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Section 1. Accounting

Iershova Natalia Yurievna,
Ph.D., assistant professor
professor Department of Economic Analysis and Accounting
National Technical University "Kharkiv Polytechnic Institute"
E-mail: iershova.ny@gmail.com
Tkachenko Marina Alekseevna,
Senior Lecturer Department of Economic
Analysis and Accounting Ph.D.,
National Technical University "Kharkiv Polytechnic Institute"
E-mail: marinatkachenko84@gmail.com
Garkusha Victoria Alexandrovna,
postgraduate student Department of Economic Analysis and Accounting
National Technical University "Kharkiv Polytechnic Institute"
E-mail: nikarusj@gmail.com

INFORMATION STRATEGIC MANAGEMENT ACCOUNTING: THE FORMATION AND USE OF ENTERPRISE MANAGEMENT SYSTEM

Abstract. In the article, the formation and use of information of strategic management accounting in the enterprise management system is investigated. Principles of formation of information strategic management accounting proposed. A methodical approach to assessing the quality of information formation has been developed. The practical significance of the results are determined.

Keywords: information, information quality criteria, information users, principles of formation, strategic management accounting, enterprise management.

Ершова Наталья Юрьевна,
к.э.н., доцент, профессор кафедры экономического анализа и учета,
Национальный технический университет
«Харьковский политехнический институт»
E-mail: iershova.ny@gmail.com
Ткаченко Марина Алексеевна,
к.э.н., старший преподаватель кафедры экономического анализа и учета,
Национальный технический университет
«Харьковский политехнический институт»
E-mail: marinatkachenko84@gmail.com

Гаркуша Виктория Александровна,
аспирантка кафедры экономического анализа и учета,
Национальный технический университет
«Харьковский политехнический институт»
E-mail: nikarusj@gmail.com

ИНФОРМАЦИЯ СТРАТЕГИЧЕСКОГО УПРАВЛЕНЧЕСКОГО УЧЕТА: ФОРМИРОВАНИЕ И ИСПОЛЬЗОВАНИЕ В СИСТЕМЕ УПРАВЛЕНИЯ ПРЕДПРИЯТИЕМ

Аннотация. Статья посвящена вопросам формирования и использование информации стратегического управленческого учета в системе управления предприятием. Предложены принципы формирования информации стратегического управленческого учета, обоснован и предложен методический подход к оценке качества информации. Раскрыта практическая значимость полученных результатов.

Ключевые слова: информация, критерии качества информации, пользователи информации, принципы формирования, стратегический управленческий учет, управление предприятием.

Вступление

Современные тенденции развития систем информационного обеспечения управления свидетельствуют об усилении важности стратегического управленческого учета для целей информационной поддержки стратегических управленческих решений. Как подчеркивает В. Б. Ивашкевич, «управленческий учет охватывает всю систему формирования и использования информации для управления бизнесом в целом, включая стратегическое управление, оценку деятельности организации, ее подразделений, функциональных блоков, планирование и контроль хозяйственной деятельности» [1, 14–15]. В научных публикациях вопросы формирования и использования информации стратегического управленческого учета в системе управления предприятием приобретают особую актуальность и рассматриваются с позиции обеспечения финансового менеджмента (Т. Г. Каминская [2]), формирования системы учетно-аналитической информации для принятия управленческих решений (Л. К. Никандрова [3]). Таким образом, развитие стратегического управленческого учета и применение в его рамках новых методологических и методических приемов является закономерным процессом, направленным на повышение релевантности информации, формируемой в учетной системе экономических субъектов.

Цель исследования

Обоснование и оценка значимости формирования и использования информации стратегического управленческого учета в системе управления предприятием.

Методология и методы исследования

Методологической основой данного исследования является системный подход. Методы исследования: теоретический анализ научных литературных источников, научных баз данных; метод экспертных оценок.

Результаты исследования

В современных условиях функционирования любые процессы на предприятии невозможны без постоянного поиска, анализа, обработки и использования информации. На подтверждение этого тезиса, С. Левицкий и Р. Лепа указывают, что, любая деятельность начинается с накопление информации, а именно, происходит сбор, анализ

и обработка информации о внешней среде и внутренних процессах, при этом использование информационных систем повышает эффективность деятельности предприятия [4]. Современная концепция стратегического управленческого учета ориентирована на преобразование информационных потоков с целью качественной подготовки базы данных при принятии стратегических управленческих решений субъектами хозяйствования. Формирование и использование информации стратегического управленческого учета в системе управления предприятием определяется многокомпонентностью и скоростью изменений бизнес-среды; особенностями и спецификой деятельности предприятия, а также технологиями формирования, организацией информационных потоков, которые обеспечивают связь между информационными подсистемами предприятия.

Современные направления исследования учетной информации во многом ориентированы на построение теоретических и методологических основ ее формирования для конкретных функций управления, в то время как современные системы управления выдвигают требования к интегрированному подходу в формировании учетного информационного пространства, обеспечивающего интересы определенного круга пользователей. Пользователями информации стратегического управленческого учета на предприятии являются: высшее руководство предприятия, руководители структурных подразделений, специалисты.

Для высшего руководства предприятием информация необходима при формировании стратегических целей. Такая информация поступает в виде интегрированных управленческих отчетов о результатах производственной, финансовой и инвестиционной деятельности предприятия и ее основных структурных подразделений за прошедший отчетный период и на конкретный будущий период; аналитических материалов: записок или отчетов о влиянии внутренних и внешних факторов на результаты деятельности предприятия и ее основных структурных подразделений; плановые и прогнозные показатели на предстоящий период.

Для руководителей структурных подразделений информация необходима при формировании оперативных стратегий и реализации долгосрочных целей развития предприятия. Такая информация поступает в виде управленческих отчетов о деятельности подразделения на конкретный момент, результатах их аналитической обработки, плановой и прогнозной информации о конкретном подразделении, а также информации о смежных подразделениях и контрагентах.

В пределах компетенции специалистов поступает информация о деятельности предприятия и его структурных подразделений, а также прогнозная информация о влиянии внутренних и внешних факторов на результаты хозяйственной деятельности.

Экономические интересы пользователей информации стратегического управленческого учета формируют информационный запрос на ее содержание и определяют порядок обобщения данных, уместных и существенных при принятии управленческих решений долгосрочного характера. Для этого информация стратегического управленческого учета сначала должна быть сформирована как система данных, потенциально обладающих качествами полезной информации для заинтересованных лиц. Дальнейший характер детализации зависит от потребностей пользователей. На основе подходов к организации массивов информации, предложенных Дж. К. Лафтом [5, 335], формирование и использование информации стратегического управленческого учета в системе управления предприятием должно базироваться на таких принципах:

– объединение данных по их сопряженностью с задачами стратегического управления предприятием;

– объединение данных по времени их возникновения;

– объединение данных по частоте обращения к ним.

Практическая ценность информации стратегического управленческого учета реализуется через критерий полезности, пригодности информации для принятия эффективных стратегически важных управленческих решений, а также удовлетворенности конкретного запроса пользователя. Качество информации – степень практической пригодности информации, используемой в процессе управления, определяемая совокупностью определенных свойств [6, 334]. К числу таких свойств относятся: полнота, актуальность, достоверность, объективность, корректность, достаточность, релевантность. Методический подход оценки качества учетной информации, учитывающий иерархическую связь между качественными характеристиками учетной информации рассмотрен в работе [8], где указывается на преимуществе использования метода экспертных оценок. Для формирования обобщенной оценки группы экспертов чаще всего используются средние величины – медиана (M_E) или точечная оценка, вычисляемая как среднее арифметическое. Групповая оценка может считаться достаточно надежной только при условии хорошей согласованности ответов отдельных специалистов-экспертов. Для этого рассчитывается коэффициент конкордации (W) – общий коэффициент ранговой корреляции для группы, состоящей из m экспертов. Коэффициент W изменяется в диапазоне от 0 до 1. Его равенство единице означает, что все эксперты присвоили объектам одинаковые ранги [9].

Практическая значимость

В рамках выполнения научной темы «Разработка теоретико-методических основ формирования системы управленческого учета предприятия» (№ ДР 0117U004814) кафедрой экономического анализа и учета НТУ «ХПИ» нами была оценено качество информации стратегического управленческого учета. В выборку вошли четыре предприятия г. Харькова, которые занимаются инновационной деятельностью, поскольку специфика их деятельности требует постоянного совершенствования не только производственного процесса, но и системы управления и качества учетно-аналитического обеспечения. Экспертная группа сформирована из числа менеджеров высшего звена, представителей аналитического отдела предприятий, выбранные для исследования и преподавателей кафедры общей численностью 11 человек. Ранг «1» определял потенциально меньшую значимость критерия качества информации для эксперта. Для учета в рейтинге качества информации использована 5-ти бальная шкала для каждого критерия. В результате рассчитывается интегральная оценка качества информации (I): $I = \Sigma x \times y$, где x – вес критерия, y – балл критерия. Максимальная оценка каждого критерия качества – 5 баллов. ПАО «Турбоатом» 28 баллов, ГП «Харьковский машиностроительных завод «ФЭД» – 25 баллов, ООО «Харьковский завод подъемно-транспортного оборудования» – 23 балла, ГП «Завод «Электротяжмаш» – 27 баллов.

Формирование качественной информации стратегического управленческого учета должны обеспечивать эффективно функционирующие элементы системы бухгалтерского управленческого учета на конкретном предприятии: принципы ведения бухгалтерского управленческого учета на предприятии; учетная политика; организационная структура; система документооборота; порядок обобщения данных в отчетности; средства контроля, предусмотренные в системе бухгалтерского управленческого учета.

Выводы

В статье обоснована актуальность формирования и использования информации стратегического управленческого учета для целей управления предприятием. Систематизированы пользователи информации стратегического управленческого учета. Обоснована ценность информации через критерий полезности, пригодности информации

для принятия эффективных управленческих решений. Предложен методический подход оценки качества формирования информации. Представлена практическая значимость полученных результатов.

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Section 2. Mathematical methods in economics

Tianyu Yu,
Wilbraham & Monson Academy, MA
E-mail: wmajoey@gmail.com

BIKE RENTAL VOLUME PREDICTION VIA LINEAR REGRESSION MODEL

Abstract

Aim: This study aimed to build a predictive model for bike rental volume using linear regression.

Method: The data set under study is related to 2-year usage log of a bike sharing system namely Capital Bike Sharing (CBS) at Washington, D.C., USA. There were some external sources that corresponding historical environmental values such as weather conditions, weekday and holidays are extractable. All the records were randomly assigned into 2 groups: training sample (50%) and testing sample (50%). Linear regression model was built.

Results: For testing sample, the MSE was 798 for the linear regression. In cross validation, the average MSE of the linear model is 806, which indicated the model was stable.

Conclusions: In this study, we built a predictive model for bike rental volume using linear regression. This study suggests that it is possible to develop a reproducible and transportable predictive instrument for bike rental volume.

Keywords: predictive model, bike rental, predictive instrument, linear regression.

1. Introduction

Since the introduction of bike share, the popularity and the usage of bike share has skyrocketed in the past years. Million of trips are taken by millions of people every year. Bike stations are at every corner of the streets, and with the tremendous amount of bikes out there, it raises the question: Does the distribution of bikes really meet people's needs? Or, we could developed a model that can predict the bike rental volume, thereby making every bike to its maximum productivity.

The need of bike share is influenced by a lot of factors, which is the main reason why we found the situation that at one station, people can't return bikes while at another station, people can find a bike to rent. For example, in the morning, more bikes are needed at stations near residential area, and during during weekends, the need for bike share in big cities will increase. We can not just product millions bikes and distribute it everywhere in the city. Not only because of the cost of massive production, it also causes chaos that makes it hard to manage. In China, there are bikes everywhere along the streets, and it is convenient to rent a bike, but because of the massive number of bikes, most of them are not in good conditions which totally take away the whole point of bike sharing. In stead, it becomes trouble that the companies has to get rid off. If bike share company can predict the rough number of bikes needed at each station through modeling influence factors like wind, temperature, time and humidity, we can transport the bike ahead,

and satisfy people's needs with the limited amount of bikes.

2. Data and Methods

Data

The data set under study is related to usage log of a bike sharing system namely Capital Bike Sharing (CBS) at Washington, D.C., USA.

In the CBS system when a rental occurs, the operation software collects basic data about the trip such as duration, start date, end date, start station, end station, bike number and member type. The historical data set of such trip transactions is available online via. To avoid trend issues, we select only corresponding data to years 2011. There exists several weather data sources, however, most of them provide only forecasting data and do not contain historical weather reports. There is another group of forecasting sources that contain historical weather reports for specific last days (e.g. 14 days). Another group also contains weather historical report but in daily scale. They got from this source some attributes such as weather temperature, apparent temperature, wind speed, wind gust, humidity, pressure, dew point and visibility for each hour from the period 1 January 2011 to 31 December 2011 for Washington, D.C., USA.

Table 1.– Variables available in this data

season	1: springer, 2: summer, 3: fall, 4: winter)
mnth	month (1 to 12)
hr	hour (0 to 23)
holiday	weather day is holiday or not
weekday	day of the week
workingday	if day is neither weekend nor holiday is 1, otherwise is 0
weathersit	1: Clear, Few clouds, Partly cloudy, Partly cloudy; 2: Mist + Cloudy, Mist + Broken clouds, Mist + Few clouds, Mist; 3: Light Snow, Light Rain + Thunderstorm + Scattered clouds, Light Rain + Scattered clouds; 4: Heavy Rain + Ice Pallets + Thunderstorm + Mist, Snow + Fog
temp	Normalized temperature in Celsius. The values are derived via (t-t_min)/(t_max-t_min), t_min= –8, t_max=+39 (only in hourly scale)
atemp	Normalized feeling temperature in Celsius. The values are derived via (t-t_min)/(t_max-t_min), t_min= –16, t_max=+50 (only in hourly scale)
hum	Normalized humidity. The values are divided to 100 (max)
windspeed	Normalized wind speed. The values are divided to 67 (max)
casual	count of casual users

3. Results

The sample size is 4322 in the test sample and 4323 in training sample, a total of 8645 records from year 2011.

Table 2.– Descriptive information of test sample and training sample

	Training sample		**Test sample**	
Season				
1	***2***	***3***	***4***	***5***
1	1000	48.36	1068	51.64
2	1129	51.25	1074	48.75
3	1128	50.36	1112	49.64

1	*2*	*3*	*4*	*5*
4	1065	49.91	1069	50.09
Holiday				
No	4210	50.08	4196	49.92
Yes	112	46.86	127	53.14
Week day				
0	609	49.47	622	50.53
1	596	48.26	639	51.74
2	597	48.85	625	51.15
3	642	52.24	587	47.76
4	628	51.27	597	48.73
5	624	50.36	615	49.64
6	626	49.53	638	50.47
Working day				
No	1347	49.27	1387	50.73
Yes	2975	50.33	2936	49.67
weathersit	1.44	0.66	1.44	0.65
temp	0.49	0.20	0.48	0.20
atemp	0.47	0.17	0.46	0.18
hum	0.65	0.20	0.64	0.20
windspeed	0.19	0.12	0.19	0.12
Causal rentals	28.67	39.19	28.53	38.49

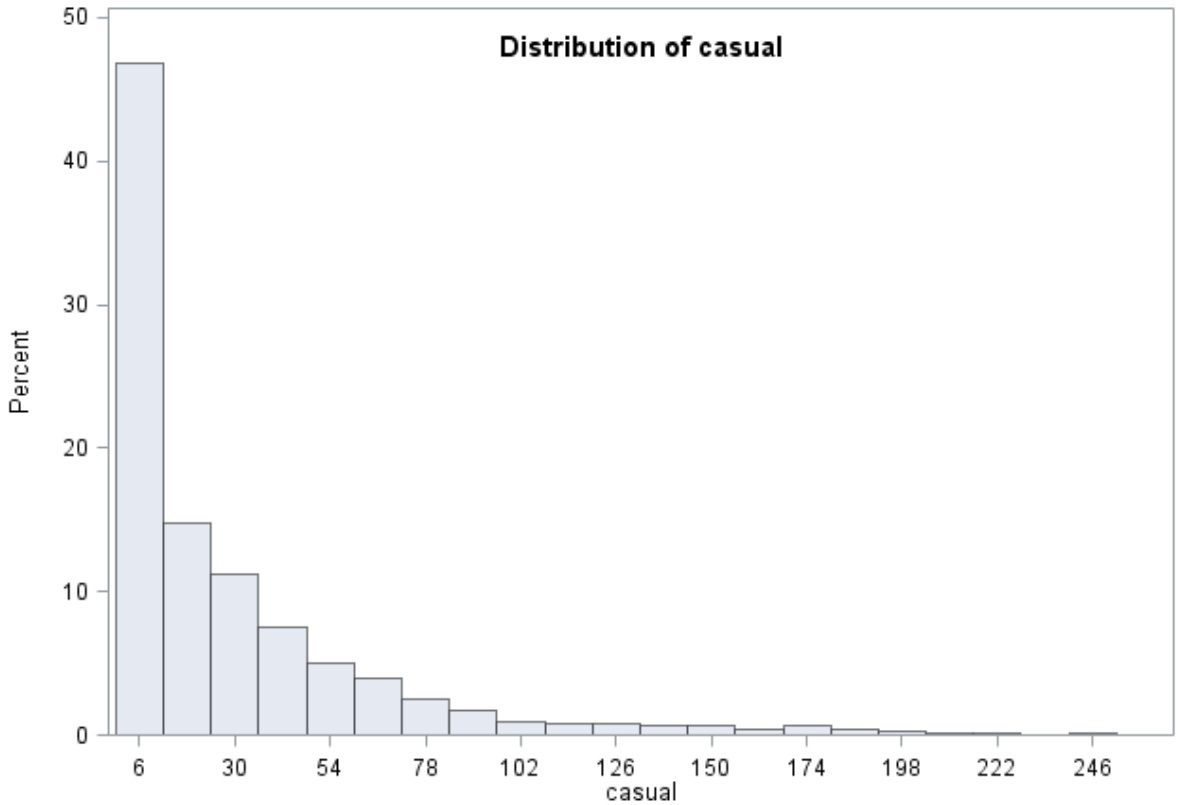

Figure 1. Distribution of bike rentals in training sample

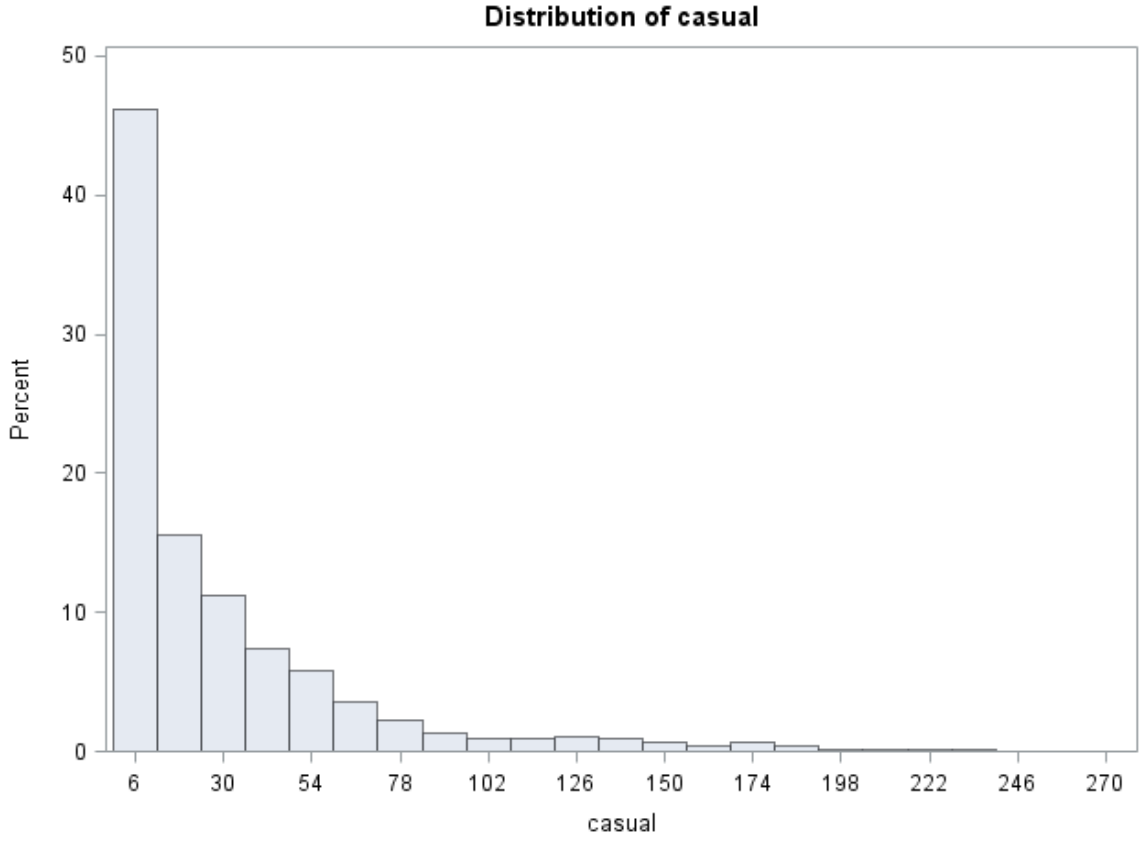

Figure 2. Distribution of bike rentals in test sample

According to the linear regression, season, hour, holiday or not, working day or not, temperature and humidity were significant predictors for bike rental volume.

Table 3.– Linear regression to predict the volume of bike rental

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**	
(Intercept)	21.0	2.7	7.7	0.000	***
season	1.9	0.7	2.5	0.011	*
mnth	–0.3	0.2	–1.4	0.150	
hr	1.1	0.1	17.0	< 2e-16	***
holiday	–8.6	2.7	–3.1	0.002	**
weekday	0.1	0.2	0.5	0.645	
workingday	–29.6	1.0	–30.7	< 2e-16	***
weathersit	0.3	0.8	0.5	0.643	
temp	78.8	18.3	4.3	0.000	***
atemp	11.0	20.5	0.5	0.593	
hum	–49.2	2.7	–18.2	< 2e-16	***
windspeed	–2.3	3.9	–0.6	0.550	

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

4. Discussion

The number of major cities that are becoming bike-friendly is growing in recent years. It is expected that in a near future, most major cities provide this service along their other public transport services. How to better predict the rental volume is a key challenge to the business.

In this study, we built a predictive model for bike rental volume using linear regression. This study suggests that it is possible to develop a reproducible and transportable predictive instrument for bike rental volume.

According to the linear regression, season, holiday or not, working day or not, temperature and humidity were significant predictors for rental volume.

In conclusion, we used linear regression model to predict the bike rental volume. This study is of great importance considering the fast growth of bike rental business in major cities around the world.

Section 3. Management

Urkayev M. H.,
Ph D., in economics Ganja State University
Karimov F. J.,
Ph D., in economics Ganja State University
Gurbanova Kh.V.,
candidate in economics, Azerbaijan Technology University
Karimova M. N.,
doctoral candidate, Azerbaijan Technology University
Karimova I. J.,
senior lecturer, Azerbaijan Technology University
E-mail: f.kerimov@uteca.edu.az

METHODS OF MANAGEMENT ACCOUNTING AND ECONOMIC ANALYSIS

Abstract. Resolving the problems of effective utilization of resources, that is the actual records, the operational analysis and strict control of their use in every job, area, department, service and enterprise, requires the application of methods that meets the pursuance of the task.

As is well known, the manufacturing process of enterprises and organizations is characterized by quantitative and qualitative indicators. If the quantitative indicator determines the production volume, nomenclature and the loyalty of output of the whole enterprise and its sections, then the qualitative indicator of their performance characterizes the two interconnected stages of the living and material labour accounting.

Keywords: rational use, problems, costs, management accounting, calculation system, accounting balance, normative method, responsibility center, location, analytical bookkeeping.

Resolving the problems of effective utilization of resources, that is the actual records, the operational analysis and strict control of their use in every job, area, department, service and enterprise, requires the application of methods that meets the pursuance of the task.

As is well known, the manufacturing process of enterprises and organizations is characterized by quantitative and qualitative indicators. If the quantitative indicator determines the production volume, nomenclature and the loyalty of output of the whole enterprise and its sections, then the qualitative indicator of their performance characterizes the two interconnected stages of the living and material labour accounting.

Due to the main focus on improving the rate of working qualities of the entity and its structural subdivisions, the methods of monitoring and analysis of production resources accounting are particularly relevant in transition to the market relationships, and

they have been required to comply with the market economy demands [1].

In the state practice, planning and accounting of production costs and calculation of cost of goods are based on the unique methodology.This methodology is based on "The Principle of Regulatory and Accounting of Product Costs in Industrial Enterprises", that isthe Tax Code which has been entered in force since 2000, as well as guidelines referring this issue.

Nevertheless, the level of mechanization of methodological, technological, organizational features and accounting records in the enterprise, as well as setting accounting targets on the basis of unique principles, has a significant impact on the selection of accounting, control and economic analysis systems.

Proper determination of the scope of one or another accounting method primarily requires its content and scientifically justified classification. First of all, this will allow clarifying the purpose and functions of management accounting, and also expand its application as an experience of the advanced and progressive methods.

First and foremost, it is required to summarize the experience gained in the country and abroad and the critical analysis of the regulatory and methodological materials in order to improve the methodological framework of manufacturing costs accounting.

In recent years, economic literature has focused on the cost accounting, manufacturing cost estimation methods and their application in various industries. In most cases, there are some opinions expressing the advances of the cost of goods estimation and accounting methods, step and the job order which are proposed by the normative documents.

Moreover, the other perspectives such as the independent methods are added to the forgoing methods. For example, A. S. Margulis noted that a simple method is used in industry, power stations and enterprises producing two or more types of products. I. M. Cantor has pointed out the widespread allocation of the details calculation in large-scale and mass production enterprises, which incorporates the calculation of the cost of each detail, and has explained the addition of the method of calculating groups.

So, apparently, the above-mentioned authors are considering the cost accounting and the method of manufacturing cost calculation more thoroughly. Prof. Shenkov S. A. in his monograph titled "Accounts System and Accounting Balance of Enterprise» has recommended calling the entire method as a cost-accounting method. At the same time, the author believes it would help to simplify the terminology and preserve the integrity of the calculation methods. Thus, while considering the manufacturing costs and methods of calculations, these authors have meant this notion as having the same designation in the enterprise information system.

Thus, I. I. Poklad indicating normative method as the most progressive one and predicting its future, he has finished his thought by stating "If the fields of industry applying the technique of single-step, step-by-step and job order methods do not use the basic principles of the normative method, those techniques will lose their significance in the development of modern techniques and economics, and therefore, it does not meet the requirements of various types of manufacturing cost accounting, its calculation and operational analysis" [2]. He has attempted to combine the principles of the normative method with single-step, step-by-step and job order methods by classifying them as single-step-normative, job order-normative and step-by-step-normative methods, and also to make additions to the manufacturing cost accounting and the methods of cost of goods calculation.

M. X. Iebrax tried to make classification according to the normative method in his books "Basic Elements of Industrial Accounting in the USSR and Abroad" (1931), "Fundamentals of Regulatory Accounting for Production" (1938), "Industrial Accounting Course" (1943)) and N. A. Blatov also tried to do the same in his "Basis of Industry Accounting" (1935).

N. G. Chumachenko describing the classification of manufacturing cost planning, accounting

and calculation (1955), states that "one of the most important adversaries in classification of methods of accounting for manufacturing costs costs and the calculation of cost of goods is its inability to cover all facilities and production. The absence of a single categorizing criterion is considered to be one of the other shortcomings. The method is determined by the principle of manufacturing cost accounting on the one hand, and also is considered by the principle of cost of goods calculation. In addition, there are different ways to calculate costs in case of similarities in production costs accounting."

The classification offered by N. G. Chumachenko is based on the fact that the costs accounting and the calculation of objects are not identical. According to the author, in some cases, similarity is observed, but it should not be considered legitimate, just an exceptional case [2].

Depending on the mentioned above, the author has provided a separate classification of accounting and calculation methods.

1) accounting of manufacturing costs on components;

2) accounting of manufacturing costs on goods;

3) accounting of manufacturin costs on product groups;

4) accounting of manufacturing costs on job order groups;

5) accounting of manufacturing costs on processes;

6) accounting of manufacturing costs on production;

In this case the standard method acts as the above-mentioned methods.

Prof. N. G. Chumachenko's calculation methods include the following ones;

1) calculation by way of a direct method;

2) calculation of expenses by way of collection;

3) calculation of expenses by way of exception;

4) calculation of the unit cost by a ratio method;

5) calculating of the unit cost by a proportional method;

6) calculation of the product by a combined method;

7) calculation of the product by a normative method.

It should be noted that this type of issue enables the diversity of manufacturing costs and cost estimation of the goods. The wide allocation of the ratio and proportional division methods, due to the fact that there is a difference between the objects of cost accounting and cost of goods calculations, which is related to the use without the exception of indexes and costs during the calculations, that in turn creates a reduction in the scope of costs directly referred to the object of calculations.

We should point out that the first four of the methods used by N. G. Chumachenko, related to the goods and the next two methods completely follow the requirements of the step method.

The suggestions made by N. G. Chumachenko on the method of calcification make it difficult for us to deduce indirect costs by technical means; they cannot afford to be economically return on as well as the cost calculation method. E. Gilde has given the following classification of the method of accounting for manufacturing costs:

1) The costs which are not applicable in accounting records: the job order and step methods;

2) By dividing the costs into norms and variances: job order-normative, step-by-step methods.

I.A Basmanov has reviewed the classification of costs and the methods of cost of goods calculation; he decided that one of the most significant adversaries was about mixing up the cost units with the accounting method. Here, basically, the cost accounting is recognized as a unit, in other cases, it is supposed to be a cost accounting method. Depending on it, he has decided that the information about the costs of a certain object can not fully describe them, which reflects the process of forming the methods' costs on the basis of norms and variances. Then he defines the classification of the cost accounting methods by two: comprehensive and accounting object.

Under this principle, separate authors agreed with the classification of the methods suggested by I. I. Poklad who has proposed to classify the existing method of cost accounting as normative and non-normative methods. While non-normative method is referred as the method of job order, step and goods, the normative method should be reviewed as an independent method.

Later I. A. Basmanov explained widely this point of view in his research and agreed with it. He supposed that the classification of the manufacturing cost was rather complicated in two ways (comprehensive and accounting method), and proposed that the cost accounting method should be restricted as a normative and non-normative method; the object of costs accounting would be considered as a separate concept. Let us point out that it is impossible to agree with this type of classification of the cost accounting method. The classification of shown methodology is compared with not just real-time accounting, but also on the margins of the job order and step methods increasing their conductivity and efficiency. Such a classification is based on the grouping of costs on objects, not on the comprehensive method [3].

The classification of group, information, one-step methods of manufacturing costs accounting and calculation cost of goods are based on the object of cost accounting. In the organization of production, accounting facilities can be scaled up and detailed depending on the accounting objects, the analytical accounting technology and the level of accessibility. In this regard, the job order method is called product, details, group method; the step method transitional, one-step method.

Thus, these methods detailing the job order and step methods, their types and the nomenclature of analytical accounting are considered to be a conventional form of manufacturing costs accounting.

There are also different points in determining the method of calculation.

N. G. Chumachenko, I. A. Basmanov considered the calculation of cost of goods as a separate stage of production accounting, believing it as a method of calculation of cost of goods.

In connection with this, N. G. Chumachenko has offered to calculate the cost of goods by one of the following; direct indication, collecting costs, costs variances, ratio, index, the joint and normative methods. I. A. Basmanov also defends this classification which applies to the concept of calculating the cost of the whole goods in the entity and its structural units. He explains this proposal by the fact that in most cases the method of cost of goods computation is incompatible with the calculation of manufacturing cost formula. He supposed it was appropriate to use the same normative method to calculate only the cost of the object and unit when justifying the application of each method of calculation and its various principles.

It should be noted that in the classification which these authors have mentioned, the calculation methods are based on the organization of manufacturing costs accounting (normative and non-normative). However, as the practice of most enterprises shows, the calculation of actual cost of goods and accounting of the determined variance in operational terms can be applied in all methods of calculation of cost of goods.

The standard method of calculating is based on the computation of the variances and adjustments to count normative costs for obtaining the actual cost. At the same time, the calculation exceeds the systematization of the variance, which is documented or defined by counting and the registration of the variance over the first norm [3].

Hence, the standard method of calculating under the normative cost of goods can be used for the calculation of actual costs without any explicit variance. In this case, the calculation does not refer to the system of determining current expenses, variances and any deformations.

The ultimate sort of method for accounting and calculation creates an overall simplified accounting.

Thus, there are numerous conflicts in the classification of the widespread application of the standard method, the accounting of cost of goods and calcu-

lation methods. Here's the point of what new issue the classification can give to the normative method.

In this regard, let us discover what determines the development of manufacturing costs accounting and the calculation method of cost of goods. The method incorporates the study of the ways of acceptance in which the subject is studied. The investigated object defines how the methods of its perception have been formed. Under such circumstances, the subject acts as a real cost and a specific object i.e. the product is released by an entity.

In this regard, the definition of accounting and calculating methods is affected by the area and type of production. The cost of a particular facility is perceived by the method of accounting and calculation of manufacturing costs.

The step method covers the step and final process of the product. The job order method combines the order and the method of accounting. The object of the accounting or a sequence of steps has been acting in the normative method, as well as in the object of calculation – the step product or the entire enterprise, product and order.

On the other side, the application of the normative method is possible with the accounting of manufacturing costs and the calculation of cost of goods under the job order and step methods. This situation have resulted in the classification of manufacturing costs accounting which allows reviewing the relationship between the standard method and the previous ones used before, and the methods of cost of goods calculation.

Thus, the normative method hasn't got any independent significance of the cost accounting and the cost of goods calculation methods; on the other hand it is used in accordance with all other valid methods including the mentioned ones. The normative method is an option of managing the manufacturing costs differently from the perspective of reality and promptness.

The projected cost management system foresees the existence of an annual plan of calculation based on the average norm that made it difficult to manage manufacturing costs and to arrange operational control over them. In contrast, the normative calculation is applied in strict compliance with the existing norms and creates significant opportunities for operative determination and elimination of variances in comparison with planned calculations [2].

The variances occurring in the planned management system of manufacturing costs are determined once a month or quarterly. In most cases comparison with planned costs has allowed the timely identification of negative variances, as well as the objective estimation of real costs for several years.

One of the main principles of the normative method is to provide that the planned calculation has a prior task to reduce the cost and to record a variance during the turnover, which enhances the operational management capabilities of the organizational and technical measures and creates conditions for controlling them. Achievements resulting from the application of progressive norms, technological processes and organizational measures into production are reflected in the cost, and consequently the control over manufacturing costs is simplified.

Therefore, the concept of a normative method is broader than costs accounting and calculation of the manufacturing cost. It is considered to be one of the methods of manufacturing cost management, which also implies that it is necessary to use it in all entities.

In our opinion, it is desirable to envisage such classification in the cost accounting and calculation of cost of goods for the job order and step methods.

As regards the normative method, it is necessary to classify it as a method of operational costs management. In this case, a complete and restricted management method should be considered separately.

In most petrochemical enterprises of the Republic of Azerbaijan the accounting of manufacturing entities is registered in the following manner. Depending on the annual program, all the issued kinds of goods are assigned with a registration code. The costs incurred in the workshop are recorded in the

first-line documentation, as well as the codes granted in the shop. Then the costs spent on units are summarized. Once in a quarter the cost of the goods is calculated by the method of gathering costs and also compared in order to determine the actual cost which is turning out to be a variance. It is included in the commodity goods of the entity, regardless of whatever reason or who is responsible for it. In this case, the accounting of manufacturing costs and the calculation of cost are considerably simplified.

It is significant that the control over the use of funds, as well as the operational detection of loss, damage, and other negative events in the production process are often violated. Certain variances show just the final result, which does not characterize the positive and negative aspects of the variance.

At the same time, labor attitudes are significantly higher in the analysis of defining variances, since it is also necessary to study and collect the information from the original documents in order to identify the reasons and perpetrators of the variance. The management decision making and its effectiveness, the truthfulness of production regulation, the search for economic resources and its timely implementation are not able to give their impressive character.

In this regard, the most important task of accounting is to find out accurately the variance of manufacturing costs in the entity, its workshops and brigades, by the way of comparing them with the norms and budget. This task is of particular importance in the context of modern economy, which commonly focused on the use of domestic production facilities. It is impossible to analyze the manufacturing costs as well as identify and correct mistakes without having any operational information about production progress.

Variance management is directly dependent on standardization, planning, production planning, technical process, inventory, the organization of storage, the provision of accounting machinery and other management tools.

Therefore, the normative approach should be seen as a system that ensures the production management of the technological constructions, materials and the connection between other processes.

V. Petrov clearly shows how positive have been the systematic changes in the planning and the assessment of economic activities and establishing a cost-revenue management system based on the standard method of planning, accounting and analysis of manufacturing costs. It is of great urgency to apply the issue referred accounting of manufacturing costs and the calculation of cost of goods based on the normative method that fully meets the requirements of modern conditions [4].

Despite the success of this method in management, it was unable to take the widest place in real life. Because of the following reasons; the formation of false ideas about the growth in the volume of accounting works, the lack of willingness to determine the errors of production and labor in the technological process under centralized planning and management, as well as summarizing the information about costs and submitting it to the higher organization after the end of turnover.

In the current practice, the grouping and accounting of expenses are not usually carried out on areas, brigades and shifts, but on workshops and entities. That's why each shop is interested in meeting the challenges on monthly indicators and gives little insight into the daily records of costs and the determination of the variance. In such a case, not only significant advantages of the normative method, allowing for operational control over the level of manufacturing costs, the determination of the variance, and the improvement of the cost standard based on the accurate calculation of the variable norms, but also the cost of a separate product are essentially distorted. One of the reasons for the delay in the application of normative accounting is the deficiencies in the normalization of material and labor costs.

For example, the average monthly production rate in individual oil and gas engineering entities is about 150–170%. Reducing the employment rate by more than 60% is driven by an increase in the pro-

duction rate that ultimately leads to the decline in the quality and accuracy of accounting data, which does not allow the determination of actual expenses defaults.

One of the most important conditions for the future cost accounting and the calculation of cost is the revision of this process directly by splitting budget into units and structural divisions of the service cost; to arrange operative determination of expenses derived from existing (current) norm; systematic recording of the variance in the norm; a compilation of a substantiated calculation of manufacturing costs which results in the lower cost of the product.

The western economists also support the cost accounting and the calculation of cost of goods by a universal method. For example, the American companies use two systems of accounting costs and calculation. These systems are called the accounting and processes system (the Process cost system) and the job order accounting system (The Job order cost system).

The accounting and processes system in the country is generally compatible with the cost accounting and calculation of cost of goods by job order and step methods. However, the system of costs accounting involved in the production of the US industrial firms is more extensive than the cost accounting method in our country. It is up to the fact that the system of costs accounting and calculation of cost of goods perform the function of ensuring analytics and control over manufacturing costs [4].

According to the main purpose, it is important to manage the process of revenue generation when calculating the limited cost in our country. This purpose primarily depends on the fact that the accounting system is in compliance with the requirements of financial accounting, i.e the revenues accounting, as it is a function of management accounting by the "Cost-Product output-Result" system, depending on the taxation system or the forms of the capital account. The production volume of an individual product depends on the variable costs – raw material, employee's wage and conditionally variable costs, but the fixed costs are not dependent on the extent of what the entity produces. From this point of view, it is of great importance the costs are divided into variable and fixed costs [1; 2].

For example, if the sale value of a product does not cover its full cost, then that production is considered to be negative. However, if we match variable and fixed costs as well as just variable costs can cover only one portion of fixed costs, then it can be considered profitable due to the entity is able to compensate the unpaid fixed costs. Therefore, the production of such goods allows for the minimization of fixed costs, even though it is profitable. The limited cost of the accounting system creates conditions for determining the revenues that can cover the costs and generate the income. There is no way to get such an indication when the cost grouping is operated only on material costs. The main disadvantage of the system mentioned above is that the calculation of cost of goods has got quite a difficult character.

Under the conditions of market economy, the implementation of methods referred the cost accounting and the calculation of cost of goods should be clear to maintain efficiency. At that time the efficiency of the information is more important, to be precise. The accuracy of accounting information on manufacturing costs once again confirms and proves its effectiveness.

The cost accounting together with full cost may be applied in the case of a long-term management decision. The cost accounting of a limited cost can be effective to make an explicit decision-making on regulating the ending cost calculation and the control over the sales costs related to the change in the market conditions.

The cost accounting of a limited cost can be considered as an acceptable option both on the overhead entity and its structural subdivisions. It is more effective in organizing domestic accounting operations in the form of internal costs.

In this case costs are grouped according to the location and responsibility centers, depending on

their granularity capabilities. According to the variable costs, their location and responsibility centers are established. Fixed costs are also accounted by the center of responsibility. For this purpose, the fixed costs of the definite unit are directly attributable, but the entity's fixed costs are included together with the interest rate.

Domestic accounting costs are determined on the basis of a unit of the product or the overhead products (services), depending on the variable unit costs, the fixed unit costs, the fixed costs of the entity's permanent share and the profit. For example, it has been proposed to cluster the costs spent for oil and machinery industry entities under the responsibility centers (shops, areas). Variable and fixed costs accounting of these shops and areas should be monitored on the basis of responsibility centers. Meanwhile, the internal costs include: the variable costs for each responsibility center; the fixed costs of responsibility centers and the possibility to cover fixed costs of the entity as a single set. Such an accounting arrangement provides the profitability of the product or service, the share of the unit into the entity's last financial result, the assessment of existing resources (raw materials, equipment strength, employee qualifications) and the validity of the information about the final cost regulation.

In such a case, the results of the turnover are set out below:

1) the revenue from goods sold at the current accounting cost;

2) the variable costs of the controlled sections; raw materials and wages;

3) the costs of management and service, packaging, transfer (sale) and other semi-variable costs (repair, energy, water and cooling);

4) the section's fixed costs; amortization total management costs;

5) revenue;

6) the share of fixed expenses controlled by the entity;

7) profit (4, 5, 6)

In general, the profit of the entity can be determined by calculating the profit and loss of the structural units – responsibility centers. In this case, the outcome of structural units' activities and the entity overhead should be assessed by taking into account the dependence and independence from the activity, i.e., the control over structural units' costs.

In the meantime, the variable costs are taken into consideration in terms of norms and variances, perpetrators and locations, as well as the fixed costs are considered the budget, variances of budget and their location. The fixed costs of the entity related to a particular section are those which do not refer to its activity. In this case, there is no need to carry out labor-cost calculations and allocate separately the fixed costs among the structural subdivisions.

The comparative analysis of the standard-cost and normative method of accounting systems (Appendix 4) indicates that the manufacturing costs are accounted by one method or the other in accordance with the norms in terms of the cost of goods calculation. However, whilst the application of the standard-cost system, excessive costs relate to a perpetrator and the result of an operation, they are not included in manufacturing costs. All of this takes place if there is a change in the norm, particularly if this change is initiated by the perpetrators and their attitudes [2].

It should be noted that the Standard-Cost System is not defined by law, and there is no single standard to be accounted and registered. In this respect, different standards are applied within the firm. As the costs frequently change in the market, the inflation process makes it difficult to calculate the costs of the materials and the remains of unfinished products. Under such circumstances, in order to determine the cost of the product it is necessary to identify the average cost of the product.

The norms or basis are valid for material and labor costs for a specified period of time (for a number of years and determine the market value); ideally divided into norms (creating the ideal environment for technology production and labor

organization). Thus, in the process of standardization, first of all, the purpose of the norms is their identification. The standards of material costs depend on two elements: the quantity and value of the material. The standards in the oil engineering industry are defined according to the necessary standards by specifying the components of the finished product. In this case, the inevitable losses which are possible in raw materials are also shown separately in connection with the technology of product preparation. The variance due to the value formed on the material waste is determined as the difference between actual and standard prices. The standard price may consist of the average, current and expected values, but currently the market value is dominating. In addition, the expenses are included in the standard costs. Variances may occur as well as the difference between the standard costs being a result of the product warranty and the actual volume of the finished product.

In the case of standard-cost systems, the cost accounting is conducted by two options. The costs in the first option are estimated by the standard cost and written down to the debit of the "Production" account.

The output written down to the credit of the "Production" account by a standard cost is erased. Unfinished production is estimated with the standard cost too. In the second option, the costs in the debit of "Production" account are recorded with the actual cost and the finished product is erased from the credit of mentioned account with the normative cost. The remains of unearned production taking into account the variance from the actual expenses are determined with the standard cost. [4]

The normative method of accounting was primarily took place in the 1925–30s and intended to be documented as the variance and their allocation among all types of products. But then, it was adopted and used in the documentation of all actual costs and organizing accounting of variances on workshop, information or the same kinds of group on the basis of general principles.

M. Kh. Iebrax said that the variances made by accounting had nothing to do with information or information groups, and therefore he suggested these variances should be equally distributed among the all types of products. Thus, the deviances so far included in the manufacturing cost. In this case, the variances connected with majority of raw materials used in the production are defined by a shop inventory throughout the whole turnover. Costs and service management depending on production volumes are not grouped into accounting systems. Therefore, no variance made without taking the impact of the change in production, and the total cost of production management and service is distributed in proportion to the wages of key production workers, which significantly reduces the informative function of the accounting.

The differences between standard-cost and normative methods in accounting system are broadly showed in the table. (Table 1)

In the direct-cost accounting system, the cost of the products emerged during the turnover is not included in all costs with regard to the both options. In the first option, indirect costs are not considered a component of the cost, in the second option; the entity's fixed expenses of a definite period are erased as a result of the activity.

Table 1.– The differences between standard-cost and normative methods in accounting system

Indicators	**Standard-cost**	**Normative method**
1	***2***	***3***
The applied norms	Basis Current Ideal Simple	Plan (basis) Current

1	*2*	*3*
The accounting of variance	Current record is kept	The variance is caused by the current account and from the initiators' point of view.
Accounting of variances on independent expenses	The identified variance is documented and referred to the perpetrator and outcome.	The identified variance is documented and referred to the perpetrator and the cost of the product.
Calculation of variances from the budget expenses in manufacturing cost management and service	Amounts within the budget are considered to be expenses and the variances are determined by taking into account the volume of production as the difference between the standard product of the norm and the actual expenses. The variance is the result of activity.	The part of the actual cost amount is considered to be a cost. The variance from the budget is made in absolute amounts and included in the manufacturing costs.
Arrangement	There is no method about the determination of unarranged standards, registration records, etc.	The general and area standards of the normative method are regulated. In the case of concrete production conditions, the norms of the general rules defining the general standards, the type of material production and the specific weight of the labor costs shall be determined by a group of entities, except of individual norms.
The option of keeping accounts	Option 1) Expenses on the debit of «Production» account. The standard cost and finished products for «Production» account are valued at the standard cost. Unfinished production is valued at the standard value too. Option 2) The costs in the debit of «Production» account shall be recorded with the actual costs and the finished products shall be erased in the credit with the normative cost. Remains of unfinished production are determined by the standard cost taking into account the variance.	Option 1) The unfinished production and product output are estimated by the existing norms and the variance from the current norm is identified. Option 2) The unfinished production and product release are estimated by the existing norms, but the variance is not identified from the current norm, just provided by the plan calculations. Option 3) Unfinished production, product output and variance are recorded by current norms.
Commonality	The standard-cost and normative methods of accounting are based on accounting standards and non-standard variances. Management anticipates a perspective mechanism from retrospective mechanisms that means the registration of historical events, the ways to envisage the future in accordance with the plan, and the transition to work. Both methods involve full cost accounting.	

Hence, the permanent non-current costs are not considered an item of unfinished cost along with inventory, and secondly, the fixed expenses of the definite period are erased from the result of activities. Thus, permanent non-expenditure costs are not reflected in inventory and the cost of unfinished pro-

duction. Consequently, a part of the manufacturing costs is emerged without dividing in accordance with the principle of grouping of variable and partially variable fixed costs. The standard-cost along with the normative system does not include the amount of fixed and variable costs, and require additional calculation to determine their impact on earnings. Such a demand is related to the fact that a market manager is interested in operational information.

The integrated management and financial reporting information is available in the direct-cost accounting system to create the internal reporting for operational forecasting, current analysis of planning costs, production volume and the result of activities. All this allows the manager to identify the structural units required to obtain information about his or her activity. The elements of the Direct-Cost System increase the analytical and operational efficiency of the implementation of information in the country's experience, reduce the complexity and labor intensity to account the costs associated with the production management and service, as well as provide a result of activity among the entity and its structural units through the system "Cost-Output-Result" in order to get mutual beneficial relationship.

There are some difficulties in transition from the system of full cost allocation to the limited cost price accounting system (Direct-Cost), the determination of tax burden on the budget and calculating the profitability of the turnover (Table 2)[2].

Table 2.– The net profit calculation by three options of price cost calculation

Indicators	Option 1 The system of spending all price costs	Option 2 The system of spending constant price costs	Option 3 The system of spending direct price costs
Revenue from Sales of products.	**10000**	**10000**	**10000**
Direct raw materials	**6000**	**6000**	**6000**
Direct wages, production management and maintenance costs	**2000**	**2000**	**2000**
Variable	**500**	**500**	–
Fixed	**1000**	–	–
Total cost of sold product	**9500**	**8500**	**8000**
Total revenue	**500**	**1500**	**2000**
Is deducted	–	–	–
Inventory expenses	**200**	**200**	**200**
Production management and maintenance costs	–	–	–
Variable	–	–	**600**
Fixed	–	**1100**	**1100**
Net revenue from sale	**300**	**200**	**100**

As it can be seen from the provided information, the net profit of the second-option sales was 100.000 manats, compared to the first option was less than 200.000 manats. It may cause the decrease in the transit balance of this unsold product.

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Shaoming Zhai,
Georgetown Preparatory School
North Bethesda, MD
E-mail: szhai@gprep.org

SELF-SUSTAINED BITCOIN MINING – A PROFITABLE AND SUSTAINABLE BUSINESS MODEL

Abstract. Cryptocurrency bears great potential to revolutionize our future economies. As the mining of cryptocurrencies became increasingly profitable in recent years, we see the rise of companies armed with specialized computers whose revenue comes solely from mining. This study explores the use of solar power to construct a sustainable and profitable business model for these mining companies. Such a mining model has significant long-term advantages over traditional mining operations.

Keywords: Cryptocurrency, Blockchain, Bitcoin mining, Solar Energy.

JEL classification: D2, M2, O3.

1. Introduction

Bitcoin was invented in late 2008 intended to be 'A Peer-to-Peer Electronic Cash System', but quickly expanded to become a digital currency and its value grew exponentially. Its price was around $11 per bitcoin mid 2011, while in mid 2018, it skyrocketed to an astounding $7,500[1]. This turned bitcoin mining into a highly profitable business. Even though there are some controversies and concerns about using bitcoin as money, the demand is on the rise.

Bitcoin's success comes from its technology that has a decentralized network of user nodes that are connected together through a peer-to-peer architecture, which is almost impossible to counterfeit. Since there is no trusted central authority within the network, the responsibility of maintaining the system's integrity lies on each user. For the cryptocurrency system as Bitcoin is, integrity essentially means two things: 1) a consensus over a single authentic version of transaction history throughout the network; and 2) the immutable nature of the history to avoid double-counting. In order to achieve such integrity, Bitcoin utilizes the proof-of-work algorithm. The "work" involves user nodes devoting their computational power to solve a deliberately created hash puzzle in a trial-and-error fashion in order to add transaction data into the distributed ledger, which is a process referred to as "mining". The establishment of each block (which contains transaction data) requires huge amounts of computation as well as electricity. To compensate the users for computational costs, each time the first node solves the hash puzzle and adds a new block to the ledger, he is awarded with a certain amount of bitcoin plus the transaction fees of the computation within the block. This is where bitcoin differs from the official currencies, that the latter is only authorized to be made by the central banks of each country, whereas bitcoins are rewarded to users through the mining process or could be purchased with a credit card. Now that the bitcoin is becoming more widely accepted, it is becoming more and more like real money. There is an industry of bitcoin mining in the forming.

2. Existing Business Model of Large-scale Mining Plants

As the profitability rose, increasingly more powerful machines were added to the system. In 2013, the first Application Specific Integrated Circuits (ASIC), which was designed specifically to mine bitcoins, entered the market and set off the latest wave of mining army's race [2]. ASIC units are hundreds of thousands of times more powerful

than the regular GPUs, while being also much more energy efficient. In order to further gain the economy of scale to enlarge the profit margin of mining, large-scale mining plants with a substantial number of ASICs became a popular business model. The economy of scale in this case comes from the ability to buy machines at a cheaper price and the lower management cost per unit. However, it still has the fundamental problem of energy consumption. As of January 2018, the energy consumption of the Bitcoin network is estimated to be 18.4 TWh/yr [3] – enough to power 1.7 million average American homes [4]. For the mining plants, electricity is the single most significant ongoing cost, which could take up to 38.6% of lifetime revenues of the ASIC miners [5]. As a result, the locations of large-scale mining operations are limited to regions with low electricity costs, which might not be ideal for other things, such as security, land price etc. This paper explores a new business model based on solar power to reduce the overall cost, therefore, increase the profitability of bitcoin mining.

3. Proposing a Solar Powered New Mining Model

Solar-powered on-grid electricity supply solves the problem of electricity cost for the current mining plants. Compared with the existing model of Bitcoin mining, the new model would have four advantages:

1) It guarantees a greater long-term net revenue as well as a shorter payback period;

2) It allows smaller new Bitcoin mining companies to enter the market freely, without being overshadowed by the more established larger scale mining plants;

3) Its use of solar energy provides the companies with independence of the power grid, thus giving the company more freedom to choose the mining plant's location; and

4) The use of solar power can bring tax benefits to the business.

These qualities of the new model would give the companies a head start and the possibility of outcompeting their rivals in the long run. More investors would be willing to support such new companies for its lower threshold of entering the mining business. In fact, the model would become increasingly competitive as time goes on since it has a more progressive energy design than traditional mining operations relying on grid power. Also, the business can also enjoy tax benefits from policies promoting decentralized power production process that are supported by competitive renewable energy.

The solar-powered mining model is enabled by the development of two technologies that are highly revolutionary within their respective field: more efficient solar power in energy generation and progressive acceptance of cryptocurrency in monetary economics. The first brought cheaper solar panels to the market while the latter helps the ensure a steady future of the bitcoin business.

3.1. The Cost of the New Model

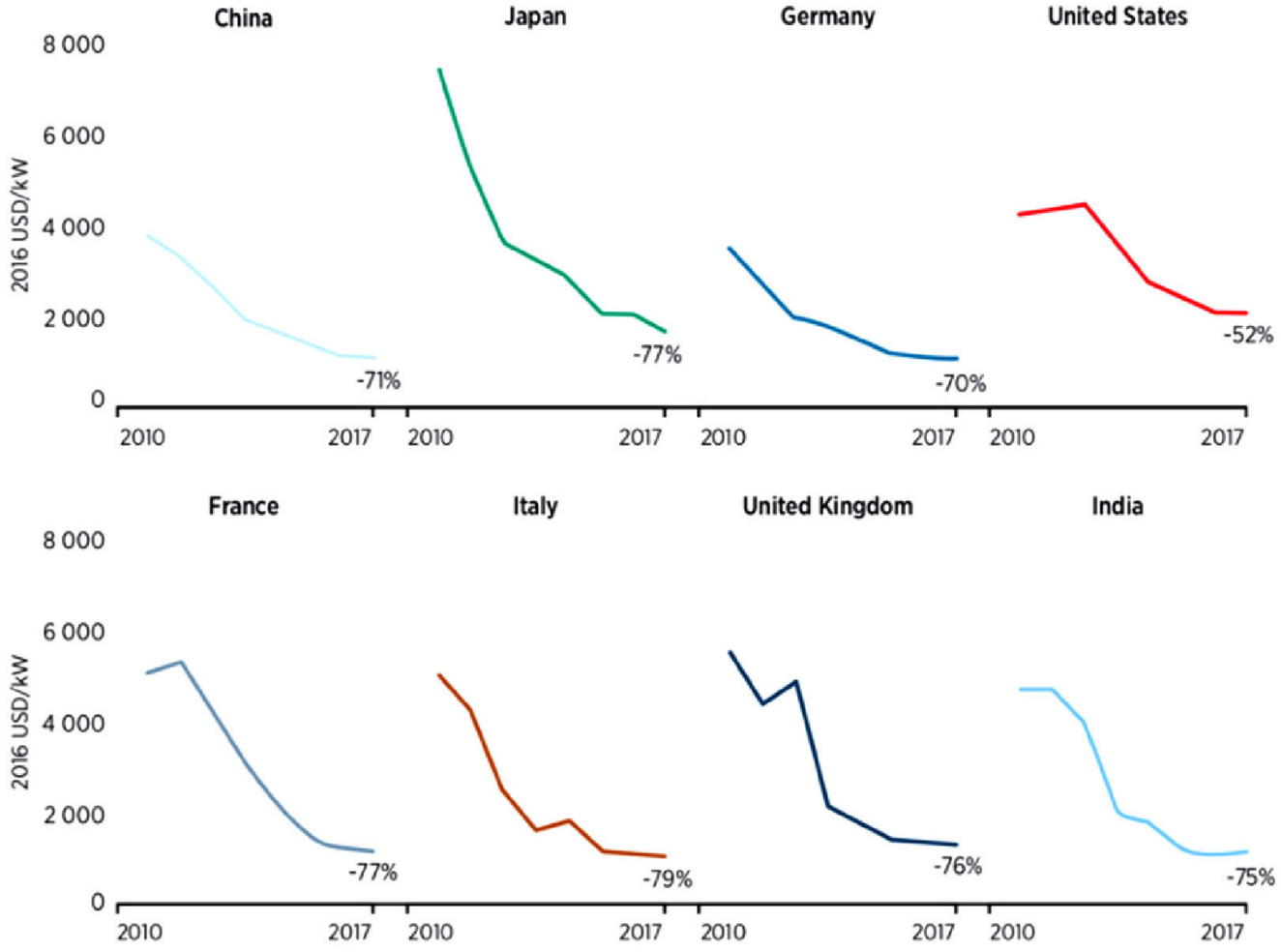
There are three parts to the cost of the new model: 1) initial cost of the Photovoltaic (PV) system installation, 2) the cost of ASIC miners, 3) ongoing cost of operation and maintenance, and 4) other cost.

I. Installed cost of the PV system

The development of utility-scale PV systems has significantly lowered its price over the years. The size of the solar PV system ought to be large enough to support the mining operation without failure. The cost of the system can be broken down into price of solar units, number of units needed required by the capacity factor, and land prices etc. According to Bloomberg New Energy Finance (2016), improvements in production and technology have brought the cost of solar module from $96 per watt in the 1970s down to 68 cents per watt as of today [6]. Also, "the global weighted average total installed costs of newly commissioned utility-scale PV projects during 2017 at USD1388/kW [7]", as shown in (Figure 1). The paper uses this price value in its model to give the paper geographical universality. It is noteworthy that this number did not account for the natural de-

cline in the costs over the years, and if set in future, the installed cost would be even lower.

Another key concept of PV production is the capacity factor, which is the actual energy output over a period in proportion to the maximum possible energy output over that period. Photovoltaic power generation has relatively low capacity factor compared to other energy sources, mainly due to the inconsistent availability of its fuel (sunlight). Depending on the location and local climate, PV capacity factors vary from around 10% on the low end to above 30% on the high end.



Source: IRENA Renewable Cost Database.

Figure 1. Utility-scale solar PV total installed cost trends in selected countries, 2010–2017

As reported in Digest of UK Energy Statistics (2018), PV generators in UK have an average capacity factor of 10.7% in 2017 [8]. According to an EIA report, the average capacity factor has remained constant above 25.0% in United States from 2014 to 2017[9]. The paper assumes 25.0% capacity factor for its model. Knowing the solar capacity factor, we can determine the size of the solar system that would satisfy the energy requirements of the ASIC miners. Assume the model uses a typical bitcoin miner, Antminer S9, which consumes 1.29kW of electricity each 24 hrs, and suppose it operates all time across the year, each Antminer would consume 8.760kWh energy [10]. To meet this power demand, 4.45kW per day is required of the PV modules. This number is calculated using the capacity factor equation,

$$Capacity\ Factor = \frac{n\,kWh}{(365\,days)^{*}(24\,hours/day)^{*}(v\,kW)},$$

in which n is the actual energy output and v is the theoretical power capacity. In other words, 1kW of mining operation needs 4.788 USD in terms of installed cost of PV system to support it.

II. Cost of the ASIC Miners

The number of ASIC miners is another big part of the sunk costs. The study would assume the difficulty level of Bitcoin network in mid-2018 and the most popular model of ASIC miners on the market, Antminer S9, for their production efficiency. One such miner costs around $400, and its hash rate is 14 Terahash/s, with ± 5% variation, and 1.29KW power consumption per year[10]. The mining machine costs per kW is $310. An Antminer S9 has an average lifespan of about 20 years, which covers the time scope of this study. Thus, the costs of ASIC miners are not amortized over years.

III. Ongoing costs

This mostly come from the operation and maintenance of the ASIC miners and power plant. This cost also decreased over the years, as much as 41% reduction in this cost in the US from 2010 to 2017, as data from National Renewable Energy Laboratory (2017) shows [11]. O&M costs for utility-scale plants in the United States have been reported to be between USD10 and USD18/kW per year [12]. In general, the overall costs of PV systems in recent years has been on the decrease and such a trend is most likely to go on in the near future, turning solar power a strong competitor in the global power market. For the purpose of modelling, the estimated O&M costs will be around 160,200USD per year.

IV. Other Costs

Building and land costs are also relevant in the model. These costs differ by geographical locations of the project and are directly related to the power density of the project. In one analysis of large-scale Bitcoin mining operations, it is found that the power density of computer server storages is rising over the years through innovation of highly utilized storage racks. According to that analysis, a power density of 1250W/ft^2 is a possible scenario at a mining plant [13]. The 2000kW mining plant would then require around 1600ft^2. In the meantime, for every 1kW of PV solar panel installed, the area required is approximately 100ft^2 [14]. Thus, the total land use of the solar mining plant would amount to around 16 acres. Using the value of 1.500USD per acre for land price, the land costs would be around 24.000USD. The paper would assume 300.000USD expenditure on building and facilities of the project.

3.2. Size of Model

Although the actual size of the model depends entirely on the magnitude of investments. The paper looked at numbers behind current Bitcoin mining plants of different sizes and concluded that 2000kW mining plant with a 6900kW accompanying power project is ideal for model-building. Extraordinarily large projects have more complicated logistics and greater unpredictable costs, which are hard to be accurately represented in a model. Mining projects too small in scale and too unpredictable in nature are also not relevant to the paper's discussion. A 2000kW mining project requires simple logistics and can be maintained by a small staff. The simplicity of its nature makes possible for more accurate modelling and clearer presentation.

3.3. Revenue of the New Model

The sale of Bitcoins is the major revenue source of this solar-powered mining plant model. The paper assumes the market price of Bitcoin stays constant at the November 2018 value across the timespan of the model. In reality, the revenue generated is likely to rise as time goes on due to rise in Bitcoin value. Assuming the November 2018 Bitcoin price of 4,360 USD and network difficulty of around 6.6E12 and the block reward of 12.5 coins [15], a single Antminer S9 is able to generate 980 USD per year. Thus, with the data above, the model estimates the revenue generated by each kW of Antminer S9 each year to be 760 USD. It is important to note that this estimate is highly conservative because the price of Bitcoin has been rising steadily in the past.

4. The Profit of the New Model

The paper compiled all discussed factors into a comprehensive table in this section, which helps to illustrate the profitability of the model. It may be noticed that the project has a payback period longer than five years, which is due to the installation costs of a full solar system in addition to the mining plant. In fact, as roughly predicted by the model, the payback period is likely to be around 6 to 7 years. Nevertheless, the project has a minimum risk level compared to other conventional mining plants because the solar project will always provide a safe source of revenue even if the Bitcoin market crashes. The scale of the project at 2,000kW also affords an acceptable sum of investment, which would almost guarantee a two-fold payback at the end of the 20-year period.

Table 1.– Profit Illustration of the Solar Powered Mining Plant

Item	$ Cost or Revenue
Solar system size (kW)	6.900
Net capacity factor	25%
Solar system cost per kW	$1388
Solar system cost total	$9.577.200
Mining operation size (kW)	2.000
Mining machines cost per kW	$310
Mining machines cost total	$620.000
Land cost	$24.000
Building and facility costs	$300.000
O&M and miscellaneous costs	$160.200
Total first-year costs	**$10.681.400**
Bitcoin price	$4.360
Annual Bitcoin revenue	**$1.520.000**
First-year net revenue	**$-9.161.400**
Five-year net revenue	**$-3.081.400**
Ten-year net revenue	**$4.518.600**
Twenty-year net revenue	**$19.718.600**

The payback period could be calculated as $\frac{Total\ Dependent\ Costs}{Revenue\ Generation\ Rate}$, which is 6.7 years for the above model, after which all initial costs of 1 kW of the model are covered by its operation. "Total dependent costs" includes the unit cost of ASIC modules per kW and unit cost of PV installations per kW. Costs such as O&M, land/building costs etc. contain no significant variables and is not directly related to revenue generation rate, and thus are ignored by the equation. The total cost per kW of the solar-powered mining model is 5,098USD, and the revenue is 760USD per kW per year.

5. Comparing the New Model with Current Mining Plants

The paper also made a profit illustration for a conventional mining plant of the same size, 2,000kW, which relies on grid power. A price of $0.08/kWh is assumed for electricity from the grid, which is a reasonably representative price across most regions. Other relevant costs were also considered as shown in Table 2 below. Although the initial investment required is almost one-fifth of that of the solar-powered model, the long-term net revenue of the conventional mining plant is only a fraction of the solar model. Moreover, the payback period of the conventional model – 9.1 years – is in fact longer than the solar model. This is because a huge part of annual revenue is used to pay the electricity bills, as can be observed from the table detailing the costs and revenues. The solar model effectively reduced such massive ongoing costs and thus is more competitive in the long run. In reality, the larger the scale of the mining operation is, the more beneficial the solar mining model becomes, since greater amount of electricity costs are saved annually.

Table 2.– Profit Illustration of a Conventional Bitcoin mining project with Comparable Capacity

Item	$ Cost or Revenue
1	*2*
Mining operation size (kW)	2.000
Mining machines cost per kW	$310
Mining machines cost total	$620.000
Land cost	$7.500
Building and facility costs	$100.000
O&M and miscellaneous costs	$360.000
Electricity cost per kWh	$0.08

1	*2*
Total kWh per year	17.520.000
Annual electricity cost	$1.401.600
Total first-year costs	$2.489.100
Bitcoin price	$4.360
Annual Bitcoin revenue	$1.520.000
First-year net revenue	$-969.100
Five-year net revenue	$-495.500
Ten-year net revenue	$96.500
Twenty-year net revenue	$1.280.500

6. Conclusion and Implications

Through the construction and analysis of a likely model, this paper demonstrates the feasibility and profitability of an on-grid solar-powered Bitcoin mining project. For every conventional Bitcoin mining operation, the single greatest cost comes from the electricity consumption. Applying self-sustained solar power generation to Bitcoin mining eliminates this source of costs and allows mining operation to prosper under locations that are otherwise impossible for mining. In parts of Middle East and Africa, Bitcoin mining might become a new regional industry due to the wide availability of solar energy.

There is also a broader implication suggested by the model – a decentralization process of power production supported by competitive renewable energy. With the price of PV modules and plummeting and their capacity factors rising as results of technological innovations, families are increasingly able to maintain a residential-scale solar system. An NREL stated that "from 2010 to 2017 there was a 61% reduction in the residential PV system cost benchmark. Approximately 61% of that reduction can be attributed to total hardware costs (module, inverter, and hardware BOS), as module prices dropped 86% over that time period. An additional 18% can be attributed to labor, which dropped 73% over that time period, with the final 21% attributable to other soft costs, including PII, sales tax, overhead, and net profit." [11] A 3kW solar PV system can well satisfy the entire household electricity consumption, as the average annual electricity consumption for a U.S. residential utility was 10,399KWh in 2017 [16]. If more and more households begin to generate part or all their electricity consumption in the future, the structure of energy distribution will be dramatically shifted – from a centralized distribution pattern to a decentralized production pattern. It is quite interesting to observe that "decentralization" seems to be the dominant trend in future economy, as it has the potential to revolutionize our monetary system, our energy generation, and our concept of "production".

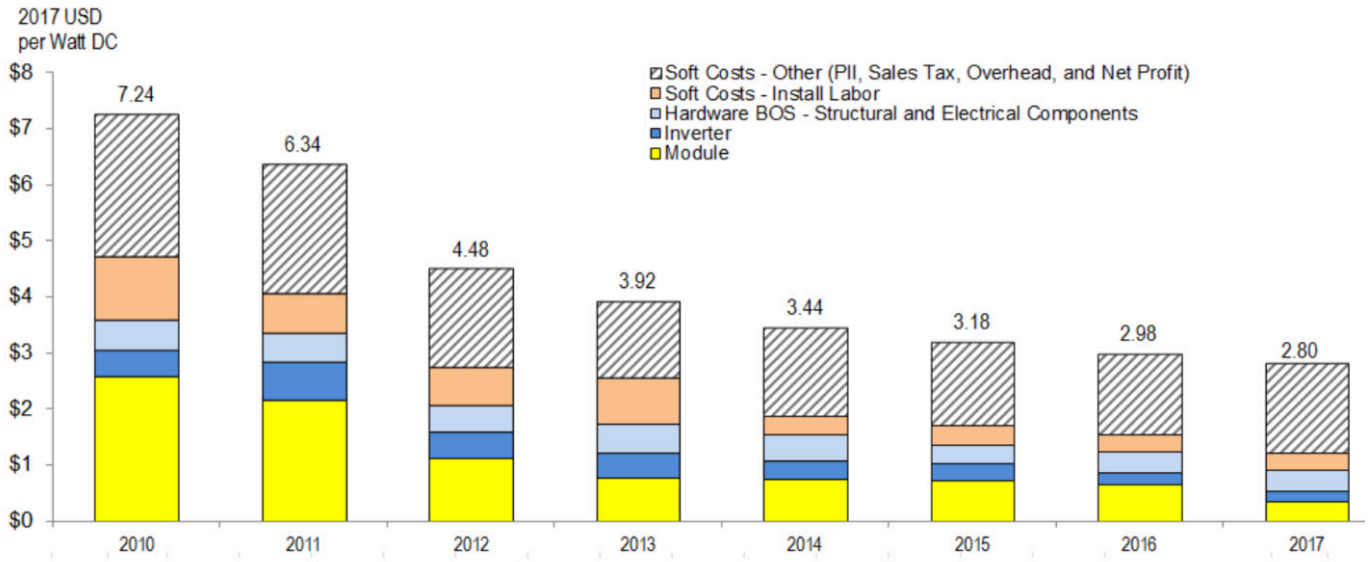


Figure 2. NREL residential PV system cost benchmark summary, Q42009-Q12017

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Section 4. Regional economy

Hajiyeva Sevda Tofig,
Assoc. prof. Ph.D., in Economics
Azerbaijan State Agrarian University
E-mail: tagiyev.asau@gmail.com

FACTORS İNFLUENCING THE DEVELOPMENT OF ENTREPRENEURS' PRODUCTION AND SALES RELATIONSHIPS IN THE AGRIBUSINESS SECTOR OF THE REPUBLIC OF AZERBAIJAN

Abstract. At present, special attention should be paid to the expansion of production and sales links in the field of development of the non-oil sector in the Republic of Azerbaijan. Efforts should be made to ensure efficient deployment of productive forces and to prevent tensions in the demographic situation in line with their balance and regional policy when creating new production and sales facilities. Cross-sectoral relationships and entrepreneurship should be ensured so that the economy can function normally in the social division of labor. At the same time, the products produced should be competitive, and the domestic market should be protected against external influences.

Keywords: price, sales channels, export, competitive product, exchange, production infrastructure.

Over the past fifteen years, the basis of the state's economic policy has been the organization of effective measures aimed at socio-economic development of the regions. Thus, after a number of State Programs on the socio-economic development of the regions have been adopted, a great progress has been made in the production and social infrastructure system in the regions. At the same time the establishment of enterprises capable of producing competitive products is a priority of the state's regional policy. As it is known, the creation of local competitive enterprises in the country pays great attention to the domestic demand and also affects the growth of export potential.

One of the main directions of the state's regional policy is the comprehensive development of the agrarian sector. The agrarian sector plays an important role in meeting the country's demand for agricultural products, raw materials and industry. In particular, the further development and expansion of the processing industry in Azerbaijan is largely dependent on the development of the agrarian sector. There are numerous agricultural firms, combines, limited liability societies, individual peasant farms in our country, and their competitiveness increases day by day and meets domestic demand.

At present, special attention is paid to the expansion of industry and inter-regional production relations in the development of the non-oil sector. From this point of view, when creating new production and processing enterprises, efforts should be made to ensure their balanced distribution and the effective deployment of productive forces on the territorial basis and to prevent tension in the demographic situation in accordance with their regional policies. Cross-sectoral relationships and entrepreneurship should be ensured so that the economy can function normally in the social division of labor. At the same

time, the products produced should be competitive, and the domestic market should be protected against external influences.

Research shows that the diversity of production conditions in a particular kind of agriculture also creates individual realistic opportunities for the product unit to reduce the cost of the product. It can be achieved in several ways. Thus, improving soil fertility, improving water and energy supply, increasing production and labor stock levels, improving production technologies, improving agrotechnical regulations, increasing production stimulation, efficient labor arrangements and so on. growth of productivity can be achieved by applying other factors, which, as a result, are the decisive and perspective directions of the cost reduction; the second factor is to clarify the factors affecting the cost value by analyzing the activities of farms with different production conditions and to justify the possibility of achieving a low cost of product unit at the expense of what factor; third, the most important factor is the correct solution of the issue, the specialization and concentration of production in a more reliable environment, taking into account objective and subjective factors where the particular product is cheap.

Product producers could sell their products directly or indirectly to their customers without any hindrance. Through direct channel – potatoes, vegetables, melons, fruits, grapes (dairy, meat, eggs, wool etc.), the wholesale and retail sales system was organized in markets, in the manufacturer's own shop, in sales markets, in exchanges.

Intermediate mediators are used to deliver products from the producers to the consumer through the indirect channel. Intermediary agents include government agencies, specialized firms specialized in buying and selling products, consumer cooperatives, commercial and industrial enterprises, marketing service providers, and so on.

In general, the sale of products on different channels is a bit complicated process for a particular agricultural enterprise both from economic and institutional points of view. The final results of the business activities of the farmers depend on the work of the service sectors, which, to a certain extent, provide the supply of goods, their short-term storage, transportation and sorting. Presently, in the agrarian sector these types of services do not correspond to the conditions of new economic relations and they develop very poorly in the field of sales of commodities.

Surveys show that one of the challenges entrepreneurs face in the agrarian sector is the formation of price and the multidimensional factors affecting it. Thus, market prices for agricultural and food products are rising faster than other types of prices. The main reason for this is the participation of numerous intermediaries in the implementation of products. More precisely, most vendors of agricultural products do not have the opportunity to realize their products in favorable markets. They have to give the intermediate mediators the products from producers to consumers, which ultimately leads to higher prices.

Undoubtedly, product producers are more likely to make their products available to consumers in the direct market, in terms of increasing their income. However, consumers can not realize what's happening in the market because of the lack of opportunity to sell their products over the course of the day.

The freedom of the villagers to sell their products is legal, but there are still many difficulties from the organizational point of view. This is more prominent in the formation of the infrastructure of the agricultural products market. Agricultural products exchanges such as infrastructure elements, wholesale food markets, fairs and so on. There is a great need for regular organization.

One of the main challenges facing the agrarian sector is the elimination of price differences in the markets of different products and the formation of optimal prices.

It should be noted that the commodity markets in the private farms are currently composed of four groups. Markets for commodity products in processing enterprises; markets for markets and trading;

selling on the roadside and direct sales in the farm; direct sales to consumers by households, channel sales and barter sales to direct consumers.

In these markets, there is a sale of plant and livestock products, products manufactured in farms, livestock and poultry in live weight. Statistical data show that the sale of plant products is mainly sold to consumers in the markets and trade networks, along the roadside, directly on the farm. Through these trading networks, 60–100 percent of commodity products prefer sales to market and trading networks, to consumers and buyers on the roadside farms. As a result of our survey, it is clear that sales of commodity products through these channels will help to save transportation costs for transportation of goods to the markets, costs for maintenance services, storage, sorting, saving costs for infrastructure use, which plays a crucial role in preventing losses.

Cotton, tobacco, sugar beet, grape, green tea leaf, partially cereals and cereals, vegetables, fruits and etc. are sold in processing enterprises. It should be noted that at present, a significant portion of economic entities sell 1.02.0% of plant products to individual and legal entities engaged in the sale of separate products, wholesale and outsourcing organizations.

2–16% of agricultural producers change the sale of plant products in households and 1–18% by raw materials and other materials that need to be met by other means, or by barter. Most private households are forced to sell 45.3% of their tobacco through other channels. Of these, 2.3% said they were selling at processing facilities, 13% in road sections and 17.4% in farmland. 70% of cotton-producing farms have changed 89.1% of cotton, to 10.7% in the roadside, 4.2% to farm yard and 0.2% to barter. Such a situation has existed in the sale of tea leaf and sale of wheat.

Table 1.

Indicators	Total cost, thousand manats	Income Thousand manats	Income and loss (+,–), thousand manats	Net income (loss), penalties
total livestock	3107.0	4720.2	1613	51.9
Total of plant cultivation	5098.5	7642.5	2544	49.9
Total sale	**8362.1**	**12560**	**4198**	**50.2**

Investigations show that in the private entrepreneurship economies, revenues from sales of crops in 2017 amounted to 4720.2 thousand, and the profit was 1613 thousand manats. Growth in crop production was 7642.5 thousand manats, profit – 2544 thousand manats. In 2014, the level of productivity in productivity in private entrepreneurships was 51.9%, in plant growing – 49.9%, and the total efficiency of farm activity – 50.2%.

We believe that special attention should be paid to the issues of development of production and sales of entrepreneurs:

– State support for the development and financing of production enterprises in all economic regions of the republic should be strengthened;

– agricultural producers should use the marketing elements more effectively in the development of production and sales relationships;

– Provide access to a single market for agricultural producers in the regions; monopoly initiatives of trade intermediaries should be avoided;

– stimulating mechanisms to encourage producers to produce competitive products;

– A favorable investment climate should be created to attract investors to regions and to use their potential opportunities efficiently;

– Particular attention should be paid to the establishment of Free Economic Zones (EADs) in order to stimulate the development of regional entrepreneurship;

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Yutong Han,
The Bullis School
City Bethesda, United States
E-mail: yutong_han@bullis.org

FAN ECONOMY OF ONLINE NOVELS

Abstract. This paper examines the increasing TV and movie productions that are based on online-novels. Producers choose specific novels to turn into productions because the book fans would be watching them. This audience base of book fans bring fame to the productions and provide higher chances of successful TV series or movie being watched. This paper investigates explicitly in how novels are selected through data collection of various aspects of different works. The results of the research show that the theme, topic, setting, author, and popularity of the novel influence the producers' choices.

Keywords: Fan economy, Online novels.

Online-novels have become increasingly popular in recent decades. People have easy access to the Internet through all kinds of electronic devices, and readings are no longer limited to printed books. In China, with online-novels gaining fame, many of them are made into a television series or movies. Many readers even bring the novels publicities and attract companies to make them into TV productions. From a producer's perspective, creating these novels into films ensure high ratings because of the book fans who would be watching them. The success of early productions has now brought more companies into the market, and a fan-based economy of putting online-novels on the screen proliferates. The field of online-novel based media production is relatively new. Ultimately, with more works turning into screen adaptations, these productions occupy increasing space in people's lives.

Researchers have studied these productions, and they proposed various reasons why online-novels are made into productions. The most popular and widely accepted reason is that these novels can ensure profits because of their fame. Researchers discovered that productions could be divided into two categories: historical and modern. However, recent theories suggest that new categories may be added because in recent years novels that have interstellar settings have gained increasing fame and many have signed contracts for production. Problems with these productions are also analyzed – the most significant is that the levels of production are not equal. Every time a piece of work signs a contract for production, fans are worried that the production will ruin their favorite novel. Experts hypothesized that in the future these TV series and movies based on online-novels will continuously be made, but there is no clue how much better these productions can get. By collecting data about the various productions, the dominant theme and the influence of settings and topics of the novels on their popularities have been discovered.

Research shows that the dominant theme of online-novel productions is love. Love stories are the mainstream of the industry, and most productions involve romantic elements. Romance has always attracted people from William Shakespeare's Romeo and Juliet to today's Titanic. Of the collected data, 68.9% of the productions mainly describes love stories. These novels may be set in all kinds of different settings from a traditional high school to a fictional world, but all the stories describe how a male and a female fall in love with each other and become a loving couple after various challenges.

The settings and topics of the novel also influence a production. Most of the works are either set in modern times or the past. Modern stories occupy 42.2% of the stories in the collected data. Ancient settings hold 55.6% of all productions. While modern settings are usually in the real world, the ancient ones are not wholly historical. Many of the stories are set in a fictional world where the setting simulates ancient China but does not fit into real history. These fictional settings are common because readers would not criticize the historical accuracy of the stories, and the characters' appearances look beautiful in the TV series.

Novels with settings in a fictional setting like an interstellar world or full of magical elements are less commonly made into productions. The reason may be that producing such settings are costly and harder than shooting a story in the ordinary world. The government restrictions on what is showed on the television also limited the works that can be put on screen. For example, the restriction on no teenage dating in any television series stopped the production of any online novels that narrates high school romance.

The author of the novel also plays a role in its popularity and chance to be made into production. When one of an author's work is made into a successful TV series or movie, it is very likely that the author's other works would also be produced. The reason being that the producers want to ensure the production brings profit and having a successful preceding work supplies them with a degree of assurance. In other words, producing another work of the same author is safer than making a brand-new work into production. Plus, the fans of the previous production would support another production of the corresponding author because they already know about the author's style and the quality of the works.

The online novels that have the potential of being made into productions are the top, classic novels on the leaderboard of famous novel websites, the new works that are currently popular, and other works of authors who already have novels produced. These types of novels have a stable fan group, so the producers feel safe to employ the fan economy and profit from the productions. The classic, out-standing novels already have a group of readers rewarding the author with money for the works. The currently popular works own the enthusiasm of readers because they are new and fresh, and these works can attract new readers who have not yet read the new novels and increase the size of the fans. The other works of an author who has a successful example of production would guarantee fans will watch the new production as stated in the previous paragraph.

The producers utilize the fan economy and profits from turning online novels into TV series or movies. The most popular theme of the story is romance. Ancient and modern settings dominate the market, and there are very few productions with an entirely fictional setting. Governmental limitations of topics shown on the screen keep some novels away from being produced. An author's works will likely be put on screen if his or her other works have already been successfully produced. Producers pick novels that have popular topics and a certain number of fans to ensure the success of the TV series or the movies.

Section 5. Population economics and demographics

Wahyu Agustini,
Sri Suwitri,
Muchamad Syafruddin,
Kismartini,
Public administration doctoral program
Faculty of social and political sciences
Diponegoro university Semarang, central Java, Indonesia
E-mail: prodidap@gmail.com

POLICY IMPLEMENTATION ON SUPPLYING GOODS AND SERVICES IN BLORA REGIONAL GOVERNMENT

Abstract. The problems supplying of goods and services those are currently prevalent in Blora Region, namely infrastructure, resources either human or non-human, where quality and quantity can not be entirely like what to expect. This research aims to find out and analyze the policy implementation of supplying those goods and services by using the existing principles in Presidential Regulation Number 16 in 2018 of Government supplying of goods/services in Blora Region. What Factors encourage and inhibit the process of supplying of goods and services in Blora Regency Government. To formulate model policies that used by the Blora Regency Government in overcoming or resolving problems of supplying goods and services that exist today. Research methods used by researchers are qualitative, with checking of the data using the technique of triangulation. In doing this research, researchers use principles that exist in Presidential Regulation Number 16 in 2018 of Government supplying goods/services. The theory uses delivered by Grindle associated with *Content of policy* and *context of implementation*. The research results in the field suggests that the policy implementation of supplying goods and services conducted by the Government has yet to implement full of the principles contained in the Presidential Regulation Number 16 in 2018 about Government procurement of goods/services. Supporting factors in this study is the content of the policy, and the restricting factor is a *context of implementation*.

Keywords: The Officers, Supplying of Goods and Services, Commitment Maker Officers, Budget Utilyzing Authority, ULP and LPSE.

I. Introduction

Government supplying of goods and services is very important in realizing development. Seen from a variety of perspectives, the progress of Indonesia could not release from the event. In the field of the economy, development of facilities and infrastructure supporting the growth of the economy would realized through the mechanism of government supplying of goods and

services, including the provision of facilities as roads, bridges, telecommunications infrastructure, and others. In addition, the amount of funds provided by the Government in the activities of supplying of goods and services is the amount that cannot be ignored in the calculations the number of development.

The social field, government procurement of goods and services for the improvement of health, education and poverty alleviation also helped resolve some social problems. It is not only that the relationship between government procurement of goods and services but also the political aspects of Government is also a very important issue. Often the politicians exploit the budget, which owned by the Government to help tackle the problems faced by their constituents; among them is the availability of facilities and infrastructure. However, on the other hand, the Government's procurement of goods and services assessed as a crucial problem, such as the discovery cases of irregularities in the procurement of goods and services. The large number of irregularities cases that occurred in Indonesia in general effect on corruption perceptions index in Asia-Pacific which it will more details could seen on a figure 1 below.

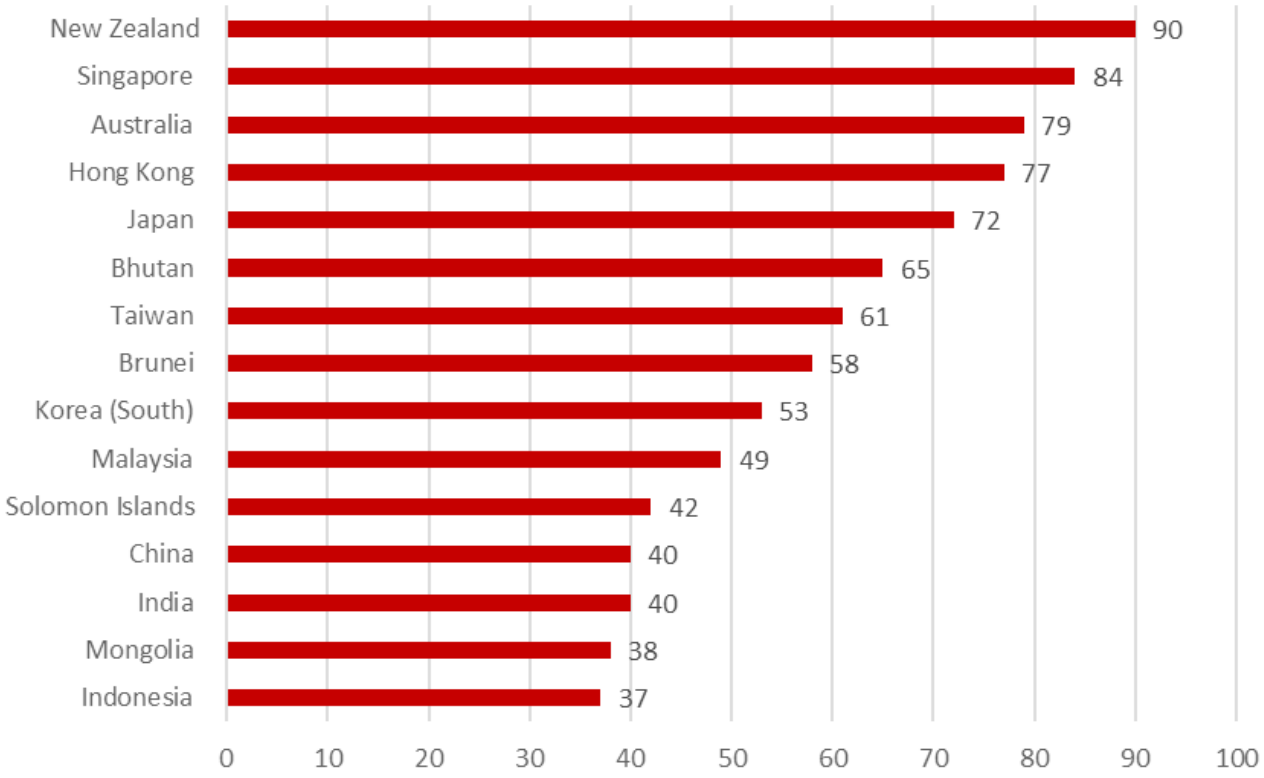

Figure 1. Corruption Perception Index in Asia Pacific Area
Source: Corruption Perceptions Index (CPI), 2016

Based on data issued by *Transparency International the Global Coalition against Corruption*, seen that in the Asia Pacific for the Corruption Perceptions Index in 2016 score earned Indonesia is 37. This score is still very low when compared with our neighbouring countries that exist today, such as Singapore with acquisition score is 84, Australia with the acquisition score is 79, Taiwan's score with a score is 61, Brunei with a score is 58, and Malaysia with obtaining a score is 49. As seen in Figure graphics 1 above, *Transparency International the Global Coalition Against Corruption* provide to countries that exist today 0–100, the higher value obtained by a country then the level of corruption is low, and getting lower grades obtained by a country then the level of corruption is high.

The lack score still achieved by Indonesia, indicates that the current level of corruption that occurred was still very high. Perception is not much different from the data issued by the Corruption Eradication Commission in an annual report of 2015. Which is it could see on a figure 2 below.

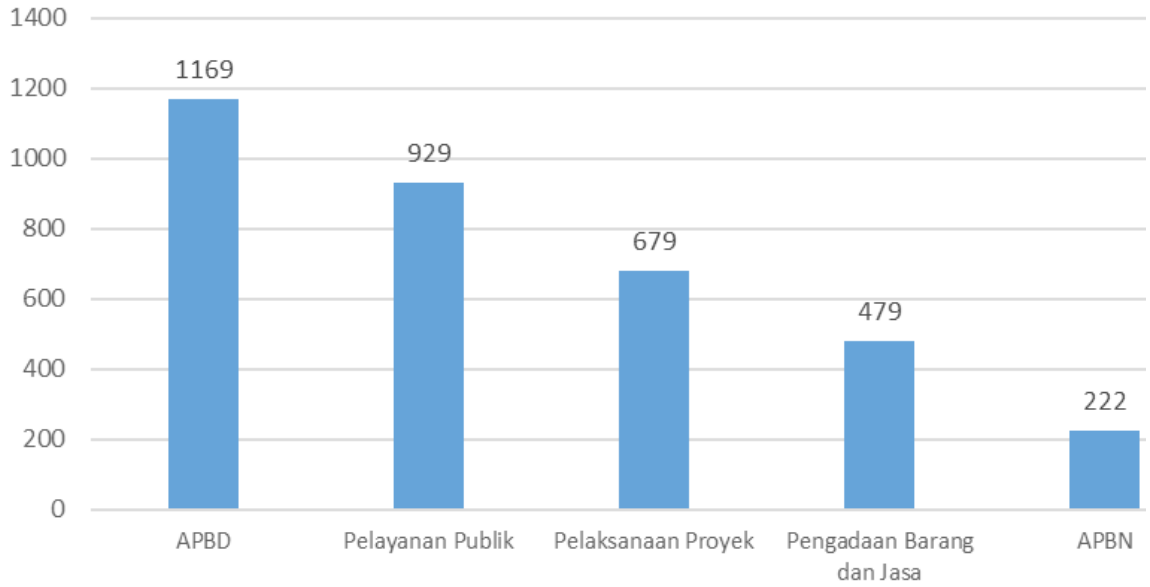

Figure 2. Community Corruption Denunciation Bases on Categories
Source: Annual Report of Commission Eradication Commission (Data Managed), 2015

Figure 3. The Procurement Case Of Goods And Services In Blora Region
Source: Legal Department of Blora Region, 2017

Based on the (figure 2) above that found in 2015 Corruption Eradication Commission received public complaints totaled 3478 corruption complaint. Complaint of corruption from the public received by Corruption Eradication Commission is misappropriation of Regional Government Budget as much as 1169 complaint. It is not only Regional Government Budget being diverted or corrupted, but also

for public service category with as many 929 complaint, project implementation with a complaint as much as 679, procurement of goods and services complaint by complaint 479, and Indonesian Budget with complaint as many as 222. The high corruption complaint by society reported to Commission Eradication Commission in 2015 indicates that the current practices of Corrupsion, Collusion, and Nepotism have been grom on all government agencies are no exception in Blora Regency, that currently there are some problems going on related to the goods and services procurement process conducted by the Regional Government Party. These problems could see in (Figure 3) in the following graph.

Based on a figure 3 above can be known that during this period of 2011 up to 2016, in Blora Regency also has a case for the procurement of goods and services with a total of 26 cases. Many cases occur where indicated in 2011, 7 cases of procurement of goods and services in Blora Region. Then in 2015 as 6 cases of procurement of goods and services, and in 2016 as much as 4 cases of procurement of goods and services. In the implementation of procurement auction/indeed, problems often occur, whether implemented by the provider/partner, the Official Manufacturer of the Commitment (PPK), or it could also be from *Pokja* (Working Group). These problems could have been was intentional to get advantages for certain groups, or indeed sometimes happens because of ignorance of the rules that are in an auction process/procurement.

There is still the existence of problems or cases that occur in the procurement of goods and services today from the central level, provincial level, up to the District/City area. It presumed by researchers due to not yet in principles implementation of procurement of goods and services properly contained in President Regulation No 16 in 2018 about Government procurement of goods/services.

The large number of problem occurs relate to the procurement of goods and services from the Central Government to the County. These things make researchers feel interested to do a study related to the policy implementation of the Government procurement of goods/services in Blora Region. Where research is included in the realm of public administrative science with the focus is public policy. This research aims to find out and analyze these supporting and restricting factors from the policy of procurement of goods and services in Blora Regency Government, which became the locus in the current research.

II. Research method

This research uses research method and techniques of the qualitative data analysis where this method is a method of research that contrary to experimental methods. The research methods used to examine the conditions of natural objects and researchers have tasks and functions as a key instrument in the main dug a problem will be revealed in a research object was going to do. It is with testing the legality and validity of the data using the technique of triangulation.

III. Literature review

1. Concept and step of public policy

There are several concepts of public policy presented from experts, as well as the [11] which defined that public policy is a set of interrelated decisions taken by a political actor or a group of actors, with regard to the purposes for which it was selected along with ways to achieve it in a situation. Those decisions in principle remain within the limits of the authority of the power actors. Therefore, is [1] which meant that the public policy as a policy laid down by the bodies and agencies of the Government? The discussion about policy not separated from the relation between interest groups, both the present Government as well as society in General. Not much different with two expert opinion above, [3] defined that public policy as "whatever governments choose to do or not do" where any policy is the choice of Government to do or not. The other definition of public policy stated by [4] contains two meanings: (1) public policy created by government agencies, not private; (2) public policy concerning the choice to do it or not by the Government.

Bases on different libraries expressed that public policy, which is a rule that regulate the life together, that adhered to and applies binds all its citizens. Any violations sanctioned in accordance with the weight of the offense committed and sanctions dropped in front of the community by institutions that have the task of dropping sanctions [8]. Based on the above definition of public policy are all activities undertake by the Government to provide answers to issues and problems of the public with solving the community interest. [2] explained that stages public policy consists of as follows:

A. The stage of agenda preparation

The selected and appointed officials put the issue on the public agenda. Before these problems are competed in advance to be able to enter into the policy agenda. In the end, some issues getting into policy agenda of the policy framers.

B. The stage of policy formulation

The issues that being entered into the policy agenda later discussed by policy makers. The problems of the earlier defined to look for the best solution. Solving those problems come from of a variety alternatives that exist. At this, stage each alternative competing selected as the policies taken to solve the problem.

C. The stage of policy implementation

The administrative unit to mobilize these financial and human resources implement the policies that taken.

D. The stage of policy assesment

At this stage, the policies that run assessed or evaluated to see the extent to which the policies made. Specified measurements or criteria that become the basis for judging whether the public policy has gained the desired impact

At this stage, the policy that has run assessed or evaluated to see the extent to which the policies made. The Specified measurements or criteria that become the basis for judging whether the public policy has gained the desired impact. Bases on the several stages of the public policy above, this study fall into the stage of policies implementation that focuses on the policy implementation of the Government procurement of goods and Services that are in Blora Region.

2. The implementation of public policy

The execution of the program or program implementation is a process or the stages of the public policy. The policy implementation seen in a broad sense is the stage of the policy process or immediately after the determination of the Act. The implementation widely perceived significance of implementation of legislation in which various actors, organization, procedures, and techniques work together to run the policy in an effort to achieve the goals of policies or programs. Implementation on the other hand is a complex phenomenon that might understand as a process, an output or as an impact (outcomes).

Various policy objectives achieved not by itself without the policy implemented. Though as a concept implementation is often used to describe how the efforts made by the implementer in realizing the goal of the policy, but only with the mention is not enough implementation illustrates how indeed numerous attempts to realize the purpose of the policy was undertaken.

Stages of implementation as the process to realize the policy objectives is often referred to as the stage of an important (critical stage). This step is important because it is called a "bridge" between worlds concept with the world reality as [5] stated that the implementation of "establish a link that allows goals of public policies to be realized as outcomes of governmental activity". The world of the concept what meant here reflected in the ideal conditions, something that aspired realized as formulation in a document policy. While the real world is the reality, in which the community as a policy target groups are struggling with different issues of social, economic and political.

Indiahono, [6] stated that the implementation of policies is an important stage in the policy. This step determines whether the policies pursued by the Government are applicable on Court and managed to produce outputs and outcomes as has been planned. The output is the output of the policy that

expected to emerge as a direct output of the policy. The output is usually seen within a short time of post implementation policies. Outcomes are the impacts of the policy, which expected to rise after discharge output policy. Outcomes usually arranged in a long time post of policy implementation.

3. Policy implementation model

Policy implementation is a crucial stage in the public policy process. A program of policy implemented in order to have the desired impact or purpose [10]. Implementation according to the Webster Dictionary is derived from the words to implement the means to provide the means for carrying out (provides the means to implement something); to give practical effect to (impact/result against something). If this view we follow, then the policy implementation seen as a process of policy implementation [9].

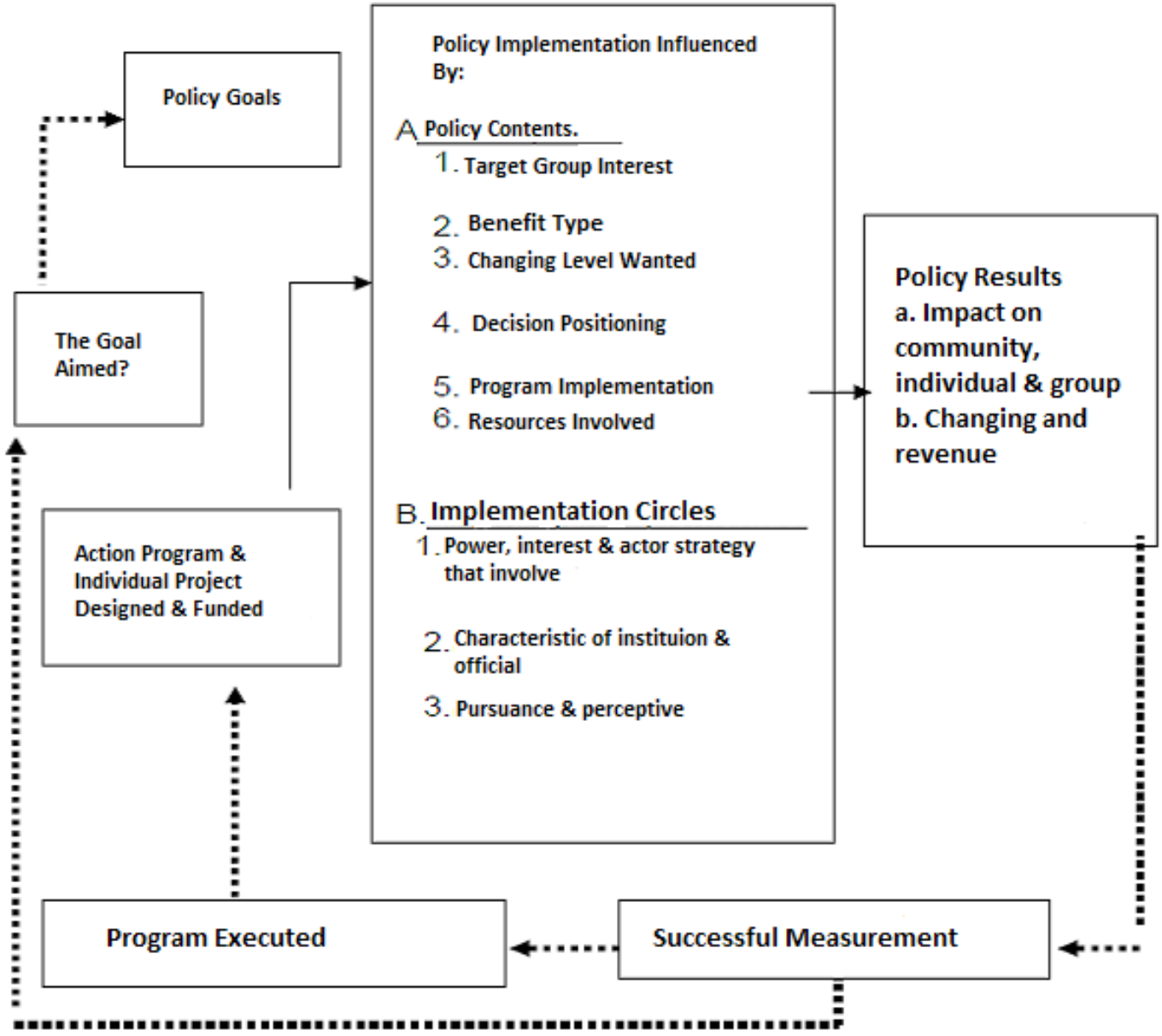

Figure 4. Policy implementation accrding to (Grindle, 2011)
Source: (Grindle, 2011)

To find out the factors supporting and restricting in this study, researchers used a model implementation of policies delivered by [5]. Where the success of implementation according to [5] in (Kawer, Baiquni, Keban, & Subarsono, 2018) is affected by two variables, such as the following.

1) Content policies, which is includes the extent to which the interests of the target group contained in the contents of the policy, the type of benefits received by the target groups. The extent to which the desired change of a policy, whether the location of a program, it has been just right, if a policy has mentioned by its implementer with detail, and whether a program supported by adequate resources.

2) Policy environment that includes how much power, interests, and the strategy that is owned by the actors involved, institutional characteristics and the ruling regime, the level of compliance and responsiveness of the target group.

The success of the implementation of a public policy measured from the process of the achievement of the results (outcomes), which achieved or whether goals achieved. This is expressed by [5] in Agustino (2008:154), the measurement of the implementation of these policies can be viewed from two things, namely: first views of the process, with the question does the implementation of policies in accordance with specified (design) with reference to the action of its policies. Second, what does the policy objectives achieved?

Based on the description and Figure 4 above, then it could inferred that in implementing such a policy must be clearly visible contents of a the policy and be able to see the situation of the policy environment by considering various aspects. It can affect the process of implementation, as well as the required supporting factors in the achievement of the goals. Which implement a policy in advance should analyze the problem to find out easily or whether the problem is resolved. After that identify what do factors needed in the process of implementation and policy environment, which affected both of internally and externally.

IV. Result and discussion

1. Supporting and restricting factors of policy on the procurement of goods and services in blora region

The Research that has been done by researchers about the policy implementation on procurement of goods and services in Blora Region has been completed. Restricting and supporting factors from the policy on Procurement of goods and Services in Blora Region, known from the results of the interviews with the informant. Where in this research policy content factors seen in the form of interest of target group, namely the Committee on procurement and for providers of goods and services is already contained in the *content policy* (regulation or rule). The change desired by the public existence of a policy on the procurement of goods and services, the rules regarding the Implementor or resources that clear and detailed information from the Government to run policy procurement of goods and services in Blora Region Government became the primary focus of the research context.

Informants who successfully found by investigators while in the field reveal the conditions above. In addition to the *content of the policy* that used to view the supporting and restricting factors to the policy associated with a policy on procurement of goods and services in Blora Region, researchers based on informants in this study learned that the environment of the implementation of these policies became restricting factor. Where in this study the environmental factors of policy implementation *(context of implementation)* that is about power, interests, and the strategy that owned by the actors involved in the process on procurement of goods and services in Blora Region. The characteristics of the institution and the regime of the ruler/leader who is being served in the policy on procurement of goods and services in Blora Region, and level of compliance and responsiveness of the target group that is still a lot of

perverted. So many raises legal cases related to these policies Implementation on procurement of goods and services in Blora Region at this time.

The description of the results of the interviews with the informant-related supporting and restricting factors of policy on procurement of the goods and services in Blora Region Government both neither for *the content of policy* nor for *the context of implementation* would presented by researcher in the following discussion.

2. Content of policy as a supporting factor of policy on procurement of goods and services in blora region

The supporting factor of a policy on the procurement of goods and services in Blora Region in this research is the content of the policy or the content that is contained in the rules or regulations governing the implementation of the procurement of goods and such services. At this point, the regulation used by the Government to regulate procurement of goods and services is the Presidential Regulation of Indonesia Republic Number 16 in 2018 about Government procurement of goods/services.

Presidential regulation of the Indonesia Republic Number 16 In 2018 about Government procurement of goods/services, which provided guidance in the process of procurement of goods and services had mentioned that the related subject articles containing about objectives, policies, Principles, Ethics And procurement of goods/services set forth in Article 4 to Article 7. To the perpetrators or implementor of procurement of goods and services contained in Article 8 and this task described from Article 9 to Article 17. Procurement Planning up to the announcement contained from Article 18 to Article 22 about the rule that contains the HPS contained in article 26. For the procurement of goods/services electronically regulated in Chapter X of Article 69 to Article 73 of these and the quality of human resources along with its instituions set in article 74 and 75, and containing complaints, penalties, and legal services provided from Article 77 to Article 84.

The results of the interviews conducted by researchers with the informant may be aware that the current of supporting factor from of policy on procurement of goods and services in Blora Region is a regulation or policy rules that created and made into guidelines in making the procurement of goods and services. However, the executor or the officer given the authority that believed to be a Working Group or ULP Committee or the procurement of goods or services in Blora Region is less support to be able to implement the rules set. Because the executor or the officer who becomes a Committee for the procurement of goods and services incorporated in the ULP or Working Group, still get interventions from Parties or certain groups who want to win one of the CV that follows a tender or auction the open.

The variable content of this policy includes: (1) the extent to which the interests of the target group or target groups included in the content policy; (2) type of benefit received by the target group. (3) How long the desired change of a policy. (4) Does the location of a program is just right. (5) Does a policy has mentioned by its implementer with detail; and (6) Does a program is supported by adequate resources.

According to the theory presented by (Grindle, 2011) about supporting and restricting factors of policy above, current content policy variable that is Presidential Regulation Number 16 in 2018 about Government procurement of goods/services is an supporting factors of a policy for the implementation programme of procurement of goods and services in Blora Region. Because of all the interests of the target group is already contained in the content policy. Actors, institutional and its characteristics has also Appeared in the regulation policy on the procurement of goods and services.

3. Context of implementation as a restricting factor of policy on procurement of goods and services in blora region

The restricting factors from a policy of procurement of goods and services in Blora Region in this

research is *the Context of implementation*, namely the environment where the place of implementation of the policy in the implementation of the procurement of goods and services in Blora Region. Based on the results of the breakdown of the interviews have been conducted by researchers with the informant involved in the policy implementation on procurement of goods and services can be aware that restricting factors of this policy is implementation environment of its policies.

This is apparent from: 1) the lack power, interests, and the strategy that owned by the actors involved in the process of procurement of goods and services, which are not in accordance with the principles of implementation in the rules that apply at this time due to personnel/less of human resources compliant in drafting a working group. 2) Characteristics of the institution and the leadership that many still intervene to working group or ULP to win one of the CV or the partners close to it. 3) The level of compliance and responsiveness of the procurement Committee that high is against the direction of the current, so did not dare to refuse and report if getting intervention from certain parties. Where the policy problems on procurement of goods and services in Blora Region conducted by officers or its implementer seen in the picture below which is a case, which is being dealt with by the Court at this time.

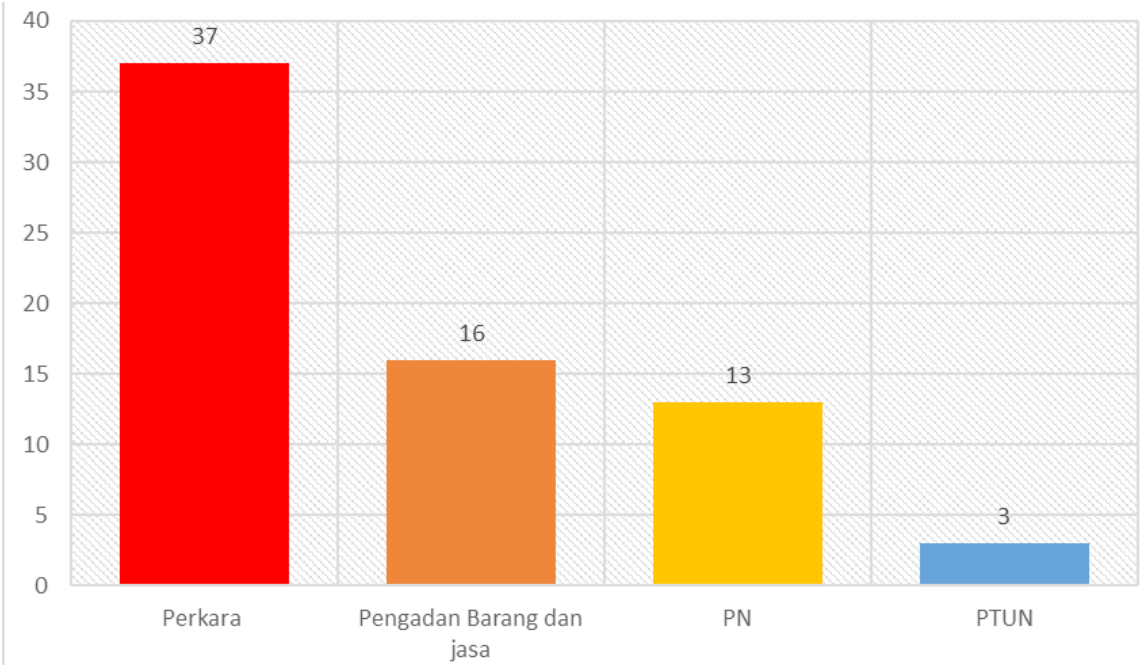

Figure 5. The legal problems on procurement of goods and services in blora region
Source: The Legal Secretariat of the Regional in Blora Region, 2018

Based on (Figure 5) above it can be aware that the amount of Litigation in Blora Region up to this time was as much as 37 cases, with the most things are the case on procurement of goods and services with totally 16 cases. Where these cases convened right in the District Court as many as 13 cases, and convened in The State of The Judiciary as many as 3 cases. From the 13 cases that convened District Court currently caused by tort in which one party had violated the agreement that already agreed together. So there is discontent from one party that later led to the occurrence reporting and processed through the law. One example of cases on procurement of goods and services that occurs in Blora Region that is associated with the road metal. It is currently happening in Mendenrejo village, Kradenan District, Blora Region. Where there are, still many roads damaged and perforated which seen in (Figure 6) below.

Figure 6. Road conditions damaged in mendenrejo village Kradenan District, Blora Region

Source: Researcher Documentation, 2017

According to the Figure 6 above may be aware that there is road access in Kradenan Village of Blora Region precisely the road in Mandenrejo Village to Pilang Village of Randublatung District and also Nginggil Village and Nglebak Village in the same example of Mandenrejo access there is road in the area of defective conditions pertained. Because of this, condition the course of perforated and deep enough, to endanger road users traveling in the area. According to several communities that successfully found by researchers that some time ago is actually the way it's been fixed by the Government, but because the work was less serious than the project workers who allegedly violate the spec or is there another factor then not how the path is broken again. Coupled with the large number of trucks carrying sand across the area, making the road does not withstand heavy loads, resulting in the road are often damaged.

According to the policy environment variable according to (Grindle, 2011) included: (1) how big power, interests, and the strategy that is owned by the actors involved in the implementation of the policy; (2) the characteristics of the institution and the ruling regime; (3) level of compliance and responsiveness of the target group.

Restricting factors of policy in the implementation program for the procurement of goods and services in Blora Region is currently the environment policy. Where the magnitude of power, interests, and the strategy that owned by the actors involved were not utilized wisely. In addition, the leadership that is being served is often abused those powers to be able to suppress or intervene to Working Group Organizers or ULP in the process on procurement of goods and services. With levels of response or high compliance are among its current corporate governance.

V. Conclusion and suggestion

Bases on the results of this research above, it concluded that the Procurement Policy become Supporting Factor into goods and services in this research is the Presidential Regulation of Indonesia Republic number 16 in 2018. This is about Govern-

ment procurement of goods/services as the Foundation of the guidelines in the process on procurement of goods and services had mentioned that the related subject articles containing about goals, policies, principles, and ethics procurement of goods/services set forth from Article 4 to Article 7.

To the perpetrators or implementer on procurement of goods and services contained in Article 8 and its task described from Article 9 to Article 17, Procurement Planning up to the announcement contained from Article 18 to Article 22. The rule that contains HPS contained in Article 26, for the procurement of goods/services Electronically regulated in Chapter X of article 69 to 73 of these and the quality of human resources along with its institution set in article 74 and 75, and containing complaints, penalties, and also legal services provided for from Article 77 to Article 84.

Then became a policy of restricting factors for the procurement of goods and services in Blora Region in this research is the Context of implementation, namely the environment where the place of policy implementation on the procurement of goods and services Blora Region. It includes: 1) The Lack power, interests, and the strategy that owned by the actors involved in the process on procurement of goods and services which are not in accordance with the principles of implementation in the rules that apply at this time because of personnel/Human Resources on the less compliant in Working Group drafting. 2) the characteristics of the institution and the leadership that many still intervene to Working Group or ULP to win one of CV or the partners close to it; 3) level of compliance and responsiveness on procurement Committee that high against the direction of the current, so did not dare to refuse and report if getting intervention from certain parties.

There are some recommendations that need done over a range conditions of the research results on the policy implementation on procurement of goods and services in Blora Region are: need transparency, integrity and truth in carrying out procurement of goods and services in accordance with the applicable provisions. Second, increase in Human Resources through Technological Guidance in cooperation with LKPP/College. Third note findings from Working Group to include providers of goods/services, recorded no good violate the conditions made or included in the black list *(Blacklist)*. Because of up to this moment there is nothing to do that. Fourth, joint commitment of stakeholders need to be involved in the procurement of goods and services since the beginning of the planning, budgeting, implementation, post implementation of project activities. Fifth, the building infrastructure for ULP in order it will separate and more independent without having to join on the other. Sixth, self-contained Working Group should be able, with no doubles as PPTK, PPHP so as not to give rise to a conflict of interest and intervention of the supervisor. Seventh, the remuneration for Working Group is given more interesting so it has no intention to request the participant who has won projects or activities of the goods and services in Blora Region.

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Section 6. Environmental economics

Bolor-Erdene Turmunkh,
Ph D., student in Economics, the School
of Economics and International Trade
Hunan university
E-mail: bolorerdene_t@yahoo.com

FOREIGN DIRECT INVESTMENT AND INVESTMENT ENVIRONMENT ON MINING SECTOR IN MONGOLIA

Abstract. Mongolia's foreign direct investment (FDI) law, legal environment, current situation of the economy, investment in the mining sector and coal extractions of Mongolia are shown in this research work. The FDI flows are increasing in recent years. Mongolia is one of 25 countries which has natural resources. There are about 30 types of natural resources, including gold, silver, copper, molybdenum, lead, tin, fluorspar, phosphorite, coal and garnet. Here we show that -in the future- Mongolia will have an opportunity to play a main role in the world market for FDI.

Keywords: Foreign direct investment; Investment environment; Natural resource; Gross domestic product.

Introduction

Mongolia is a landlocked country which is located in Central Asia. Mongolia shares a border with Russia on the north side and with People's Republic of China on the other side. At 1,564,116 square kilometers, Mongolia is the 19th-largest country with a population of around 3.2 million people. The scientists have found that territory is rich in minerals because they are located in the middle of three large watersheds and altitude of Asia according to the geology, geography and ecosystem. Mongolia ranges in a significant place in the world market through fluorspar, copper and gold production. Mongolian future economic development is depending on how to process and how to mine those natural resources efficiently. In 2014–2016, Mongolian economy has weakened due to a fall of raw material prices and a direct foreign investment. But in 2017 and 2018, the economy revived, with GDP growth rising to 1.2 percent in 2016 to 5.3 percent in 2017 and 6.3 percent in 2018. Also, the coal export has increased and foreign direct investment in Mongolia has revived due to the rise. Growth in foreign direct investment is tend to remain stable in 2018 and furthermore. This is related to the increase in private investment in the mining and manufacturing sectors. Mongolia has experienced a decreased in poverty during the rapidly growing economy since 2010. The household income is increased by 2017 and the first half of 2018, while the growth prospects are positive.

Mongolia's economy has been based on agriculture especially for livestock for hundreds of years. However, in recent years foreign companies have invested much in the development of mining sectors, which is largely dependent on the growth and development of the country's economy. Whether Mongolia can become a major competitive industry in the world market depends heavily on the legal framework for investment in the mining sector.

Mongolia has several important mineral deposits which are higher in the world market, and as a result of exploration efforts by foreign investors, it is possible to have a high rate of growth in the economy, not only mining sector. Existing deposits are processing the country's mineral resources with iron ore, lead-zinc and uranium, and currently large projects on copper, gold and coal are being implemented.

1. FDI's legal environment and regulations in Mongolia

From the beginning of the 1990's Mongolian economy transited into to market economy with a open economy policy, the Government of Mongolia started paying attention to foreign investment issues. The Government discussed the foreign investment law by the Parliament and approved it in 1990 and created a more favorable environment for foreign investment. Therefore, some amendments have been done in 1993, 1998, 2002, 2008, and 2013, and are intended to bring the international investment standards and to create favorable environment for the investment [1, 663–675].

One of the efficient reforms was the Minerals Law of 1997. This law was considered to be one of the most successful programs among the developing countries by mining sector of the world. A safety policy of mining license owners has reflected in this law and the articles of the law are the driving force behind the rapid expansion of foreign direct investment in Mongolian mining sector.

Foreign investment is protected by the Constitution of Mongolia, Foreign Investment Law, and international agreements to which Mongolia was joined. Under the current law, infrastructure, mineral processing, and export-oriented industry investors are received exemption from tax. Also, the equipment for the mining and technology imports are taking exemption from taxationand customs.

In June 2007, the Mongolian Parliament approved an amendment in tax laws in order to improve competitiveness, create new workplaces, reduce informal economy and bring investment environment closer to international standards. Therefore, favorable environment for a free trade zone and law of establishing industrial park has being completed.

The Government of Mongolia has signed a double tax exemption agreement with 33 countries and mutual agreements on promotion and protection for investment with 39 countries. And in 1996, the government joined "Convention on the Settlement of Investment Disputes" which was established in 1965 in Washington and joined "Multilateral Investment Guarantee Agency" Convention of Seoul (1985) in 1999.

Mongolia is member of Multilateral Investment Guarantee Agency (MIGA) of the World Bank and investors are entitled to be registered in MIGA. The international institutes also recognize and agree with that the Mongolian government has created these favorable legal environments and regulations.

Mongolia does not impose restrictions on investment in FDI amount and investment, and allows investments except of drug and weapon industries. In Mongolia in the following forms of investments are encouraged. For instance:

- Establish a local branch of a foreign company and foreign invested company;
- Establish a business unit with local business investors;
- Invest in through purchasing bonds and stocks of Mongolian company;
- Purchase licenses according to an agreement which is under the Mongolian law on the mining and processing natural resources;
- Invest in a contractual arrangement of a marketing and management;
- Conduct a financial leasing or franchise.

Although a foreign citizen or foreign company in Mongolia does not have the right to own a land, they can rent the land up to 60 years, to extend its rent afterwards, and to lease additional money or property from the domestic market or foreign markets. However, the Mongolian Government does not guarantee on foreign loans.

In 2007, 10% of the investment benefit tax was granted to priority sectors which attract attention of foreign investment in Mongolia. These include:

- Manufacturing sector: Petroleum, fossil fuel mining, processing, metallurgy, chemical, ore and automobile manufacturing;
- Agriculture sector: irrigation systems and developing agriculture with irrigation;
- Electricity and natural gas production;
- Construction sector: Establishment of waste processing factory and tourism center;
- Light industry: textile, leather and leather processing factory, shoe factory.

It is legally forbidden in Mongolia to socialize FDI and to seizure it illegally. And the FDI owners have an equal right with Mongolian investors to manage their property. If the investment is more than $20 million, it is able to be signed on Government Stability Agreement up to 10 years, and if the investment is more than $50 million, the Stability Agreement will be signed for a period of 15 years. In the case of investing more than $300 million, the agreement is able to be signed up to 30 years. The foreign investor has the right to implement an investment project without registering a business entity in Mongolia, and establishing its representative office is also provided.

A foreign citizen or a company that has invested in Mongolia has the right to transfer the revenue and payments back to the country without any restrictions, but in this case the tax shall be paid at 20 percent.

2. Current situation of foreign investment in Mongolia

In 1990's there were only two types of FDI such as Trade and Catering; Culture, Education and Science. But since 1993, foreign investment law was introduced into all sectors of the economy. Especially, since 1994, FDI has gone into geology and mining sectors intensive.

Between 1995 and 1999, Mongolia was invested by $53 million FDI. About one-quarter of FDI's was in the mining sector, 15% were in light industry, 10% were in animal-derived raw material processing, 8.8% were in engineering construction, construction materials industry, and 7% were in trade and catering [2, 146–156].

Between 2000 and 2004, total FDI was $165 million. The amount of the FDI has increased by three times since 1995–1999. Looking from the result, a half of FDI was invested in the mining sector, 17 percents were in trade and food industry, 7 percent were in light industry, and 3 percent were in banking and financial sector. However, FDIs in animal-derived raw materials have fallen to 2.7 percent of FDI [3, 86–101].

In 2005–2009 total FDI was $538 million. Comparing with the years of 2000–2004 it has increased also three times. Most of this growth is in the mining sector, and 68 percent of total FDI were in Trade and 22 percent were in catering industry. However, FDI in animal-derived raw materials also decreased to 0.8 percent. Additionally, comparing with the year of 2000–2004, the FDI was decreased in the sectors except ebanking and financial transactions, except for tourism and agriculture sectors.

In recent years economic recovery has revived and domestic investment has grown continuously, especially the investments in construction sector. FDI amount has been increasing due to the use of mining deposits constantly.

Table 1. – Main macroeconomic indicators

	Last	Reference
1	*2*	*3*
Inflation Rate	7.3%	Jan/19
Government Debt to GDP	79.4%	Dec/16
GDP Annual Growth Rate	6.9%	Dec/18
GDP	11.49 USD Billion	Dec/17

1	*2*	*3*
GDP per capita	4071 USD	Dec/17
GDP From Mining	1269648 MNT Million	Dec/18
Balance of Trade	103 USD Million	Jan/19
Exports	607 USD Million	Jan/19
Imports	504 USD Million	Jan/19
Current Account to GDP	–10.4%	Dec/17
Foreign Direct Investment	19379 USD Million	Sep/18
External Debt	27911253 USD Thousand	Sep/18

Source: https://tradingeconomics.com/mongolia/indicators

In order to build sustainable and accessible growth and reduce poverty, Mongolia needs to strengthen the capacity of governance, to effectively manage budget revenues, to rationally allocate economic reserves for investment, cost, savings, and to provide urban and rural people with equal capability. It should be implemented in a manner that protects the environment and ensures equality of the population.

Mongolia has been searching for a small part of Mongolia's natural resources and it is indicating a significant potential for Mongolia's mineral development sector. Future exploration and future processing depend on how the legal, regulation and tax environment would be favorable for foreign direct investment and it also depending on the scale and scope of public investment in road, health, education, and water resource consumption.

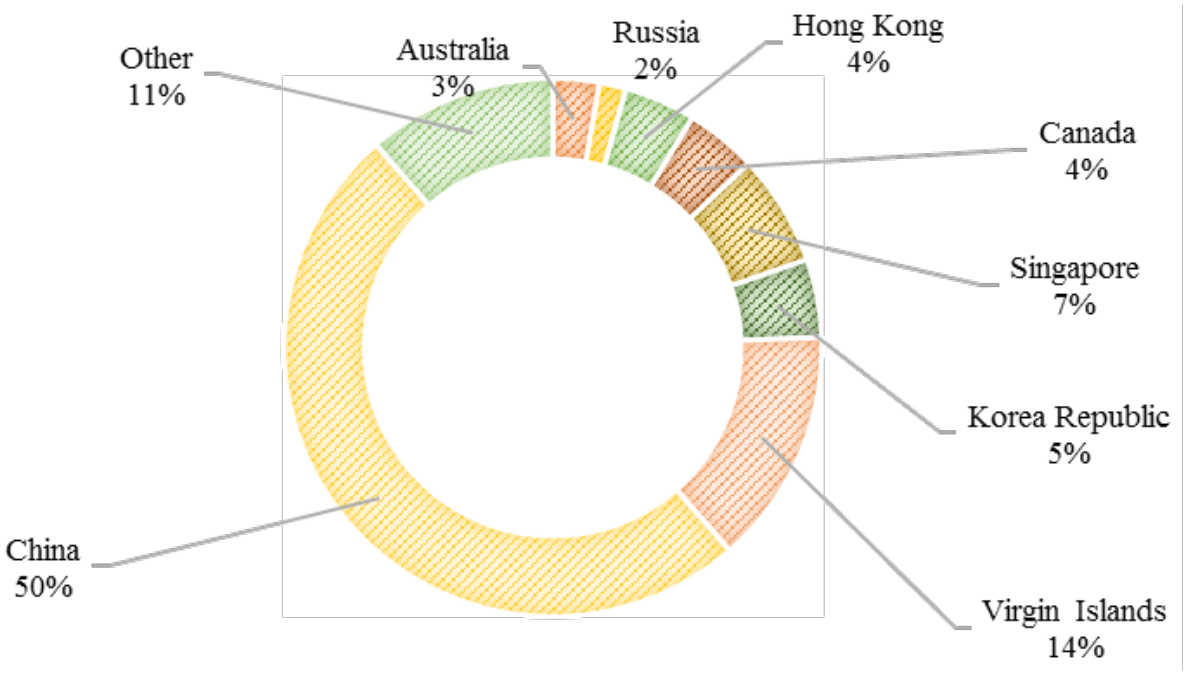

Figure 1. FDI inflows by country, 2018.09
Source: Computerized mining cadaster system, MRPAM

This chart shows that China is leading with FDI in Mongolia, but the FDI from the other developed countries such as Australia, Russia and Hong Kong are estimated lower. As a result of the chart, other countries are not willing to invest in Mongolia except China. About the other FDIs are from Canada, investment in the mining sector, from Korea, investment in trade and food industry, from Virginia and

the Bahamas investment in banking and financial sectors.

3. Current situation of Mongolian investment in mining sector

According to the survey of 2017, the mining sector is taking 23 percent of the GDP due to the FDI on mining sector is high about 74 percent. From 1990 to the end of 2017, about 12,118 companies from 112 countries invested in 20 sectors with amount of 16.5 billion dollars, and over 13.2 billion dollars or 73.9 percent were invested in the mining and oil sectors.

Since 1991, the majority of FDIs in Mongolia have been invested in the mining sector. With that, GDP of the sector is also high. For example, as a result of growth in coal mining in Oyu Tolgoi's and Tavan Tolgoi in 2011, the economy increased to 17 percents [4, 66–71].

Table 2. – Mineral resource reserves registered in the State's integrated registry, 2016–2018

	Deposit type	Unit	Registered reserves					
			2016		2017		2018	
			ore	metal	ore	metal	ore	metal
1	Gold (rock)	ths.t/kg	62864.24	33819.66	8412.8	3211.9	6537.9	18697.9
2	Gold (placer)	kg	6581.0	5955.2	3374.7	3015.0	5140.2	4600.6
3	Iron	ths.t	54463.2	18030.0	45655.7	11870.9	44969.8	18287.9
4	Polymetallic	ths.t	15091.4	–	–	–	167692.3	–
	Cu	t	–	57547.3	–	–	–	51909.0
	Zn	t	–	41043.0	–	77.7	–	–
	eqZn	t	–	–	–	–	–	1174190.0
	Pb	t	–	–	–	83.4	–	606274.0
	eqPb	t	–	–	–	1636.3	–	512224.0
5	Molybdenum	ths.t	–	–	–	–	–	132224.9
6	Tungsten	ths.t/kg	–	–	502.6	4.4	36.6	1.4
7	Rare earth elements	ths.t/kg	–	–	0.12	0.041	356.8	125.2
8	Cooper	ths.t/kg	2042008.33	7789023.59	29183.0	134.9	–	149.1
9	Tin	ths.t	–	89.6	–	0.7	–	–
10	Fluorspar	ths.t	801.1	335.0	1177.56	664.58	6932.0	1239.1
11	Uranium	t	4.9	–	–	–	51583.2	15.5
12	Coal	mln.t	1295.43		3579.7		9662.7	
13	Pear shaft	mln.t						
14	Limestone	mln.t	155.4		185.8		52.7	

Source: Data from Geology and Exploration Division, MRPAM

The economy in 2011 was grown to 17.5, but decreased to 12.3 percent in 2012 and in 2016 it has rapidly decreased to –1.4. The economy is recovering due to the price growth of coal and copper in the world market, and real GDP growth of 2017 has increased by 5.4 percent. Since 2013, processing factories have grown significantly, but coal production was declined and the manufacturing sector has weakened.

While the exports in the first 2 months of 2017, have grown up to $212.0 million (34.6 percent) of the previous year the metal, precious stone and jewelry export have decreased to $33.0 million, exports of auto and air vehicles have decreased by $31.7 million. But mineral exports increased by $265.1 million, of which exports of coal increased by $283.4 million has greatly influenced.

4. Current investment situation in Mongolian coal sector

Mongolian coal resources: Mongolian hypothetical coal reserves are indicated by 173.3 billion tons. More than 300 deposits have been discovered in 15 basins, of which 37.4 billion tons of coal resources are estimated by geological exploration and detailed exploration surveys.

Coal mine. There are currently 49 active coal mines operating in the area and 29 of them are fossil fuel mine and rest of 20 are Khuren coal mine. These are:

- 7 of the mines are state property and 8 of the mines are enterpriser's
- Domestic and joint 28 enterprises and 33 mines
- 7 enterprises and 8 foreign mines with 100 perccent foreign investment

Table 3. – Strategic significant of coal deposits approved by the Parliament of Mongolia resolution

Deposit name	Company	Annual mining capablilty, thousand ton
Tavan tolgoi	Erdenes Mongol LLC	35000.0
Tavan tolgoi	Tavan tolgoi LC	2000.0
Tavan tolgoi	Energy Resource LLC	15000.0
Tavan tolgoi	Mongolian Gold MAK LLC	14000.0
Nariin Suhait	Qing Hua MAK HC LLC	2000.0
Nariin Suhait	South Gobi sands LLC	9000.0
Nariin Suhait	Usukh zoos LLC	3500,0
Baganuur	Baganuur LC	4000.0
Shivee-Ovoo	Shivee-Ovoo LC	2000.0

Mongolian Mining Corporation (MMC): Ukhaa Khudag and Baruun Naran mine have expanded their operations. The total production of the Group increased by 179% and reached to 8.3 million tonnes, while the washed and processed coal increased by 175%.

The net profit reached to $311 million and MMC ranked in the 5th of the TOP-100 enterprises. MMC is being ranked in the 8th place with its employment and in the 2nd place with its disposal in Mongolia. Thus, the positive impacts of MMC (Mongolian Resource) on Mongolian social and economy sector are increasing.

Table 4. – Coal extraction, export, million tones

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Export	7.1	16.7	21.3	20.9	18.4	19.5	14.5	25.8	33.4	36.6
Output	14.4	25.2	32.0	29.9	30.1	25.3	24.2	35.4	49.4	54.5

Source: National statistical office of Mongolia

In 2016, Mongolia extracted 35,396.5 thousand tons of coal and 33,831.7 thousand tons of coal was sold, of which 25,809.3 thousand tons of coal were exported. Comparing with the year of 2015, the extraction increased by 146.4%, sales increased by 152.9% and exports increased by 178.4%.

In 2017, 49.5 million tons of coal was extracted and 33.4 million tons of coal was exported from Mongolia and it was the highest indication of the last 95-year. Thus, Mongolia was the second country which is supplying coal to China after Australia.

Mongolian coal export for the energy is increasing. According to the news from asianmetal.com coal export increased by 162,000 ton ($4 million) in February, 2018 and in March it increased up to 510 thousand tons ($14 million) in March. Coal extrac-

tion has increased up to 350% in a month. This was mainly due to the rise in new anthracite coal exports as a natural non-smoke fuel.

Prime Minister of Mongolia visited the People's Republic of China to discuss several issues and one of which was the congestion of coal transportation in Gashuun Sukhait port. According to the negotiations with the China were more than 500 coal trucks will pass through the port daily in April, 2018. But it has increased dramatically up to 1200 by June, 2018. With the release of this route, Mongolia is expected to export 40 million tonnes of coal in 2018 and would be the same as Australia.

In Mongolia between 1990 and 2016, there are over 13498 foreign invested enterprises from 112 countries have invested over USD18.9 billion foreign direct investment and 80 percent of of the investments were done in 2008–2012. As a result of the previous FDI, about 70 percent of total investment was done in the geology and mining sector, which is one of the reasons for Mongolia's investment tend towards the mining sector, on the other hand, this sector requires substantial investments from other sectors of the economy so it can be assumed to be the majority.

In January, 2017, 5.42 million tons of coal extracted, 3.61 million tons of coal were sold and 2.63 million tons of coal were exported. Comparing the production with January of previous year, the extraction increased by 141.8 percents, sales increased by 73.0 percents and exports by 126.7 percent.

In April 2017, Australia dumped about 20 million tons of coking coal due to Debby storm and it caused a sharp shortage of coking coal supplies in China. In order to fill this space, the amount of coal imports from Mongolia has increased dramatically overloaded at the port of Gashuun Sukhait. As a result of this remarkable case, about 160 km long coal trucks lined up for days in Gashuun Sukhait.

Conclusions:

Since 1990, the Government of Mongolia has been working with the International Monetary Fund (IMF), the World Bank and the Asian Development Bank to make economic reforms and attract international investors.

Mongolia's investment policy has not been studied, the environment is variable, government is unstable and less efficient. Therefore, it is necessary to study and reform investment policy, environment and governance in line with the Competitiveness Policy.

In the future, the fiscal sustainability policies and the positive growth prospects for labor and social welfare will be key to poverty reduction.

The way of increasing foreign investments in Mongolia is about strengthening of economic relationship with China, the Republic of Korea and Russia, as well as the expansion of leading sectors can further increase foreign investment.

Mongolia has more favorable conditions for receiving foreign investment. The impact of Mongolian mining sector on the economy has been increasing constantly in recent years.

The main bridge of increasing property is Mongolian government. The government can create favorable conditions for attracting domestic and foreign investment by implementing a tax policy and sustainable legal policy that promotes investment.

Increasing investment can lead in technological progress, accumulation of savings and research developments, improved foreign trade, improved quality of education and further technological development.

In Mongolia the FDI focuses only on mining, trade and catering. Under these condition, there is a real necessity to make relevant arrangements for foreign investment policy and legislation in Mongolia.

China's coking coal import demand is being provided from Mongolia with cheaper and high-quality coking coal. Most of the coal import is consisting of unprocessed coal.

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Section 7. Economics, organization and management of enterprises, branches, complexes

Aliyev Ruslan Yusif,
Ph.D., Azerbaijan University
of Architecture and Construction
E-mail: tmr.azeri@yandex.ru

DEVELOPMENT OF HEAT AND POWER ECONOMY OF A BIG CITY

Abstract: The article deals with the experience of developed countries of the world and Azerbaijan on providing consumers with heating. The main stages of development of heat power economy of large cities are considered. Dynamics of heat consumption in the cities of Azerbaijan is given. In the analysis of the functioning of heat power economy criteria (indicators) of efficiency are used and the generalized indicator of the efficiency of the joint-stock company is given.

Keywords: heat power economy, development, city, consumer, heating, experience of the countries, hot water, need, use, energy, provision, source, element, stage, efficiency, energy, indicator, prediction, planning, programing, approach.

Алиев Руслан Юсиф,
Докторант, Азербайджанский
Архитектурно-Строительный Университет
E-mail: tmr.azeri@yandex.ru

РАЗВИТИЕ ТЕПЛОЭНЕРГЕТИЧЕСКОГО ХОЗЯЙСТВА КРУПНОГО ГОРОДА

Аннотация. Изучен опыт развитых стран мира и Азербайджана по обеспечению потребителей теплоснабжением. Рассмотрены основные этапы развития теплоэнергетического хозяйства крупных городов. Дана динамика теплопотребления в городах Азербайджана. При анализе функционирования теплоэнергетического хозяйства использованы критерии (показатели) эффективности и приведены обобщенного показателя эффективности акционерного общества.

Ключевые слова: теплоэнергетическое хозяйство, развитие, город, потребитель, теплоснабжение, опыт стран, горячая вода, потребность, использование, энергия, обеспечение, источник, элемент, этап, эффективность, энергоресурсы, показатель, прогнозирование, планирование, программирование, подход.

В экономике Азербайджана теплоэнергетическое хозяйство имеет весомое значение. Для совершенствования существующей инфраструктуры и бесперебойного обеспечения потреби-

телей теплоснабжением осуществлены широкомасштабные реформы. В результате в области теплоснабжения за счет инвестирования получены значительные успехи.

В настоящее время в стране имеются 13 теплоэлектростанций, общая мощность которых составляет 5132 MVT. В 2015 году в Азербайджане объем производства тепловой энергии составил 427 тысяч Qкал, к 2020 году предусмотрено довести объем до 1767 тыс. Qкал. При этом будет обеспечена прибыль в 5,1 млн. манат [26].

В Азербайджане в расчете на долгосрочную перспективу (после 2025 г.) намечено использовать опыт передовых стран в области теплоснабжения. Для этого по каждому направлению определены приоритеты и подготовлены конкретные мероприятия.

В дальнейшем для обеспечения населения и развития частного сектора предусматривается постепенная передача части теплоснабжения муниципалитетам. В этой связи в широком масштабе изучается опыт развитых стран мира, в том числе Европы. По данным Международного Энергетического Агентства отношение к охлаждению квартир, обеспечение услуг горячей водой, освещение, потребность энергии в домах в целях приготовления пищи в мире составляет примерно 40% потребности общей энергии [18].

На основе отчета Программы окружающей среды ООН по обеспечению тепловой энергией зданий при использовании эффективных современных систем в этой области к 2050 г. в мире объем потребления энергии можно уменьшить в 2 раза [8].

В некоторых городах мира, в том числе в Азербайджане использование местных ресурсов (ветряной, солнечной энергии, бытовых отходов и т.д.) дает возможность обеспечить потребителей дешевыми и качественными отопительными услугами, а также свести к минимуму объемы отходов и выброс в атмосферу вредных веществ. За счет использования ветряной энергии после 2025 года вероятность уменьшения энергетических затрат может составить 15–25% [15]. В штате Миннесота США, к примеру, использование в отопительной системе на территории муниципалитета отходов дерева за год дает экономию примерно 275 тонн угля, что составляет 12 млн. долларов США [17].

В северной Америке широко применяется так называемый крышный вариант источников теплоснабжения в районах с плотной городской застройкой таких мегаполисов как Чикаго, Детройт и Сиэтл (США), Торонто и Ванкувер (Канада), на долю крышных котельных приходится до 80% общего производства тепловой энергии [9].

Крышные источники теплоснабжения применяются также в Азербайджане, например, на окраине г. Баку в поселке Шувелан на крышах школ и других объектов.

Первые солнечные батареи с практически приемлемым КПД преобразования (почти 6%) были разработаны американским ученым Г. Пирсоном, К. Фуллером и Д. Чапиным в 1953–1954 гг. Большой вклад в развитие теории и практики солнечных элементов внесли российские ученые В. С. Вавилов, А. П. Ландсман, Н. С. Лидоренко, В. К. Субашев и американские ученые М. Вольф, Дж. Лоферский, М. Принс, П. Рапопорт [25]. Кроме того, в некоторых городах муниципалитеты приватизировали часть отопительных систем. Так в г. Торонто (Канада) за счет приватизации 43% отопительных систем обеспечен доход 89 млн. долларов США [7].

В мировой практике значительное внимание в последние годы, особенно в связи с изменением климатических условий уделяется повышению эффективности энергоресурсов. Необходимо отметить опыт г. Хельсинки (Финляндия) по переводу примерно 83% ежегодно вырабатываемой электроэнергии в отопительно16].

Данные по городам Азербайджана свидетельствуют, что в сравнении с европейскими показателями удельный расчет расхода тепла на отопление

зданий больше в 2,5–3 раза, а по удельному теплопотреблению – почти в четыре раза [27].

В опубликованных трудах общая схема развития теплоэнергетического хозяйства крупных городов мира состоит из трех основных этапов: прогнозирования, программирования и планирования [21; 23] анализ-прогноз-план-автор.

Поэтому модели и методы прогнозирования имеют большое значение в процессе подготовки научно-обоснованных плановых решений. Причем для теплоэнергетического хозяйства их применение имеет особое значение в связи с относительно большей стохастичностью процессов развития по сравнению с другими отраслями.

В опубликованных работах по долгосрочному планированию и экономическому прогнозированию до настоящего времени не выработана концепция роли прогнозирования в планировании, соотношения плана и прогноза. Можно выделить три существенно различных взгляда на содержание прогнозов и их связь с планированием.

Согласно первому подходу, принципиальное различие между планированием и прогнозированием определяется временем утверждения горизонтов планирования [1; 10; 24].

Второй подход состоит в том, что прогноз рассматривается как предплановая стадия обработки информации при этом указываются следующие функции прогнозирования по отношению к планированию: определение исходной базы развития экономики в плановом периоде, связанное с прогнозной оценкой выполнения текущего периода; обоснование выбора целевых нормативов развития и необоснованных решений [11; 6; 20].

Третий подход связан с анализом объекта планирования и прогнозирования. В данном случае в основе разделения планирования и прогнозирования лежит тот факт, что все процессы в экономических системах следует подразделять на управляемые и неуправляемые. При этом роль прогнозирования сводится к обеспечению процесса планирования информацией о будущем развитии неуправляемых (или слабоуправляемых) характеристик процессов, непосредственно или косвенно влияющих на результат планирования (на выбор варианта развития, включаемого в план), но не зависящих от выбранного варианта [4; 5; 25]. Таким образом, из сферы прогнозирования исключаются так называемые многовариантные прогнозы, оценивающие преимущества и недостатки сравниваемые альтернативные варианты плана. Вместе с тем сторонники данного направления [14; 19] не отрицают необходимость таких разработок в интересах сравнительной оценки альтернативных вариантов плана, однако не считают их прогнозами, поскольку они не содержат объективного предвидения будущего, а определяются субъективными факторами – решением, которое примет руководитель.

На наш взгляд, многофакторные расчеты по определению результатов воздействия на экономический процесс можно с полным основанием отнести к условным прогнозам, т.е. прогнозам, которые осуществляются при условии принятия определенных решений, прежде всего, потому что последствия принятия того или иного решения не являются детерминированными. Кроме того, в основе расчетов лежат методы и методики, традиционно относящиеся к методам прогнозирования – экстраполяции тенденций, многофакторное моделирование процессов, экспертные методы и т.п.

Теплоснабжение крупного города на сегодняшний день представляет собой многочисленную группу взаимосвязанных и локальных предприятий в системе городского хозяйства [3].

Данные таблицы 1. Свидетельствуют о постоянном росте теплопотребления в городах Азербайджана. В связи с возрастающими объемами промышленного производства и жилищного строительства в районах, не охваченных теплоснабжением от ТЭЦ, возникла необходимость создания локальных теплоисточников, которыми являлись квартальные и районные тепло станции (КТС) [16].

Планирование и проектирование систем централизованного теплоснабжения городов, особенно крупных, а в перспективе и городских агломераций (промышленно-территориальных комплексов) представляют собой важную комплексную проблему, от правильного решения которой во многом зависят не только масштабы необходимых капитальных вложений на инженерное оборудование развивающихся городов, но и создание надлежащих условий труда и быта населения этих городов (Мартин Клод, 1995).

Таблица 1.– Динамика теплопотребления в стране

Показатели	**Единица измерения**	**2005 г.**	**2010 г.**	**2015 г.**	**2020 г.**
Теплопотребление городов:					
от ТЭЦ	%	41,3	41,8	42,5	43,1
районные и квартальные котельные	тоже	27,2	32,0	37,2	40,7
мелкие котельные	тоже	31,5	26,2	20,3	16,2
Удельное теплопотребление	ГДж/чел. в год	16,3	18,8	21,8	23,9
Уровень благоустройства жилищного фонда городов и рабочих поселков, наличие в системе:					
отопления	%	32,6	40,1	43,2	44,5
горячего водоснабжения		2,4	3,2	5,6	6,7

Источник: таблица составлена автором по материалам Азертеплоснабжения и министерства экономического развития

При анализе функционирования теплоэнергетического хозяйства необходимо использовать несколько критериев эффективности, в числе которых обязательно должны присутствовать показатели производительности труда, фондоотдачи, себестоимости [20]. Автор придерживается такого же подхода.

От выбора показателей, входящих в систему анализа, планирования и управления, в значительной степени зависит эффективность и качество принимаемых плановых и управленческих решений [13]. Такое же мнение автора.

Для облегчения формирования состава исходных показателей, отвечающих принципу системного подхода к объекту анализа, исследуемое акционерное общество представляется в виде системы, имеющей вход, выход и процессор. Соответственно в оценочной группе показатели должны быть такие, которые отражают все части этой системы.

Состав показателей, отражающих «вход», следующий: реализовано тепловой энергией, произведено тепловой энергией, число жителей, снабжаемых тепловой энергией и горячей водой. В группу показателей, отражающих «процессор» водят показатели основных производственных фондов, качество котельных, количество ЦТП (центральные тепловые пункты), протяженность тепловых сетей. Показателями, отражающими «вход» были выбраны: фонд заработной платы, объем капитального ремонта, себестоимость, расход газа, расход воды, расход электроэнергии, среднесписочная численность работающих, численность АУП.

Таким образом, в группу оценочных показателей вошли 15 показателей, отвечающих принципу информационного фильтра, кроме п. 3. Его отсутствие вызвано тем, что в отчетной документации не все агрегированные показатели представлены в виде частных составляющих их показателей.

Чаще одной строкой определяется весь агрегированный показатель, а другой – наиболее важная его составляющая, например, из показателя себестоимости выделен показатель фонда заработной платы, как играющий самостоятельную роль в процессе управления.

В качестве критерия анализа оценочных показателей для получения итоговой оценки использовали ранжирование – определение степени важности входящих в группу показателей. На основе полученных рангов в результате оценок по баллам важности каждого показателя группы определен их вес.

Ранжирование показателей внутри группы производится по методике парных сравнений [22]:

– составляется таблица 15×15, в строках и графиках которой расположены показатели оценочной группы;

– методом парных сравнений определяются приоритеты. Если показатель в строке должен иметь темпы роста больше, чем показатель в графе в соответствующей клетке ставится знак «+», если наоборот, «–», если темпы роста, по мнению эксперта одинаковы – «0».

– после заполнения таблицы определяется сумма предпочтений по каждому показателю (сумма «+» по строкам) и сумма отказов (сумма «–») – по графам. Показатели располагаются по мере убывания их приоритетов, определяемых суммой набранных баллов.

Критерий эффективности строится на основе того соображения, что для интенсивного роста эффективности необходимо, чтобы темпы роста результата обгоняли темпы роста используемых ресурсов [6].

Для каждой пары показателей можно экспертно определять предпочтительность по темпам роста или безразличие. После обобщения этих предпочтений получается эталонный ранжированный ряд показателей (ЭРП), в котором показатели расположены в порядке убывания соотношений темпов роста. Такой ряд будет обобщением всех существующих частных критериев эффективности, поскольку в нем будут соблюдаться все отраженные в них пропорции между частными показателями.

Поделив ранг каждого показателя на общую сумму рангов можно получить весовой коэффициент этого показателя в общей системе показателей деятельности акционерного общества.

Формирование ЭРП в общем виде происходит следующим образом: на первых местах должны располагаться результирующие, на вторых – процессорные, на третьих – ресурсные показатели.

Полученный на основе экспертных оценок ЭРП представлен в (таблице 2).

Таблица 2.– ЭРП, полученный на основе экспертных оценок

Ранг	**Номер показателя**	**Показатель**	**Весовые коэффициенты**
1	***2***	***3***	***4***
I	1	Реализация тепловой энергии	1
II	2	Произведено тепловой энергией	0,765
III	3	Число ЦТП	0,532
IV	4	Протяженность тепловых сетей	0,498
V	5	Расход газа	0,401
V	6	Расход воды	0,401
V	7	Расход электроэнергии	0,401
VI	8	Число жителей, пользующихся теплотой и горячей водой	0,395

1	*2*	*3*	*4*
VII	9	Число котельных	0,310
VII	10	Объем капитального ремонта	0,310
VIII	11	Основные производственные фонды	0,293
IX	12	Число работающих	0,215
X	13	Себестоимость	0,112
XI	14	Фонд заработной платы	0,105
XII	15	Численность АУП	0,032

Источник: таблица составлена автором по материалам Азертеплоснабжения

Если ЭРП в общем виде может использоваться для стратегического планирования акционерного общества в целом, то для подразделений требуется приводить ЭРП общего вида к частным ЭРП.

Для приведения ЭРП общего вида к частному может быть применен экспертный опрос, а также предварительный анализ технико-экономического уровня.

Анализ темпов роста основных показателей проводится на примере Акционерного общества «Азертеплоснабжения» на основе обобщающего критерия эффективности И. М. Сыроежиным. Этот критерий строится на основе сопоставления фактического и эталонного режимов работы, математической оценки их соответствия. В качестве аппарата математической оценки используется ранговая корреляция, позволяющая устанавливать сходство ранжированных рядов показателей.

Для оценки эффективности деятельности акционерного общества:

– рассчитывают фактические и плановые темпы роста относительно по всем показателям, входящим в систему, для чего уровень n-го года относят к уровню базового года. В результате получается вектор индексов относительно базы. Кроме того, рассчитывают фактические и плановые темпы роста по всем показателям, входящим в систему;

– ранжируют полученные фактические и плановые значения показателей по принципу: чем индекс роста больше, тем ранг старше, принимая единицу за старший ранг, а последующие значения чисел натурального ряда – за убывающие ранги;

– сравнивают ранги фактической и плановой системы показателей ЭРП, и на основе сравнения рассчитывают коэффициенты ранговой корреляции Спирмена и Кенделла [22].

$$K_C = 1 - \frac{6\sum_{S=1}^{N} X_S^2}{N\left(N^2 - 1\right)}, \ (-1, K_C < +1)$$

где X_S – разность между фактическим (плановым) и эталонным рангом S-го показателя; N – количество показателей, включенных в ЭРП.

Коэффициент Кенделла основан на подсчете числа показателей, имеющих фактический ранг старше, чем у рассматриваемого показателя, но при этом нормативный ранг младше рассматриваемого. Такое положение показателя называется инверсией.

$$K_k = 1 - \frac{4\sum_{S=1}^{N} X_s}{N\left(N - 1\right)}, \ (-1, K_k < +1)$$

где X_S – число инверсий S-го показателя; N – количество показателей включенных в ЭРП.

При полном соответствии фактического и нормативного рядов K_C и K_k принимают значения +1, при полном несоответствии –1. Поскольку в методике И. М. Сыроежина использованы два показателя, для получения обобщенной оценки им предложена формула

$$K = \frac{\left(1 + K_c\right)\left(1 + K_k\right)}{4}$$

Для упрощенного расчета можно использовать один из показателей, например, коэффициент Спирмена, который основан на оценке суммы

квадратов отклонения и отражает абсолютное несоответствие между двумя рядами чисел.

На основе отчетной документации ОАО «Азертеплоснабжения» за 2005–2016 гг. рассчитаны плановые и фактические индексы роста по отношению к базовому 2005 г. и к предыдущему году. Полученные значения проранжированы по принципу – чем больше индекс, тем старше ранг.

По каждому ранжированному ряду определена величина обобщенного показателя эффективности на основе коэффициента Спирмена путем сравнения с рациональным ЭРП, рассчитанная для акционерного общества «Азертеплоснабжения» на основе экспертного опроса и приведенная в (таблице 3).

Таблица 3.– Величина обобщенного показателя эффективности

	2000	**2005**	**2006**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
1. По отношению к базовому 2000 году										
План	0,40	0,59	0,50	0,56	0,62	0,61	0,62	0,64	0,67	0,65
Факт	0,50	0,48	0,61	0,51	0,50	0,58	0,54	0,58	0,62	0,60
2. По отношению к предыдущему году										
План	0,27	0,44	0,55	0,49	0,45	0,72	0,71	0,73	0,76	0,77
Факт	0,51	0,61	0,44	0,26	0,40	0,84	0,76	0,78	0,81	0,83

Источник: материалы ОАО «Азертеплоснабжения»

В результате получилась оценка фактической и плановой эффективности деятельности акционерного общества, рассчитанная по отношению к базовому 2005 г., и динамическая по отношению к предыдущему году, рассчитанная за 2005–2016 гг.

Сравнение с базой позволяет сглаживать годовые колебания эффективности, оценивать общие тенденции. В оперативном управлении лучше использовать текущую эффективность.

Изложенная методика позволяет численно оценивать диспропорции в тенденциях показателей развития акционерного общества и на основе анализа разрабатывать рекомендации по их исправлению или устранению.

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Potetiuieva Marina Vladimirovna,
Candidate of Economic Sciences, Associate Professor
Joint stock company "Ukrainian railways"
E-mail: marina11176@ukr.net

KEY MANAGEMENT APPROACHES TO PROPERTY COMPLEX OF JSC "UKRAINIAN RAILWAYS"

Abstract. The article defines that the approaches to the management of the property complex of the company are directly related to the existing financial and economic condition of the company, as well as certain factors and shortcomings. The main approaches are identified and measures for the management of the property complex of JSC "Ukrainian railways" are formed.

Keywords: management, property complex, approach, financial and economic condition, property management, "Ukrainian railways".

Потетюева Марина Владимировна,
начальник Управления офисом корпоративного секретаря
кандидат экономических наук, доцент
Акционерное общество «Украинская железная дорога»
E-mail: marina11176@ukr.net

ОСНОВНЫЕ ПОДХОДЫ К УПРАВЛЕНИЮ ИМУЩЕСТВЕННЫМ КОМПЛЕКСОМ АО «УКРЗАЛИЗНЫЦЯ»

Аннотация. В статье определено, что подходы к управлению имущественным комплексом компании непосредственно связаны с существующим финансово-экономическим состоянием компании, а также с определенными факторами и недостатками. Выделены основные подходы и сформированы мероприятия по управлению имущественным комплексом АО «Укрзализныця».

Ключевые слова: управление, имущественный комплекс, подход, финансово-экономическое состояние, распоряжение имуществом, Укрзализныця.

Становление рыночных условий хозяйствования требует новых подходов к управлению имущественным комплексом акционерного общества, как в методологическом, так и в техническом аспектах, позволяющих достичь конкурентных преимуществ в области качества и надежности предоставления транспортных услуг, оптимизации издержек производства, скорости и качества обслуживания клиентов. В связи с этим исключительное значение приобретают стратегический и инновационный подходы к управлению.

Углубление процессов глобализации, усиления конкуренции между различными видами транспорта за инвестиции, дальнейшее развитие рыночных отношений в Украине, обострение социальных и экологических проблем требует от различных видов транспорта быстро реагировать на происходящие внешние и внутренние изменения, осуществлять поиск адекватных инструментов, механизмов и методов обеспечения последовательного развития железнодорожной отрасли. Одним из действенных инструментов реагирования на изменения и проведения этих

изменений является стратегическое управление имущественным комплексом.

Для разработки стратегии проводится комплексная управленческая диагностика имущественного комплекса, которая включает комплекс аналитических работ структурного финансово-экономического анализа компании [1, 196–225]. При этом исходное финансово-экономическое положение обуславливает формирование соответствующей общей стратегии деятельности общества в целом.

Для реализации стратегии на основе существующего финансово-экономического состояния компании рассмотрим основные методологические подходы к решению задач связанных с повышением эффективности использования имущественного комплекса.

Необходимо отметить, что компании в тяжелом (кризисном) состоянии вынуждены проводить стратегию пассивного сохранения имущественного комплекса, то есть ориентироваться на стратегию минимализма, которая включает антикризисную реорганизацию и имущественные преобразования с целью выживания компании.

Данная стратегия выбирается для оздоровления бизнеса за счет внутренних ресурсов и их привлечения извне. В тоже время необходимо отметить, что мероприятия по финансовому оздоровлению компании могут быть реализованы путем судебных процедур, при этом имущественный комплекс подвергается реструктуризации и частичной ликвидации непрофильных активов путем купли-продажи объектов по рыночной стоимости. Процедура банкротства применяется к должнику в целях восстановления его платежеспособности и погашения задолженности в соответствии с законодательством. Основная задача в этом случае состоит в том, чтобы найти и показать в плане оздоровления компании основные источники формирования у должника средств для расчетов с кредиторами в установленных размерах. Учитывая отсутствие на счетах предприятия средств, в соответствии с законодательством о банкротстве предусмотрена продажа компании как единого имущественного комплекса или его части.

Продажа предусматривает отчуждение всех видов имущества, предназначенного для осуществления предпринимательской деятельности должника, в том числе земельные участки, здания, сооружения, оборудование, инвентарь, сырье, продукцию, а также права на продукцию, работы и услуги (фирменное наименование, товарные знаки, знаки обслуживания), иные права, принадлежащие должнику, за исключением прав и обязанностей, которые не могут быть переданы другим лицам. При абсолютной несостоятельности происходит полная ликвидация компании [2, 506–520, 570–584].

В случае напряженного (перед или после кризисного) финансово-экономического состояния применяют стратегию активного сохранения имущественного комплекса, применяя активные меры сохранения и финансового оздоровления компании (предприятия). Главным методом в этом процессе является санация, как система государственных и банковских мер по предотвращению банкротства предприятия, улучшению финансового состояния с помощью кредитования, реорганизации, изменения вида выпускаемой продукции или других мер. Эта работа приносит наибольший эффект при государственно-частном партнерстве.

С улучшением финансового состояния, компания получает возможность перейти к стратегии сохранения путем эволюционных преобразований, проведения реструктуризации с привлечением внешних инвестиций.

Главной целью реструктуризации в данном случае является поиск источников развития компании с помощью внутренних и внешних факторов. Внутренними источниками могут выступать объекты имущественного комплекса, повышающие стоимость имущества, акционерного капитала за счет эффективного использования ресурсов.

Удовлетворительное финансово-экономическое положение не означает полной устойчивости развития компании, поэтому повышение эффективности использования имущественного комплекса остается одной из ключевых задач. Дополнительными источниками поступления средств на счета компании могут быть аренда помещений, земли, имущественных прав, лицензий, оборудования, транспортных средств и других активов.

Важной особенностью таких компаний является то, что они не стоят перед выбором срочной продажи материальных и нематериальных активов, а меры обеспечения их устойчивого экономического развития заключаются в непрерывном повышении эффективности бизнеса за счет эффективности работы всех элементов имущественного комплекса.

В случае стабильного (хорошего) финансового состояния осуществляется стратегия развития и роста на основе диверсификации, концентрации и полного изменения деятельности компании на основе инновационных технологий.

Сформированный имущественный комплекс акционерной компании «Украинская железная дорога» включает около 900 тыс. единиц необоротных активов, из которых около 813 тыс. единиц внесены в уставный капитал компании, а более 87 тыс. закреплено на праве хозяйственного ведения за обществом. Также имущественный комплекс общества включает около 10 тыс. земельных участков, общей площадью 240 тыс. га.

Однако необходимо отметить, что на сегодняшний день существует достаточное количество объектов железнодорожного транспорта, которые не задействованы в перевозочном процессе и по которым необходимо принять соответствующие управленческие решения, в частности это касается 580 жилых домов, общежитий и других объектов, используемых под жилье; 447 зданий и сооружений производственного и иного назначения; 50 объектов социальной сферы.

Необходимо отметить, то в условиях формирования рыночной экономики обоснованная трансформация имущественного комплекса акционерного общества, включающая снятие с баланса непрофильных активов за счет передачи их в распоряжение местным органам власти, продажи или списания избыточного имущества, способствует улучшению экономических показателей компаний.

Так как АО «Укрзализныця» это компания, владельцем которой является государство Украина в лице Кабинета Министров Украины, то в соответствии с уставом компании именно Кабинет Министров Украины принимает решение по распоряжению имущественным комплексом общества. На сегодня постановлением Кабинета Министров Украины утвержден порядок распоряжения имуществом АО «Укрзализныця», согласно которому определяется механизм списания имущества, указанного в части первой статьи 10 Закона Украины «Об особенностях образования акционерного общества железнодорожного транспорта общего пользования» [3], а также списание, отчуждение, передача в пользование, аренду, концессию имущества, внесенного в уставный капитал АО «Укрзализныця», и имущества, приобретенного обществом [4].

Выделение основных подходов к управлению имущественным комплексом АО «Укрзализныця» связано с определенными факторами и недостатками, которые включают:

- отсутствие единой программы управления имуществом компании;
- противоречия между мерами по эффективному управлению имущественным комплексом и способами их решения в различных структурных подразделениях общества;
- отсутствие единого системного подхода к анализу состояния, использования и распоряжения имуществом компании;

- отсутствие связи между мерами по улучшению использования имущественного комплекса компании и ее стратегическими целями;
- отсутствие стратегического подхода к управлению имущественным комплексом общества;
- достаточно тесная зависимость процесса управления имуществом от текущей ситуации во внутренней и внешней среде;
- отсутствие антикризисных мероприятий, связанных с управлением имущественным комплексом компании.

В связи с этим, если компания выбирает стратегический подход, то она должна принимать во внимание такие основные инновационные подходы:

- комплексный подход в принятии управленческих решений по управлению имуществом или интегрированность системы управления имущества с общей системой управления компанией. Управленческие решения по управлению имуществом должны быть увязаны с задачами управления финансами, инвестициями, персоналом, организацией производства и сервиса;
- динамический подход к принятию управленческих решений по управлению имуществом учитывает фактор времени, полученные результаты ранее выполненных проектов, а также прогнозов будущих тенденций в динамике рынка, темпов инфляции и других показателей;
- стоимостной подход к принятию управленческих решений предусматривает использование стоимости имущества в качестве критерия оценки успешности ведения хозяйственной деятельности компании.

Данные подходы могут быть реализованы в случае использования информационно-программного обеспечения, так как отсутствие информации затрудняет постановку и решение задач, получения объективной оценки результатов управления активами.

Необходимо отметить, что практически каждое решение по управлению имуществом компании приводит к увеличению или уменьшению стоимости имущества, а изменение стоимости имущества отражается в целом ряде показателей деятельности компании. Так как стоимость имущества – это динамический показатель, на размер которого влияет как изменение физического состава имущества (приобретение, продажа, списание), так и воздействие на объекты имущества факторов износа, инфляции, рыночной конъюнктуры и других. Учет влияния указанных факторов требует проведения оценки, учета и анализа стоимости имущества [5, 89–94].

При разработке стратегии по управлению имущественным комплексом компании важно учитывать кризисное состояние основных фондов на железнодорожном транспорте, что объясняется многими причинами. Одной из основных причин является отсутствие действенной целостной программы управления имуществом. Поэтому в настоящее время наиболее подходящей стратегией для акционерного общества «Укрзализныця» является стратегия минимализма, которая предполагает использование как внутренних ресурсов, так и их привлечения извне.

Подходы к управлению имущественным комплексом АО «Укрзализныця» должны включать следующие мероприятия:

а) принятие взвешенных управленческих решений в отношении имущественного комплекса;

б) разработку и осуществление инвестиционных проектов, предусматривающих изменения в структуре и количестве имущества;

в) проведение организационно-структурных мер, которые должны включать формирование баз данных по перечню объектов имущественного комплекса, особенно в части нематериальных активов, и определения стоимости нематериальных активов с учетом расходов по оценке и постанов-

ке их на баланс, а также возможных доходов от их коммерческого использования.

Таким образом подходы к управлению имущественным комплексом АО «Укрзализныця» непосредственно связаны с существующим финансово-экономическим состоянием компании. В тоже время, усовершенствование подходов к управлению имуществом компании предусматривает тесную взаимосвязь всех звеньев управления в компании, а их совокупное действие, способствует повышению результативности использования имущественного комплекса в целом.

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Section 8. Economic theory

Tatarinov Vadym,
Candidate of Economic Sciences, Associate Professor,
Economics, Marketing and Social Work Department,
Kremenchuk Institute of Alfred Nobel University
Reziapov Kiril,
Postgraduate, Alfred Nobel University
E-mail: vadtatarinov@yandex.ru

FACTORS OF INFLUENCE AND PROSPECTS FOR THE DEVELOPMENT OF THE UKRAINIAN STOCK MARKET

Abstract. The article examines the main external factors affecting the functioning of the Ukrainian stock market. The state of these factors is shown in the conditions of Ukraine. Proposals are made to improve the state of the factors of influence with a view to ensuring the prospects development of the securities market.

Keywords: stock market, factors of influence, foreign investment, science, education, innovation process, small enterprises.

Татаринов Вадим,
кандидат экономических наук, доцент
кафедры экономики, маркетинга и социальной работы
Кременчугского института
ВУЗ «Университет имени Альфреда Нобеля»
Резяпов Кирил,
аспирант Университета имени Альфреда Нобеля
E-mail: vadtatarinov@yandex.ru

ФАКТОРЫ ВЛИЯНИЯ И ПЕРСПЕКТИВЫ РАЗВИТИЯ ФОНДОВОГО РЫНКА УКРАИНЫ

Аннотация. В статье рассмотрены основные внешние факторы, влияющие на функционирование фондового рынка Украины. Показано состояние этих факторов в условиях Украины. Даны предложения по улучшению состояния факторов влияния с целью обеспечения перспективного развития рынка ценных бумаг.

Ключевые слова: фондовый рынок, факторы влияния, иностранные инвестиции, наука, образование, инновационный процесс, малые предприятия.

Украинское независимое государство сложилось после длительной стагнации в рамках социалистической экономики. Страна прошла через период ошибок практически всех украинских правительств, которые стремились обойти экономические законы в поисках собственных путей развития, что в результате привело экономику к серьезному упадку. Сегодня все понимают необходимость реформирования экономики на основе рыночных отношений. Попытки реформирования принимаются. Однако это реформирование имеет ряд несоответствий, которые отражаются на функционировании отдельных секторов экономики. Примером таких противоречий может служить положение на фондовом рынке Украины.

Фондовый рынок (рынок ценных бумаг) – это сектор финансового рынка, на котором производится купля-продажа ряда финансовых инструментов (фондовых ценностей). Этот рынок существует уже более двух десятков лет, и все эти годы он находился и находится в каком-то своеобразном призрачном состоянии, что отмечается многими экспертами. С одной стороны, есть все атрибуты фондового рынка (торговцы, регистраторы, биржи и прочая инфраструктура). Но с другой стороны, в Украине мало, кто знает о национальном фондовом рынке и о том, какое влияние оказывает он на повседневную жизнь и экономику. Урон, который был нанесен фондовому рынку при его создании непродуманной ваучерной приватизацией, позволившей небольшой группе олигархов захватить значительную часть производственных, энергетических и инфраструктурных активов, до сих пор дает о себе знать. Рынок ценных бумаг в Украине не выполняет главной своей функции – направление инвестиций в развитие и перераспределение средств между секторами экономики. Для населения отечественный фондовый рынок не стал инструментом сохранения и увеличения пенсионных накоплений, а поэтому не представляет интереса. В результате формального подхода к регулированию рынка ценных бумаг в Украине создан формальный фондовый рынок [7]. О необходимости решения проблем этого рынка большинство его участников и экспертов говорят уже более 20 лет. Все эти годы украинский фондовый рынок выполнял и выполняет какие угодно функции, кроме главной. В связи с этим в 2015 году была создана Национальная комиссия по ценным бумагам и фондовому рынку (НКЦБФР). Серьезные специалисты с западным образованием принялись за восстановление и активную реанимацию рынка ценных бумаг.

Как признает глава НКЦБФР, на отечественном рынке торговалось много ценных бумаг с признаками фиктивности. По результатам операций с такими инструментами формировались фиктивные показатели капитализации. Таким образом, рынок подавал фиктивные сигналы инвесторам и экономике в целом, а фондовые биржи все больше напоминали «группы по интересам», которые помогали рисовать требуемые показатели [5]. Все это свидетельствует о слабой организации и бесконтрольности функционирования этого важного экономического института. По результатам проведенных Комиссией мероприятий удалось существенно снизить долю торгов ценными бумагами, биржевая стоимость которых не корреспондировалась с показателями финансово-хозяйственной деятельности их эмитентов. В перспективе Комиссии предстоит немало работы. Но, чтобы стать регулятором фондового рынка, НКЦБФР необходимо также учитывать влияние факторов, определяющих его состояние и развитие.

Ведущие украинские эксперты называют основными факторами, сдерживающими развитие экономики в целом и фондового рынка, в частности, коррупцию, особенно в судебной системе, и слабый приток иностранных инвестиций.

Наиболее общими и объемными показателями являются:

- ВВП – валовой внутренний продукт;
- инфляция – выражается в росте цен;
- производительность и стоимость ресурсов;

– уровень процентной учетной;
– личные доходы и расходы;
– индекс розничных продаж;
– уровень безработицы;
– заказы на производство;
– индекс национальной ассоциации менеджеров по закупкам – один из любимых американскими трейдерами показателей;
– индекс опережающих индикаторов.

Рынок чаще всего оценивает не само номинальное значение индексов и показателей, а их отношение к ожидаемым уровням, которые заранее устанавливаются на основе оценок и прогнозов, выдвинутых экспертами. Данные, показывающие снижение к предыдущему периоду или имеющие отрицательную величину,– это еще не повод для паники, если именно таких данных ожидает в этот момент рынок. Соответственно, выход данных на уровне ожиданий обеспечивает поддержку существующего на рынке тренда. Значения лучше ожидаемых усиливают восходящий тренд или могут зародить восходящий тренд при его отсутствии на рынке до публикации данных. Выход данных хуже ожидаемых рынком, точно таким же образом толкает рынок в обратную сторону. При этом реакция рынка на выходящие данные часто зависит именно от наличия на рынке того или иного тренда. Данные, спорящие с трендом, часто не замечаются вовсе, хотя, в зависимости от своей значимости, могут и повлиять на дальнейшее движение. Данные же, подтверждающие тренд, служат топливом для дальнейшего движения рынка в том же направлении, но лишь в том случае, когда ожидание информации не было той самой причиной, которая данный тренд и организовала. В противном случае выход столь ожидаемых рынком данных становится для трейдеров сигналом к фиксации прибыли и приводит к началу коррекции [2].

Все рассмотренные факторы, используемые для оценки состояния американского фондового рынка, являются внешними и присущими, главным образом, американской экономике, а также отношениям, сложившимся в американском обществе.

Что касается системы макроэкономических показателей для Украины, то она пока находится в зародышевом состоянии. Кроме ВВП, отслеживаются еженедельные данные о золотовалютных запасах НБУ. Рост этих запасов укрепляет экономическое положение страны, ее кредитоспособность и благоприятно воспринимается рынком. Могут оцениваться также сведения об уровне инфляции и дефиците бюджета. Однако, указанные показатели не дают возможности сколько ни будь надежно оценить состояние фондового рынка Украины. ВВП за последние несколько лет сократилось практически вдвое. Золотовалютные резервы, несмотря на их рост в последнее время, еще не дают оснований для оптимизма, а золотые запасы в них вообще очень скромные (около 5,5% от общих ЗВР). Уровень инфляции в 11–12% также не добавляет оптимизма. Для того, чтобы указанные макропоказатели достигли уровня, который позволил бы с надеждой смотреть на перспективы развития фондового рынка необходимо проводить серьезную работу по устранению пагубного влияния на экономику внешних факторов. Используя американский опыт, безусловно, необходимо учитывать особенности ситуации, сложившейся в украинской экономике. При выборе показателей для оценки состояния украинского рынка ценных бумаг, по нашему мнению, целесообразно, прежде всего, принимать во внимание состояние внешних факторов, которые сдерживают развитие экономики и фондового рынка.

Важным фактором, сдерживающим развитие экономики в целом и фондового рынка, в частности, является коррупция. Что касается борьбы с этим пагубным явлением, то по заявлению директора Национального антикоррупционного бюро Украины (НАБУ) А. Сытника страна стремительно теряет темпы антикоррупционных реформ, так как даже те дела в отношении коррупционеров, которые инициирует НАБУ

блокируются судами. По его мнению необходимо создание независимого Антикоррупционного суда. С трибуны Парламентской ассамблеи Совета Европы Президент Украины пообещал создать в стране Антикоррупционный суд, что находит поддержку в ЕС. Это может вселять надежды на усиление борьбы с коррупцией. Однако уничтожение коррупции в стране, где она является, по утверждению некоторых аналитиков, ментальностью на уровне всего народа, процесс длительный. Так что надеяться на скорые и серьезные положительные перемены в решении этой проблемы пока не приходится.

Иностранные инвестиции, а точнее их слабый поток в Украину, это еще один сдерживающий развитие экономики и фондового рынка фактор. Для многих стран, находившихся в состоянии кризиса, подобного нашему, драйверами роста становились именно иностранные инвестиции. Благодаря им отечественный фондовый рынок рос в 2007–2008 годах. Сейчас зарубежные инвестиционные фонды с опаской смотрят на Украину, предпочитая или выжидать, или выделять деньги на масштабные проекты только под государственные гарантии.

Опрос более чем двадцати представителей крупнейших игроков США (среди них хеджфонды, паевые инвестиционные фонды, компании по управлению активами в private equity), размеры активов которых составляют от 200 млн. до 3 млрд. долл. США, показал, что они отрицательно относятся к вопросу инвестирования Украины. Причины такого ответа (по мере их приоритетности) следующие:

1. Ограничения на операции с валютой.

2. Война на востоке Украины, противостояние с Россией.

3. Отсутствие достоверной информации по макроэкономической и политической ситуации в Украине.

4. Репутация Украины как одной из самых коррумпированных в мире.

5. Отсутствие независимой системы для мониторинга изменения стоимости инвестиций (здесь речь идет о фондовом рынке, в частности, фондовых биржах).

6. Негативный опыт инвестиций в Украину в прошлом.

7. Отсутствие понятной и надежной стратегии "выхода" из инвестиции. Негативные ожидания, что единственным покупателем могут быть те, кто продал эти инвестиции.

8. Отсутствие мандата для инвестирования в частные компании. Могут инвестировать только в публичные компании (ПАО), которые торгуются на официально признанных торговых площадках (фондовых биржах) [8].

Валютные ограничения, которые были введены НБУ еще в 2014 году, внесли серьезные проблемы в процесс развития экономики и фондового рынка. В мае 2017года ряд ограничений, касающихся покупки и обмена валюты были сняты. Однако некоторые остались.

С защитой прав инвесторов также проблема. Иностранному инвестиционному фонду имеет смысл вкладывать средства в крупные объекты, активы которых составляют сотни миллионов, миллиарды долларов. В Украине же таких компаний незначительное количество, и они либо в государственной собственности, либо руках олигархов, которые не спешат расставаться с частью своего бизнеса, а для привлечения дополнительных средств используют кредитование. При этом взятые в предыдущие годы роста цен на товарных рынках валютные кредиты после трехкратного падения курса гривны стали неподъемной ношей для компаний.

Как отмечают ряд экспертов, в акционерных обществах нарушаются права миноритарных акционеров. Особенно часто это происходит при выплате дивидендов. «В тоже время, в мировой практике существует достаточно действенных инструментов для защиты прав миноритариев. «Одним из них является принудительный выкуп

акций или сквиз-аут. Сквиз-аут (от англ. squeeze out – «вытеснение», «выдавливание») – предусмотренная законодательством некоторых стран процедура обязательной продажи акций миноритарных акционеров (без их согласия) крупному акционеру в качестве завершающего этапа приобретения им акций акционерного общества, осуществляемая посредством добровольного или обязательного предложения, в результате которого крупный акционер приобретает доминирующий пакет акций (в Украине 95% уставного капитала). Однако, первая попытка внедрить правило «сквиз-аута» в Украине была неудачной из-за неприятия фондовым сообществом и последующего наложения вето Президента Украины. Сейчас появились надежды, что взгляды на необходимость внедрения этого инструмента у участников национального фондового рынка изменились». Условием повышния эффективности правила «сквиз-аут» может быть т.н. «дружественный выкуп», т.е. выкуп по «справедливой цене», основанный на компромиссе интересов мажоритария и миноритария [1].

Некоторые эксперты утверждают, что возможным локомотивом для роста экономики и фондового рынка мог бы стать рост внутреннего спроса, что, по крайней мере, пока представляется маловероятным.

Еще одна очень существенная проблема отечественного рынка капитала – отсутствие заинтересованности в нем населения страны. Если в развитых странах граждане лично или через свои пенсионные фонды активно вкладывают сбережения в паевые и долговые ценные бумаги, то у нас человек скорее отнесет деньги в банк. Объясняется такое положение дел просто: пенсионная реформа не доведена до ума, к тому же свободных денег у населения нет, а если бы и были, то вкладывать их на фондовом рынке некуда. Сейчас просто не выгодно работать в этой сфере – последние несколько лет отечественный фондовый рынок сокращается, что четко демонстрирует динамика индексов акций Украинской биржи и ПФТС: за последние 5 лет они упали более чем на 70% и продолжают снижение [7].

Экономический и политический кризис последних лет очень больно ударил по многим крупным предприятиям Украины – потенциальным субъектам фондового рынка. Взять, например, ПАО «Кременчугский сталелитейный завод». Это предприятие, снабжавшее почти все украинские вагоностроительные заводы стальным литьем с производственной мощностью 146 тыс. тонн литья в год было остановлено в феврале 2014 года и почти три года не функционировало. Сейчас на заводе восстановлен выпуск литья, но его производство загружено практически менее чем на 10%. Когда-то на предприятии работало более четырех тысяч человек, а сейчас трудится только около тысячи. Такая ситуация типична для большинства машиностроительных и металлургических заводов Украины. А ведь они могли бы формировать значительную часть ВВП и быть полезными и активными участниками фондового рынка. Ситуация, сложившаяся в промышленности, требует немедленного разрешения, так как промедление будет способствовать повышению морального и физического износа основных фондов, который и так чрезмерно велик (более 60%) и ведет к огромным затратам на их восстановление в перспективе. Для оживления украинской машиностроительной и металлургической промышленности, былой гордости экономики, необходимы здравый смысл и политическая воля. Ситуация, сложившаяся в украинской промышленности, привела к тому, что характерной негативной особенностью фондового рынка Украины стал малый объем торгуемых акций вообще и ликвидных акций надежных компаний, в частности. Кризисная ситуация привела к тому, что, и без того, небольшой выбор «голубых фишек» сократился до критического минимума, а индексная корзина фондового рынка включает только 5 компаний. На фондовых рынках стран Европы и Америки присутствие надежных эмитентов превышает эту

величину во многие десятки и даже сотни раз. Это лишний раз подтверждает, с одной стороны, слабость украинского фондового рынка, а с другой, теснейшую зависимость его состояния от экономической ситуации в стране.

Как показывает зарубежная практика, развитие фондового рынка не возможно без развития инновационного процесса в стране. Инновации позволяют существенно повысить показатели производства, что в итоге положительно отражается на капитализации рынка ценных бумаг. Вместе с тем, при рассмотрении проблем формирования инновационной политики на фондовых рынках необходимо учитывать, что одним из важных направлений активизации инновационного процесса многие специалисты считают развитие малого предпринимательства (венчурных малых предприятий, хедж-фондов) в этой сфере. Малые инновационные предприятия в экономически развитых странах активно выступают в качестве связующего звена между наукой и фондовым рынком. Эти предприятия часто берут на себя большую часть риска, когда разрабатывается новая технология, новое оборудование или новый продукт. Эти предприятия в связи с высоким риском их деятельности часто недолговечны, но они выполняют очень важную и полезную работу в инновационном процессе. В Украине малый инновационный бизнес еще не получил должного развития. Но для его функционирования в будущем необходимо соответствующее законодательное обеспечение.

Если взглянуть на наше государство в координатах международных рейтингов, то можно увидеть некую противоречивую картину. Например, по Глобальному инновационному рейтингу, составленному агентством Bloomberg, Украина входит в число 50 стран – лидеров мира по уровню инновационного развития (42-е место по итогам 2016 г.). Самыми сильными сторонами Украины, с точки зрения инновационности, признаются: охват населения высшим образованием (6-е место в мире), патентная активность (17-е место), интенсивность НИОКР (39-е место), технологические возможности промышленности (34-е место) [3]. Такая оценка инновационности Украины свидетельствует о потенциале, который до сих пор не введен в действие. Поэтому не удивительно, что в мировом рейтинге по ВВП на душу населения в 2016 году Украина заняла лишь 131 место из 186 стран. Для того, чтобы задействовать имеющийся интеллектуальный потенциал и технологические возможности промышленности необходимо вкладывать в науку средства соразмерные с задачами инновационного экономического роста. До сих пор ежегодное финансирование науки осуществлялось на уровне 0,2–0,3% от ВВП, что, как показала практика, чрезвычайно мало. Труд ученого в Украине не стал престижным. Многие украинские ученые (особенно молодые) находят работу за границей. Об экономике знаний, на основе которой развиваются все передовые экономики мира, до настоящего времени в Украине в верхних эшелонах власти еще мало кто задумывался.

Вместе с тем, пока инновационный процесс в Украине находится в состоянии заторможенности, мировой инновационный процесс выходит на новый уровень.

Сегодня речь уже идет не только о построении удачной модели взаимодействия интеллектуального и реального секторов экономики, позволяющей результатам научных исследований или конструкторско-изобретательской работы свободно попадать на рынок, превращаясь в новый продукт или технологию. Речь идет о сплошном проникновении инноваций на все уровни и сферы человеческой деятельности, укреплении инновационных связей между разными секторами промышленности, между экономикой и социумом, преобразование любой деятельности в инноватику. Реалистичен ли такой сценарий для Украины? Анализ мирового опыта свидетельствует, что в основе инновационного прыжка большинства стран-лидеров современной экономики лежат

довольно простые и не очень затратные, с точки зрения финансов, решения. Главный фактор успеха – систематичность и непрерывность шагов, направленных на стимулирование инноваций [3]. А это именно то, чего не хватало до сих пор украинскому государству. Для того, чтобы инновационный процесс в Украине стабильно развивался и способствовал активизации рынка ценных бумаг необходима продуманная и целенаправленная государственная политика в сфере образования, науки и производства.

Таким образом, на основании вышеизложенного можно сделать следующие **выводы.**

Состояние фондового рынка в значительной степени определяется внешними факторами влияния. К основным из них относятся:

– политическая и экономическая стабильность в стране;

– ситуация в экономике в целом и в ее отраслях, в частности;

– развитость и эффективность малого инновационного и производственного бизнеса;

– законодательно закрепленная инновационная направленность развития отраслей народного хозяйства;

– уровень жизни основной массы населения;

– эффективная приватизация государственного имущества;

– прямые иностранные инвестиции.

Для обеспечения позитивности и эффективности влияния внешних факторов на состояние и развитие фондового рынка в Украине государству необходимо:

1. Выполнить главную государственную задачу – обеспечить спокойствие в обществе на основе политической и экономической стабильности.

2. С целью усиления борьбы с коррупцией создать в стране независимый Антикоррупционный суд.

3. С целью увеличения количества участников фондового рынка создать условия для восстановления и расширения производства на крупных промышленных предприятиях.

4. Законодательно закрепить приоритетность развития науки и образования как ведущих отраслей экономики, а также стратегию инновационного развития народного хозяйства.

5. Обеспечить условия для развития инновационного и производственного малого бизнеса как основы создания цивилизованной конкурентной среды на рынке и обеспечения повышенного спроса в производстве на эффективные научные разработки.

6. Обеспечить эффективность приватизации за счет доступа к государственной собственности эффективных собственников, при их тщательном отборе, и последующего контроля выполнения предложенных ими эффективных программ развития приватизируемых объектов.

7. Устранить причины, сдерживающие приток прямых иностранных инвестиций в Украину.

8. Стимулировать активный интерес граждан Украины к участию в работе рынка ценных бумаг за счет повышения жизненного уровня основной массы населения в условиях экономического роста.

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