differentiate receivables and payables, the budget organization maintains a Form 285 "Circulation Account" (Table 1).

**TABLE 1 REGISTRATION OF ACCOUNTS RECEIVABLE AND ACCOUNTS PAYABLE FOR EXTRA-BUDGETARY FUNDS IN HIGHER EDUCATION INSTITUTIONS<sup>3</sup>**

T r	Indicators (calculations)	The rest per month		For the rotation month		The rest at the end of the month	
		debit	credit	debit	credit	debit	credit
1	Goods delivery organization		2000,0	1800,0	2400,0		2600,0
2	Service organization		1500,0	1200,0	800,0		1100,0
3	Customers	4000,0		2000,0	3200,0	2800,0	
...							
	<b>Jami</b>	<b>4000,0</b>	<b>3500,0</b>	<b>5000,0</b>	<b>6400,0</b>	<b>2800,0</b>	<b>3700,0</b>

This form is intended to record the accounts associated with each receivable and payable. It also serves to differentiate between accounts receivable and accounts payable in the accounting processes in which both assets and liabilities are accounted for. While debit balances at the beginning and end of the month reflect receivables, balances at the beginning and end of the month represent accounts payable. Monthly debit turnover means an increase in accounts receivable and a decrease in accounts payable, while credit turnover means an increase in receivables and an increase in accounts payable.

**Figure 3. Accounts receivable and accounts payable for extra-budgetary funds in higher education institutions<sup>4</sup>**

Thus, this form No. 285 "Circulating account" serves to form the operational information on receivables and payables in the accounting of the organization, the generalization of analytical data related to the accounts. For this reason, accounts receivable and accounts payable are required to be reflected simultaneously in this "Circulation Account" and in the forms of accounts and accounting registers on the basis of primary documents.

When accounting for budgetary and extra-budgetary funds of higher education institutions, Form No. 285 makes it necessary to keep a separate "circulating account" for each source of funding and the formation of accounting information on receivables and payables.

Accounts receivable and accounts payable are inextricably linked. This is because both liabilities are accounted for in the case of cash. Proceeds from the collection of receivables are used to pay accounts payable. These aspects are specific to each extra-budgetary fund. Summarizing the data in Figures 1 and 2, the calculation of receivables and payables on extra-budgetary funds can be expressed in Figure 3.

Another peculiarity of the calculation of receivables and payables on extra-budgetary funds in higher education institutions. At the same time, in terms of accounting for extra-budgetary funds in the accounts are allocated to separate accounting accounts. Accounts receivable and accounts payable are grouped by type, but not by source of funding.

This poses a number of difficulties in the formation of analytical accounting information in the accounting of receivables and payables on each extra-budgetary funds. To overcome these difficulties, this is done by opening working accounts in higher education institutions, which take into account receivables and payables on extra-budgetary funds. Tables 2 and 3 show the accounting transfers associated with these worksheets.

**TABLE 2 ACCOUNTS RECEIVABLE FOR EXTRA-BUDGETARY FUNDS IN HIGHER EDUCATION INSTITUTIONS TO BE REFLECTED IN THE ACCOUNTING RECORDS<sup>5</sup>**

T / r	Accounting operation	Accounting transfer	
		Debit	Credit
Settlements with suppliers, contractors and buyers			
1	Prepayments under the contract to suppliers and contractors	150/1, 150/2, 150/3, 150/4, 150/5	232, 110, 111, 112, 113
2	Receipt of funds from buyers and customers	110, 111, 112, 113	156, 175, 152/4, 152/5
3	Accounting of advance (insurance) payments on insurance	155/1, 155/2, 155/3, 155/4, 155/5	232, 110, 111, 112, 113
4	Accounting for advance payments for work and services	150/1, 150/2, 150/3, 150/4, 150/5	232, 110, 111, 112, 113
Accounts with budget and extra-budgetary funds			
1	Accounting for advance payments to the budget	160/1, 160/2, 160/3, 160/4, 160/5	232, 110, 111, 112, 113
2	Accounting for advance payments to extra-budgetary funds	161/1, 161/2, 161/3, 161/4, 161/5	232, 110, 111, 112, 113
Accounts with staff and scholarship recipients			
1	Advance payments to accountants	172/1, 172/2, 172/3, 172/4, 172/5	232, 110, 111, 112, 113



2	Making advance payments to employees	173/1, 173/2, 173/3, 173/4, 173/5	232, 110, 111, 112, 113
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The accounting transfers listed in Table 2 are grouped on the basis of primary documents by accounting in separate memorial orders for each source of funding of the organization and the information is summarized in the general ledger.

**TABLE 3 REFLECTION OF ACCOUNTS WITH CREDITORS ON EXTRA-BUDGETARY FUNDS IN HIGHER EDUCATION INSTITUTIONS IN THE ACCOUNTING RECORDS<sup>6</sup>**

T / r	Accounting operation	Accounting transfer	
		Debit	Credit
Settlements with various debtors and creditors			
1	Payment of existing debt from suppliers and contractors	150/1, 150/3, 150/5	150/2, 150/4, 232, 110, 111, 112, 113
2	Receipt of prepayments from buyers and customers	110, 111, 112, 113	156, 175, 152/4, 152/5
3	Accounting for invoices for work performed and services rendered	231, 241, 251, 261, 271	150/1, 150/2, 150/3, 150/4, 150/5
4	Accounting for insurance payments	231, 241, 251, 261, 271	155/1, 155/2, 155/3, 155/4, 155/5
5	Payment of liabilities for work performed and services rendered	150/1, 150/2, 150/3, 150/4, 150/5	232, 110, 111, 112, 113
6	Making insurance payments	155/1, 155/3, 155/5	155/2, 155/4, 232, 110, 111, 112, 113
Accounts with staff and scholarship recipients			
1	Calculation of wages and equivalent payments	231, 241, 251, 261, 271	173/1, 173/2, 173/3, 173/4, 173/5
2	Withholding of income tax on wages and equivalent payments	173/1, 173/3, 173/5	173/2, 173/4, 160/1, 160/2, 160/3, 160/4, 160/5
3	Calculation of social tax on wages and equivalent payments	231, 241, 251, 261, 271	161/1, 161/2, 161/3, 161/4, 161/5
4	Calculation of personal accumulative pension account contributions on salary and equivalent payments	160/1, 160/3, 160/5	160/2, 160/4, 162/1, 162/2, 162/3, 162/4, 162/5
5	Withholding of union dues on wages and equivalent payments	173/1, 173/3, 173/5	173/2, 173/4, 179/1, 179/2, 179/3, 179/4, 179/5
6	Calculation of scholarship payments	231, 251, 261, 271	174/1, 174/3, 174/4, 174/5
7	Payment of income tax calculated on wages and equivalent payments	160/1, 160/3, 160/5	160/2, 160/4, 232, 110, 111, 112, 113
8	Payment of accrued social tax	161/1,	161/2, 232, 110, 111, 112,

		161/3, 161/5	161/4, 161/5	113
9	Accrued Personal Accumulative Retirement Account Payment of Contributions	162/1, 162/3, 162/5	162/2, 162/4, 162/5	232, 110, 111, 112, 113
10	Payment of union dues	179/1, 179/3, 179/5	179/2, 179/4, 179/5	232, 110, 111, 112, 113
11	Transfer of wages and equivalent payments	173/1, 173/3, 173/5	173/2, 173/4, 173/5	232, 110, 111, 112, 113
12	Payment of accrued scholarships	174/1, 174/4, 174/5	174/3, 174/4, 174/5	232, 111, 112, 113

The accounting transfers listed in this table are also grouped on the basis of primary documents by accounting in separate memorial orders for each source of funding of the organization and summarized in the general ledger.

Execution of estimates of income and expenditure of extra-budgetary funds of higher education institutions, its calculation and indicators of financial statements related to cash flows are also directly related to the calculation of receivables and payables. In particular, the formation of revenues from extra-budgetary funds and the collection of receivables leads to an increase in extra-budgetary funds in the accounts, the payment of advance payments and liabilities to suppliers and contractors, budget and extra-budgetary funds, employees and scholarship recipients. reduces These cases arise in the process of execution of estimates for extra-budgetary funds.

As the sources of financing of higher education institutions are carried out at the expense of the budget and extra-budgetary funds, the use of working accounts for separate accounting of receivables and payables for each source of funding was noted above. In the accounting policy of higher education institutions, this is done independently and the working accounts are maintained in any form according to the sources of funding. This prevents the aggregation of information on the accounts receivable and accounts payable of organizations in the system of ministries, departments and committees for the current period.

## CONCLUSIONS AND SUGGESTIONS

The formation of receivables and payables in higher education institutions is directly related to the process of execution of estimates, as well as the calculation of receivables and payables in the process of formation and expenditure of extra-budgetary funds. Therefore, the calculation of extra-budgetary funds can be said to be inextricably linked with the calculation of debt and accounts payable.

On extra-budgetary funds in higher education institutions accounts receivable and accounts payable The following scientific proposals and practical recommendations for improving the accounting should be addressed in practice:

on extra-budgetary funds in higher education institutions accounts receivable and accounts payable Carrying out analytical control in the accounting departments on the timely termination of obligations in the organization of accounting;

accounts receivable and accounts payable to reflect the occurrence of sources of funds in the accounting in separate accounting accounts, ie to clearly define the composition of the plan of working accounts in the accounting policy and strictly adhere to this structure in the accounting process;

accounts receivable and accounts payable to organize the account at the level of the requirements of the current legislation and to take measures to prevent overdue obligations;

accounts receivable and accounts payable Clearly define in the accounting policy the procedure for timely and accurate recording of the account in the accounting documents;

on extra-budgetary funds in higher education institutions accounts receivable and accounts payable ensuring that the financial statements on the account and the indicators in them are consistent with the analytical accounting information.

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## INDEX INSURANCE AS A MEANS OF FINANCIAL PROTECTION OF AGRICULTURE IN CLIMATE CHANGE

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**DOI: 10.5958/2249-877X.2022.00014.5**

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### ABSTRACT

*This article examines the impact of climate change on agricultural activity worldwide and the scientific and practical importance of index insurance in insuring against various unforeseen natural risks in order to support it financially. The situation with agricultural insurance was analyzed and proposals and recommendations on financial protection through the introduction of new alternative index insurance were developed.*

**KEYWORDS:** *Index Insurance, Climate Change, Insurance Events, Insurance Premiums, Insurance Premiums, Two- And Three-Phase Index Insurance.*

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### INTRODUCTION

Global climate change is a concern for the world community today. Most importantly, the impact of climate change, along with direct man-made phenomena, poses food security and various other social problems to the population.

On the implementation of the "Year of Youth Support and Public Health" of the President of the Republic of Uzbekistan states software Decree PF-6155 of 03.02.2021 was adopted. According to this decree, in agriculture issues of increasing crop yields and efficiency are highlighted. At the same time, the program of practical measures includes the use of the most advanced technologies, resource-saving and biological methods in agriculture, the provision of high-generation seeds of agricultural crops, the widespread introduction of scientific advances and innovations in agricultural production; Introduce water-saving technologies on 160,000 hectares of cotton fields and take measures to increase yields by 8-10% in cotton and grain, and by 15-20% in fruits and vegetables; cultivation of ecologically clean, high-quality export-oriented fruits and vegetables through the cultivation of organic agricultural products; introduction of mechanisms to financially support the cultivation of rice and vegetables in addition to cotton and grain; Introduce a mechanism for the state to cover 50% of the cost of purchasing high-yielding seedlings and obtaining international certificates (Global GAP, Organic) and 50% of the cost of leasing agricultural machinery; Cooperatives will be established to purchase, grow and export crops.

Based on the requirements of the State Program for the long-term development of the country, it is necessary to prioritize the activities of agricultural enterprises and the introduction of new varieties in agriculture, the cultivation of organic agricultural products and the production of quality export-oriented fruits and vegetables.

In the context of climate change, it is important to protect the activities of agricultural enterprises from natural and man-made disasters. One of the priorities today is the financial support and development of agricultural enterprises on the basis of insurance protection.

Designed to protect against the effects of climate changeThe index type of insurance is mainly developed in the USA, Canada, Spain, Mexico, India, China and other countries and is used in the process of global climate change. In this regard, the CIS countries are also working effectively to prepare for climate change and the widespread introduction of index insurance to cover financial losses.

The article discusses in detail what needs to be done in Uzbekistan in this regard, as well as the goals and objectives of the introduction of index insurance. The attention to the development of agriculture in our country is growing from year to year. It is important to increase the export of agricultural products on the basis of agricultural development. However, the impact of climate change is precisely natural disasters and unforeseen natural disasters that directly affect the sustainable development of agriculture. Improving the mechanism of insurance protection on the basis of index insurance is of particular importance in the timely compensation of losses incurred on the basis of protection against risks affecting agricultural development.

### **Analysis of the relevant literature**

Studies on the risk of hydrological drought related to climate change in the regions Gómez-Limón JA considered by. The direct researcher has examined issues related to the negative consequences of water supply disruptions, mainly on irrigated agricultural lands, which are also of great concern, especially in water supply enterprises. Accordingly, a new index type of insurance has been proposed to cover the risk of water supply interruptions due to drought in irrigated agricultural lands. The recommended index type of insurance is a promising tool to help effectively manage the risk associated with hydrological drought.[2]

Researchers Eze E. and others have studied the prevention of risks to the local population as a result of reducing the impact of climate change on crop yields through the introduction of index insurance. The study sought to assess the use of crop water requirements in assessing crop yields.[3]

Issues related to climate change Boyd M. and in the studies of others mainly the impact of climate change directly on crop yields has been studied and index insurance as a new alternative type of insurance has been studied. Index insurance is currently undergoing a pilot phase over traditional crop insurance. Therefore, it was noted that index insurance should be widely introduced, as climate change poses a significant risk to agricultural enterprises. The study relied on Canada's daily weather data and data on crop yields at the regional level.[4]

Issues of protection of agricultural enterprises in the regions, in particular, farmers' crops from various risks Yu.A. Spletuxov studied the goals and objectives of the introduction of insurance, mainly on the basis of the regional productivity index. The researcher stated that if the average yield of directly insured agricultural crops is lower than the insured yield limit, the indemnity will be compensated on the basis of insurance. Depending on this level, the amount of subsidies provided by the state for insurance premiums will also change, leading to an increase in insurance coverage depending on the amount of insurance premiums.[5]

Foreign scientists such as Sherrick BJ, Barry PJ, Clare Cannona, Kevin Fox Gothamb, Katie Lauve-Moonc, Bradford Powers, Sisse Liv Jorgensena, Mette Termansenb, Unai Pascual [6; 7;



8] in their research reduce the impact of climate change on agriculture, climate change put forward theoretical and practical views on combating change and the widespread introduction of insurance in the protection of agriculture from various risks.

### **Research methodology**

The study examines the issues of agricultural insurance from a theoretical and practical point of view, the introduction of climate change-adjusted insurance and its financial compatibility with environmental factors.

On the introduction of index-compliant insurance for climate change theoretical and practical observations, proposals and recommendations on the introduction of index insurance in the insurance of agricultural enterprises using methods such as a systematic approach, generalization of statistical data, analysis and synthesis.

### **Analysis and results**

Agricultural products grown by agricultural enterprises, in particular, farmers and other types of agricultural enterprises, not only supply the domestic consumer market, but also export to foreign markets.

It is no secret that our country is one of the countries with huge export potential.

Given the importance of agricultural exporters as one of the largest sectors of the economy in the supply of agricultural products to world markets, the issue of expanding the scope of direct insurance coverage of agro-industrial complex and its service enterprises is a long-term strategic focus of our government. is one of the issues.

Agriculture The total volume of agricultural, forestry and fishery products (services) produced by enterprises in 2020 will amount to 260.3 trillion soums, including agriculture and livestock, hunting and services in these areas - 251.8 trillion soums, forestry economy - 6.7 trillion soums, fisheries - 1.8 trillion soums [17].

Uzbekistan is located in a climate-hazardous agricultural area, which is directly affected by drought or water scarcity, deterioration of land reclamation and high salinity, as well as other natural disasters. Agriculture is inextricably linked to the impact of natural disasters, and its impact on sustainable development is high. It is precisely today that the insurance system emerges as an effective solution to these problems in the priority development of agriculture.

Agriculture One of the urgent tasks of enterprises is to provide the population with food products on the basis of timely planting of agricultural crops, timely implementation of agro-technical measures, development of agricultural production, processing and supply. In any case, it is advisable to provide reliable insurance services as one of the key factors in the sustainable development of agriculture.

The escalation of various environmental crises related to climate change is also having a significant impact on the activities of agricultural enterprises. The attention to the development of agriculture in our country is growing from year to year. In this regard, the issues of increasing the level of competitiveness of agricultural enterprises and the priority development of export potential are of great importance. Sustainable development of agriculture and timely coverage of the industry from any natural disasters and unforeseen natural disasters, as well as insurance protection are of particular strategic importance.

The financial losses of agricultural enterprises depend on all aspects of the climate. Therefore, the financial sustainability of agricultural enterprises is also directly related to climate. One of the important factors is to mitigate the impact of adverse weather conditions on the activities of agricultural enterprises as a result of climate change, to provide funding to cover the financial damage caused by man-made or unexpected natural disasters.

70-80 percent of agricultural enterprises lose large amounts of financial income as a result of unexpected natural disasters due to climate change. Climate change will also directly affect the activities of agriculture, food industry, construction, trade, gas and electricity, tourism and transport.

Decrease in productivity of agricultural products grown by agricultural enterprises, various natural phenomena occurring in the process of growing agricultural crops (cotton, grain, rice and fruit and vegetable and melon crops), livestock products (meat, milk, wool and other products) (protection against climate change, rising temperatures, drought, hail, strong winds, severe and dry cold, sharp decline in precipitation, various fires, various pests and insect infestations, biological diseases, etc.).

In the context of climate change, at a time when the impact of weather factors on the activities of agricultural producers is growing from year to year, index insurance is becoming an optimal solution for agriculture, index insurance ensures the stability and profitability of agriculture.

Index insurance is designed specifically for agricultural enterprises, and is carried out in the event that the impact of natural disasters specified in the insurance contract exceeds the agreed threshold value.

In order to protect against the effects of various risk indicators related to agriculture, the index type of insurance today is a specific approach to different climate change in the regions, resulting in the yield of agricultural crops in a given period of rainfall, air temperature, wind speed, humidity or sun during the growing season. provides insurance protection against crop failure as a result of reduced light.

The index insurance type serves to cover the damage incurred in the event that the risk of unforeseen events in the event of an accident exceeds the threshold value in respect of pre-determined payments.

In the event that the risks associated with climate change exceed the parameters of a traditional insurance contract, index insurance payments, in turn, will provide customers with a quick and undisputed settlement of damages.

If the index type of insurance exceeds the amount of damage covered in accordance with the contract with the agricultural enterprise, the payment is covered by index insurance. In this case, the index insurance is aimed at covering the damage caused by the amount of precipitation or temperature limit for a certain period.

An index insurance contract is valid regardless of the condition of the object for which the insurance contract is concluded. In other words, the payment of insurance coverage under the index contract is made only without taking into account the actual losses assuming the status of the index.

If the agricultural enterprise's field crops are traditionally insured against freezing, then the insurance staff will go to the field and calculate the proportions of dead or surviving plants to

confirm that the insured event has occurred and the amount of loss. If the agricultural enterprise insures the crop from freezing, under an index-type contract, the insurance indemnity paid to cover the damage is directly related to the air temperature at the time of payment. If the temperature falls below the temperature specified in the traditional insurance contract, in this case the index will be the basis for payment of insurance premiums.

The following main types of indices are used in agricultural insurance: based on yield index and weathertwo- and three-phase index insurance.

The productivity of agricultural enterprises, as a rule, takes into account the average productivity of each region for a long time (10 - 30 years). Yield is calculated at the level of the administrative regional unit (district), which requires the purchase of long-term statistics on yield. Financial seen by the agricultural enterprise for the purpose of indemnification the insurance indemnity is paid according to the insurance contract.

Weather indicators as a result of climate change include established temperatures, precipitation, wind strength, and other meteorological parameters that affect productivity. If the rainfall level exceeds the set parameters, there is a risk of "drought" and "swamping". If the precipitation exceeds the specified amount, the index is applied in excess of the temperature limit under the insurance contract. In fact, with high temperatures and no precipitation, crop loss or no precipitation becomes much more important.

In the context of global climate change, at a time when the impact of weather factors on the activities of agricultural producers is increasing year by year, index insurance is becoming an optimal solution for agriculture, index insurance ensures the stability and profitability of agriculture.

*How does index insurance provide financial support to agriculture?* Index insurance is designed specifically for agricultural enterprises, and is carried out in the event that the impact of natural disasters specified in the insurance contract exceeds the agreed threshold value.

The index type of insurance used in the world is a specific approach to different climate change in the regions today in order to protect against the effects of various risk indicators related to agriculture. level or provide insurance protection against crop failure as a result of a decrease in sunlight during the growing season.

The index insurance type serves to cover the damage incurred in the event that the risk of unforeseen events in the event of an accident exceeds the threshold value in respect of pre-determined payments.

In the event that the risks associated with climate change exceed the parameters of a traditional insurance contract, index insurance, in turn, will ensure that claims for damages to customers are settled quickly and without controversy.

In 2021, the company JSC "Uzagrosugurta" will produce 260.9billion UZS, the share of the insurance market was 6.9%.One of the important indicators of agro-insurance activity is the compensation of losses of agricultural enterprises operating in the agro-industrial complex, in particular, farmers and other agricultural enterprises as a result of natural disasters and other natural disasters. In 2013, the total coverage by insurance companies operating in the insurance market amounted to 66.9billion UZS, of which 10.7% or 7.2 bln. UZS falls to the share of Uzagrosugurta JSC insurance company.

## CONCLUSIONS AND RECOMMENDATIONS

Republic of Uzbekistan agricultural enterprises improving the regulatory framework for business insurance; agriculture When introducing an index type of insurance, it is advisable to pay attention to the following:

- study of various natural phenomena and natural disasters in agriculture based on the characteristics of the regions and the formation of the agricultural insurance index insurance on the basis of a regional approach;
- agricultural enterprises in particular, peasant farms i.e. increase the focus on insurance of farm activities, in this regard, the development of index insurance definitions;
- introduction of index insurance policies in index insurance on the basis of Uzhydromet data;
- In the context of climate change, it is advisable to widely apply index insurance in the insurance of crops (grain and rice products) aimed at meeting the needs of the population.

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## A STUDY OF SOLVING RECURRENT SEQUENCES

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DOI: 10.5958/2249-877X.2022.00016.9

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### ABSTRACT

*In the process of solving many mathematical and mathematical Olympiad problems, the sample solution is expressed using a recurrent formula. Solving this recurring formula is not always easy. This thesis presents several methods and solutions for solving recurrent sequences of this type.*

**KEYWORDS:** *Recurrent Sequence, Initial Condition, General Term, Coefficients.*

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### INTRODUCTION

In the Mathematical Olympiad, as well as in mathematical analysis, in many problems of algebra, the solution is found in the form of a recurrent sequence, and it is always relevant and important to solve this sequence and find its general term on the basis of initial conditions. On this basis, the following are methods and solutions for finding the general term of several recurrent sequences.

**Problem 1.** Find the formula of the general term for the recurrent sequence  $u(n+1) = u(n) - u(n-1)$  given by the initial conditional  $u(1) = a, u(2) = b, n > 1$ .

#### Solution:

To solve this recurrent sequence, we assign a value to  $n$ , starting from the initial value:

$$\text{if } n = 2 \text{ then } u(3) = u(2) - u(1) = b - a;$$

$$\text{if } n = 3 \text{ then } u(4) = u(3) - u(2) = -a;$$

$$\text{if } n = 4 \text{ then } u(5) = u(4) - u(3) = -b;$$

$$\text{if } n = 5 \text{ then } u(6) = u(5) - u(4) = -(b - a);$$

$$\text{if } n = 6 \text{ then } u(7) = u(6) - u(5) = a;$$

$$\text{if } n = 7 \text{ then } u(8) = u(7) - u(6) = b;$$

$$\text{if } n = 8 \text{ then } u(9) = u(8) - u(7) = b - a;$$

It can be seen that the terms of the recurrent sequence are repeated every 7 values. In this case, the general term of a given recurrent sequence can be written as follows:

$$u(n) = \begin{cases} (-1)^{k+1}(b-a), & \text{if } n = 3k \\ (-1)^k a, & \text{if } n = 3k + 1. \\ (-1)^k b, & \text{if } n = 3k + 2 \end{cases}$$

**Problem 2.** Find the formula of the general term for the recurrent sequence  $u(n+1) = \frac{u(n)}{u(n-1)}$  given by the initial conditional  $u(1) = a, u(2) = b, n > 1$ .

**Solution:**

As above, we give a sequence of values to the sequence:

$$\text{if } n = 2 \text{ then } u(3) = \frac{u(2)}{u(1)} = \frac{b}{a};$$

$$\text{if } n = 3 \text{ then } u(4) = \frac{u(3)}{u(2)} = \frac{1}{a};$$

$$\text{if } n = 4 \text{ then } u(5) = \frac{u(4)}{u(3)} = \frac{1}{b};$$

$$\text{if } n = 5 \text{ then } u(6) = \frac{u(5)}{u(4)} = \frac{a}{b};$$

$$\text{if } n = 6 \text{ then } u(7) = \frac{u(6)}{u(5)} = a;$$

$$\text{if } n = 7 \text{ then } u(8) = \frac{u(7)}{u(6)} = b;$$

$$\text{if } n = 8 \text{ then } u(9) = \frac{u(8)}{u(7)} = \frac{b}{a};$$

It can be seen that the terms of the recurrent sequence are repeated every 7 values. In this case, the general term of a given recurrent sequence can be written as follows:

$$u(n) = \begin{cases} \left(\frac{a}{b}\right)^{(-1)^k}, & \text{if } n = 3k \\ a^{(-1)^k}, & \text{if } n = 3k + 1. \\ b^{(-1)^k}, & \text{if } n = 3k + 2 \end{cases}$$

**Problem 3.** Find the formula of the general term for the recurrent sequence  $u(n)^2 = C \cdot u(n-1)$ ,  $n \geq 1$  given by the initial conditional  $u(0) = a$ .

**Solution:**

We determine the regularity by assigning a value to the recurrent sequence:

$$\text{if } n = 1 \text{ then } u(1)^2 = C \cdot u(0) = C \cdot a \Rightarrow u(1) = (Ca)^{\frac{1}{2}};$$

$$\text{if } n = 2 \text{ then } u(2)^2 = C \cdot u(1) = C \cdot (Ca)^{\frac{1}{2}} \Rightarrow u(2) = (C^3a)^{\frac{1}{4}};$$

$$\text{if } n = 3 \text{ then } u(3)^2 = C \cdot u(2) = C \cdot (C^3a)^{\frac{1}{4}} \Rightarrow u(3) = (C^7a)^{\frac{1}{8}};$$

$$\text{if } n = 4 \text{ then } u(4)^2 = C \cdot u(3) = C \cdot (C^7a)^{\frac{1}{8}} \Rightarrow u(4) = (C^{15}a)^{\frac{1}{16}};$$

Therefore, the general term of a given recurrent sequence can be written as follows:

$$u(n) = (C^{2^n-1}a)^{\frac{1}{2^n}}.$$

**Problem 4.** Find the formula of the general term for the recurrent sequence  $u(n) = \frac{An+B}{Cn+D}u(n-1), n \geq 1$  given by the initial conditional  $u(0) = a$ .

**Solution:**

We determine the regularity by assigning a value to the recurrent sequence:

$$\text{if } n = 1 \text{ then } u(1) = \frac{A+B}{C+D} \cdot u(0) = \frac{A+B}{C+D} \cdot a;$$

$$\text{if } n = 2 \text{ then } u(2) = \frac{2A+B}{2C+D} \cdot u(1) = \frac{(A+B)(2A+B)}{(C+D)(2C+D)} \cdot a;$$

$$\text{if } n = 3 \text{ then } u(3) = \frac{3A+B}{3C+D} \cdot u(2) = \frac{(A+B)(2A+B)(3A+B)}{(C+D)(2C+D)(3C+D)} \cdot a;$$

$$\text{if } n = 4 \text{ then } u(4) = \frac{4A+B}{4C+D} \cdot u(3) = \frac{(A+B)(2A+B)(3A+B)(4A+B)}{(C+D)(2C+D)(3C+D)(4C+D)} \cdot a;$$

Therefore, the general term of a given recurrent sequence can be written as follows:

$$u(n) = \frac{(A+B)(2A+B) \dots (nA+B)}{(C+D)(2C+D) \dots (nC+D)} \cdot a = \prod_{k=1}^n \frac{kA+B}{kC+D} \cdot a.$$

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## INCREASING THE EFFICIENCY OF REGIONAL INDUSTRIAL ENTERPRISES ON THE BASIS OF IMPROVING ADDITIONAL VALUE CHAIN

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DOI: **10.5958/2249-877X.2022.00017.0**

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### ABSTRACT

*The development of the industrial sector in the regions will lead to the sustainable development of the national economy. Enterprises in the network and related industries can also participate. The idea of a value chain was first proposed to the scientific community in 1985 by the American scientist M. Porter, in which he explained how a product can accumulate value before it reaches the consumer. These value chain actors and the complementary services they provide help small-scale producers upgrade their practices, raise their productivity and subsequently improve their welfare. The organization of the labor process, taking into account the external and internal factors, the nature of the activities of industrial enterprises, allows performing such an important task as the continuous increase of labor efficiency.*

**KEYWORDS:** *Accumulate, Implementing, Manufacturer's, Diversification*

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### INTRODUCTION

The economic processes taking place in the world, the programs used to develop the country's economy, the state's economic policy strategies for the medium and long term are aimed at implementing an effective industrial strategy. For example, the volume of U.S. industrial production is determined by the products of businesses integrated into the industrial sector of the economy. Industrial production is the most important sector, accounting for 78% of total production<sup>1</sup>. At present, special attention is paid to the effective use of the region's potential in the development of industry in foreign countries, increasing the share of innovative developments, identifying factors influencing the priority development of new, promising industries.

The idea of a value chain was first proposed to the scientific community in 1985 by the American scientist M. Porter, in which he explained how a product can accumulate value before it reaches the consumer. According to M. Porter's approach to the value chain, it is defined as the types of internal activities that a company engages in creating, marketing, selling, delivering, and servicing a product. M. Porter's definition of value chain suggests that value chain management is a plan of action based on a product manufacturer's long-term competitiveness strategy. In implementing this strategy, M. Porter divides the activities of companies into two types: (1) primary activities; (2) types of supporting activities

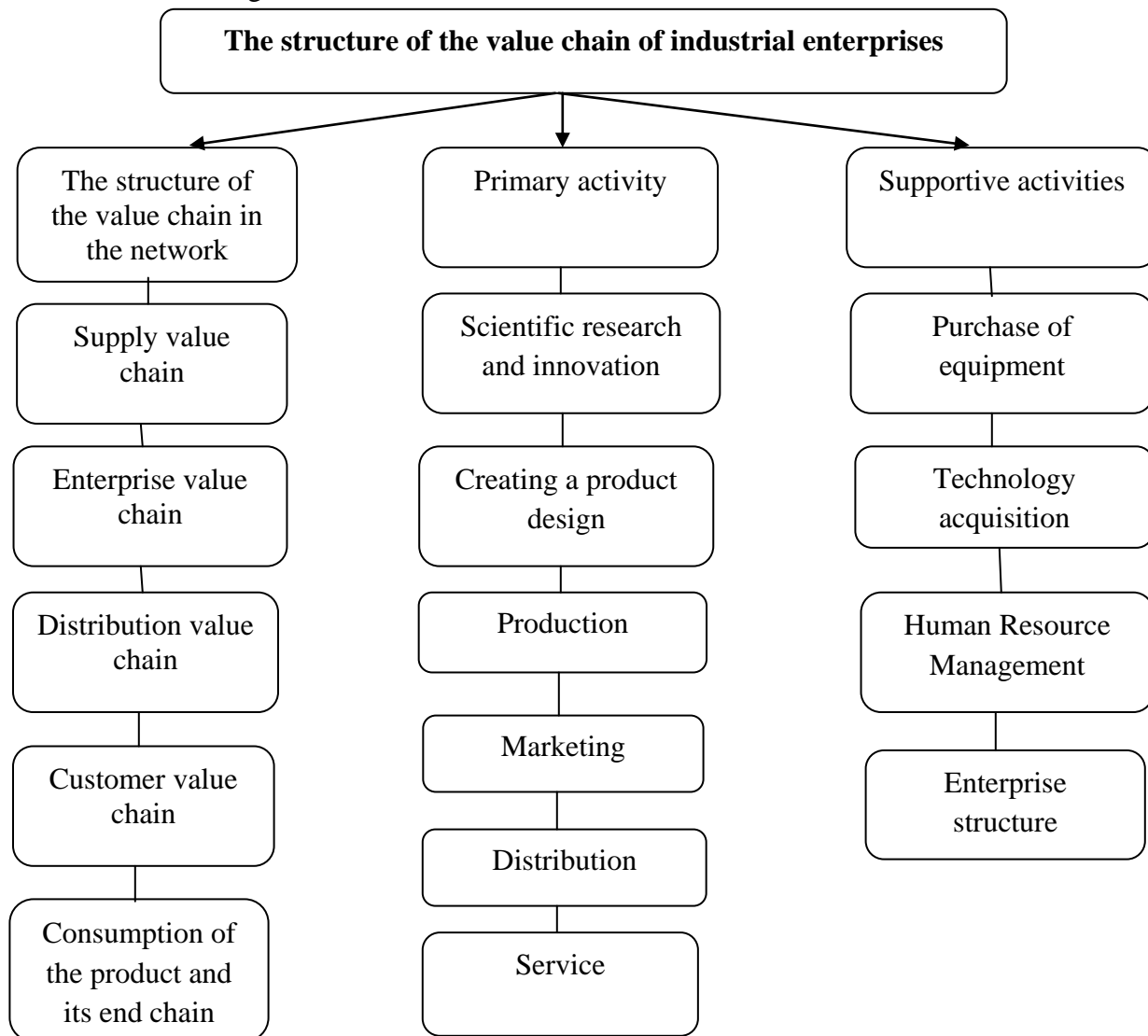
In world practice, targeted research has been conducted to provide scientific solutions to a number of problems to increase the efficiency of industrial enterprises in the region through the

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improvement of the value chain, including: modernization and diversification of the economy, increasing regional competitiveness, sustainable economic growth, optimal management and improvement of regulation, development of methods for forecasting economic development of the region and the basic principles of their implementation, improvement of mechanisms for the development of multifactor economic mathematical models of optimal regulation of priorities of the regional economic system.

### Analysis and results

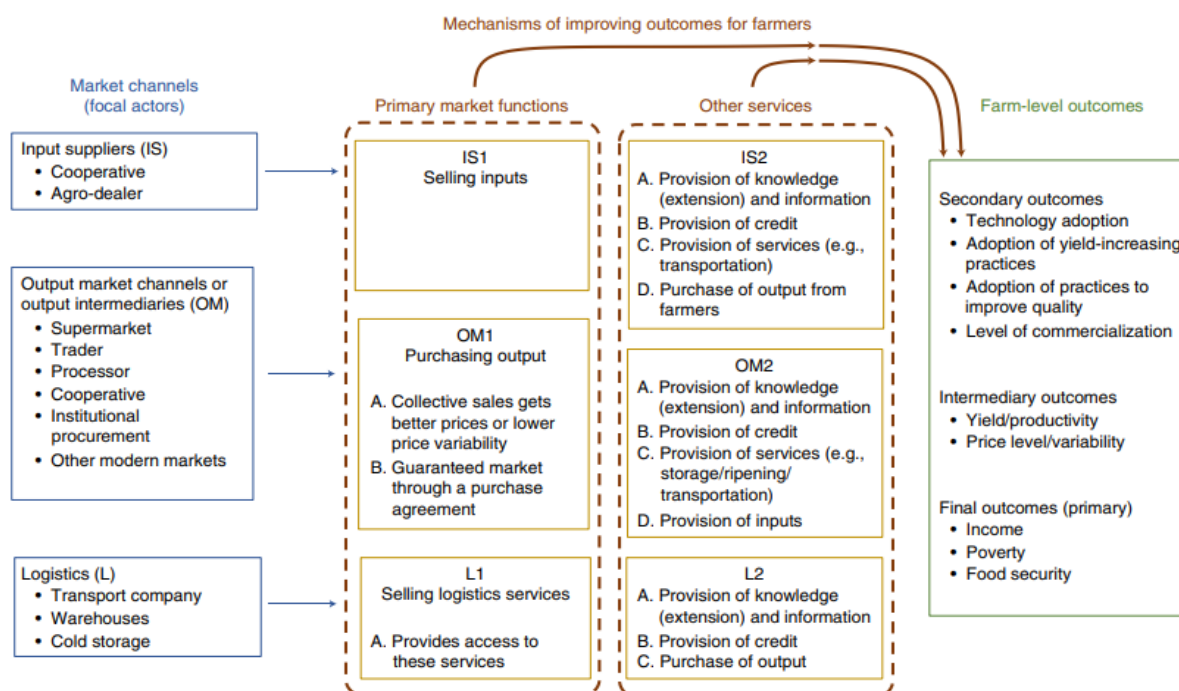
Industry is one of the main sectors of the economy of the republic. This is because the industry is radically different from other industries and sectors with its value-added creation, its role in meeting the needs of the population and its high-level production locomotive. The development of the industrial sector in the regions will lead to the sustainable development of the national economy. The process of diversification will be improved due to the processing of all extracted and cultivated resources in the industrial sector, the production of new products from them, the increase in the range and nomenclature.



**Figure 1. The traditional form of the industrial value chain and its components<sup>2</sup>**

From the data in Figure 1 above, it can be seen that the value chain is initially formed in the industry itself, and it begins with the supply of raw materials to the enterprise and ends with the disposal and disposal of consumed products, using them as secondary raw materials. Enterprises in the network and related industries can also participate. The subsequent appearance of the value chain is directly related to the activities of the enterprise producing the product, and it is divided into two parts: the primary activity of the enterprise in the value chain and the activities of the post-sales support service.

The shape of the value chain shown in the figure above is mainly adapted to the industrial sector and lacks some elements for the food industry, the composition of which does not include the supply cycle of raw materials. We therefore found it necessary to shape the value chain of the food industry by including the raw material delivery phase. This is because the supply of raw materials in the food industry is more complex and it directly affects the competitiveness of enterprises and products.



**Figure 2. Conceptual framework of transactions<sup>3</sup>**

In addition, when SME value chain actors provide these services that are beyond their core activities, it is correlated with technology adoption and higher productivity among farmers. These findings are instrumental towards achieving the goals of SDG 2. Particularly in developing countries in Africa and South Asia (where small-scale producers dominate), the growth and transformation of food systems drives a proliferation of midstream SMEs which, our results show, can be a force inclusive of, and beneficial to, small-scale producers<sup>4</sup>.

This review confirms that there has been a rapid development of the midstream and downstream actors in output value chains—processors, traders and cooperatives—that buy crops and livestock products from small-scale producers. Moreover, there has also been a proliferation of value chain actors in input supply chains (agro-dealers) that supply inputs as well as services (such as training and logistics arrangements) to small-scale farmers. These value chain actors and



the complementary services they provide help small-scale producers upgrade their practices, raise their productivity and subsequently improve their welfare.

The main directions of the organizational and economic mechanism are the application of forms and methods of regional industrial policy, the development of industry development strategies in the region using modern econometric models, the development of regional, interregional and international projects, the organization of intersectoral integration and cooperation of industrial enterprises. investment orientation, implementation of state, sectoral, regional programs, use of opportunities of public, foreign, private, public-private partnership with various forms of ownership, introduction of digital economy, innovative technologies.

On this basis, the study identified organizational and institutional factors for coordinating industrial development in the region:

rational location of industrial enterprises in the region;

establishment of free trade zones and industrial parks in the border areas of the region;

establishment of non-governmental industrial centers, foundations, associations, unions, etc. with the involvement of small and medium businesses in the region;

establishment of export-oriented production clusters for export of products of regional industrial enterprises in cooperation with foreign funds and international organizations.

In the study of the methodology for assessing the effectiveness of structural changes in regional development, the analysis of "proportional changes" assessing the impact of national, sectoral and regional changes on economic growth, the Krugman index and Herfindal-Hirschman index used to determine the level of regional specialization. improved Lilien Index ". In our opinion, the use of a wider range of factors influencing growth in the analysis of economic development increases the ability to identify drivers of the regional economy. With this in mind,

When calculating the index, it is necessary to determine the efficiency index (SI) of the networks. The network efficiency index is determined by dividing its per capita output (services) by the national average. In this case, the sectors with a score less than 1 are considered to be underdeveloped, the larger than 1, the more developed, the index is equal to 1, the level of development is considered normal. TRI is determined by calculating the average of the results across the networks.

$$TRI_i = \frac{1}{n} \sum_{j=1}^n CI_{ij}$$

The region is one of the important areas for increasing the efficiency of industrial enterprises, which solves a number of economic and social problems and requires the following:

- greater use of domestic potential of households in the production of industrial enterprises;
- employment of the population, involvement of its inactive part in production activities and on this basis to increase the income of the population and improve living standards;
- protection of the social interests of the population engaged in home-based work, as well as employees directly employed in industrial enterprises;

- Improving the efficiency of large industrial enterprises through the organization of production of components, certain types of finished products and services using home-based labor.

We propose to implement the following measures to increase the efficiency of industrial enterprises in the region:

- development of production infrastructure at industrial enterprises;
- it is necessary to increase the market share of products of industrial enterprises in the region;
- it is necessary to conduct a continuous analysis of production at industrial enterprises on the basis of observations and statistics;
- it is necessary to ensure the stability and sustainability of production at industrial enterprises in the region;
- it is necessary to improve the professional skills of workers in industrial enterprises of the region;
- it is necessary to increase investments in industrial enterprises in the region;
- it is necessary to increase the share of innovative products in the industrial enterprises of the region;
- information technologies should be widely introduced into production processes, etc.

## CONCLUSIONS AND SUGGESTIONS

In short, Determining the importance of raw materials and the minimum cost of improving the efficiency of industrial enterprises in the region on the basis of accurate calculations, the development of efficient use of resources will increase the efficiency of industrial enterprises in the region. The organization of the labor process, taking into account the external and internal factors, the nature of the activities of industrial enterprises, allows to perform such an important task as the continuous increase of labor efficiency. In particular, taking into account the factors affecting the results of work in selected industrial enterprises, based on the correct organization of labor, the enterprise was able to produce products worth 16 billion soums. From the results of this achieved economic efficiency, it can be noted that the increase in labor efficiency is of paramount importance in the development of large industrial enterprises. At the same time, the priority of technology replacement in the modernization of production technologies in industrial enterprises of the region and the calculation of the coefficient of consensus of experts is the effective replacement of production technologies in industrial enterprises of the region. opportunities for the development of industrial enterprises will increase and they will be able to identify ways to overcome existing problems.

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