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“Study of current problems and their solutions in the management of Azerbaijan industrial enterprises”

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Abstract

The key aims of research questions are to find out answers attached with empirical evidences to the following questions:

1. What is the definition and essence of the term of “management”?
2. What are the current problems in the management of Azerbaijani industrial enterprises?
3. What are their solutions and how these solutions will be beneficial to industrial enterprises?

The first part of the study is generally about the essence and the definition of management in the industrial entities. Through this, the research has been introduced and routine information has been identified to take the next steps in the research.

The second part of the Study provides detailed information on the five main problems and their importance as a result of the comparison of common problems arising in the management of foreign industrial enterprises with the industrial enterprises in Azerbaijan.

In Chapter 3, there have been comments on ways to solve these problems, about their general removal or elimination of harm that can be caused by that problems.

And in conclusion part, some recommendation about was made for development and economic growth of the industrial enterprises of Azerbaijan.

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INTRODUCTION

After achieving independence and execution of institutional and economic reforms, economy has grown in Azerbaijan. The most essential part in the content of these reforms is the development of industry sectors. As it is fact that Industry is one of the main areas of Azerbaijani economy. It contains petroleum and energy, chemical, agriculture, metallurgy, construction, light industry and others.

Economic sectors of the country, in particular the industrial enterprises, are founded on industrial and socio-economic factors. Baku-Sumgayit, Ganja-Dashkesan, Shirvan-Salyan, Mingachevir-Yevlakh, Geychay-Nakhchyvan, Lankaran-Shaki and Hachmaz are large industrial networks.

According to statistics for 2016 year, generally, the number of acting industrial enterprises were 2561 in Azerbaijan. 573 enterprises are state-owned property, 1988 are non-state-owned, 1733 enterprises are private property, 181 are foreign property and 73 enterprises joint (mixed) are property. Natural resources, qualified personnel, labor resources, their work habits and consumer potential that determine development of Azerbaijan are sufficient in the country. Thus, Azerbaijan became manufacturer of numerous products, which were previously imported from foreign countries. This allowed Azerbaijan to expand the range and availability of products and eliminate the dependence on exportation. The extensive production and export of natural resources gave an impetus to economic growth. The growth of Azerbaijan's economy in 2009, one year of global economic recession, proves that the chosen strategic course is correct. At the same time, directing oil revenues to the non-oil sector has led to an average of 11 per cent growth over the last 10 years.

Regarding to development concept “Azerbaijan-2020: outlook for the future” for further improvement of the non-oil industry's development, the country’s natural and economic resources will be fully and effectively engaged. For acceleration of use of renewables the stimulating measures will be taken, the institutional environment is developed, scientific and technical potential will be strengthened. In addition to the projects financed by the state, private sector will belong to alternative tariffs for energy as well.

Growth of non-oil sector and contemporary manufacture, social and market infrastructure that will meet modern demands will be established and forward-looking management methods will be applied.

In spite of all these, industrial enterprises working with modern methods are currently very few in the country. Even so, most enterprises still operate on the principles of the former Soviet Union working system. Therefore, Azerbaijan can not achieve the development of its own industrial enterprises by only signing a state policy program. The management of industrial enterprises have to be investigated, existing problems idetified and their solutions determined.

Chapter 1. Literature review

1.1. Definition and essence of the term of “management”.

The aim of this chapter is to present the definition and theoretical scope of the management. Management is the administration and organization of the activities of any company, the setting the strategy and coordinating the attempts of its employees to achieve its goals through the usage of accessible resources, such as financial, natural, technological, and human resources.

The word of “manage” comes from the Italic “maneggiare” (especially for managing tools or horses) and from two Latin words manus (hand) and agate (to execute).

Different scholars from different disciplines interpret the term of “management” from their own point of view. The economists consider that the management is the resource such as land, capital and labour. The bureaucrats think about it as a system of authority to accomplish company’s goals. Even some scholars consider “management” subject as a art. Therefore, it is hard to give precise definition to the subject of “management”.

According to the thoughts of Frederick Winslow Taylor (1911) “the management is the art of “knowing what you want to do and then seeing that in the best and cheapest way”. As he was a production engineer, he emphasized on poductivity-oriented aspects of the work. Regarding to his words, managers should maximize use of men, machines, money and materials.

From H.Fayol’s point of view "to manage is to forecast and to plan, to organise, to command, to co-ordinate and to control."

He defined that five functions of management are about solving problems in a creative manner. Because, discovering the problem is often easier than finding a creative solution to that problem. The process begins with organizing an environmental analysis of the organization and it ends with assessing the results of the implemented solution. These five functions are focus on the relationship between human staff and its management. He also distinguished activities of industrial enterprises into six group: technical, commercial, financial, security, accounting and managerial.

Additionally, William Spriegela and Richard (1955) gives definition to management subject like that “Management is that function of an enterprise which concern itself with the direction nad control with the various activities to attain the business objectives. Management is essentially an executive function: it deals particularly with the active direction of the human efforts”. On analysis, main element of this definition is that coordination and controlling have to be on different activities to attain business objectives. They also emphasize to human aspect of organization by the word of “human efforts”.

Peter F. Drucker (1954) identifies “Management is work, and as such it has its own tools, own techniques”. “...management is the organ, the life giving, dynamic, acting organ of the institution it manages”. “Management is the discipline”. “...management is also people”. “...management is practice. Its essence is not knowing but doing”. Within these definitions he defines various facets of the management. He consider management as a practice. Thus, he is concerned with the outcomes.

Investigation of economic literatures exhibits that the discipline of the management is a syntesis of different aproaches. None single definition may put the subject in true clarity. This subject also takes some basic principles from other disiplines such as, economics, statistics, sociology etc. The term of management is still young and requires strong theoretical base.

1.2. Management principles of the industrial enterprises.

It is very necessary for any enterprise management to be efficient and effective. Successful enterprises are the ones that are very efficient. This is result of efficiently-used resouces by company's management, Accordingly, profits of the company are maximized. On the contrary, inefficiency leads to a overuse of the workforce, as well as cost expansion which can cause to creating redundant problems.

Management need to be effective as well. It need to be effective in arranging the solutions to problems that arise with the workforce. If workers are unhappy and work tensions exist in the workplace, productivity may suffer and decrease. So, management need to deal with these problems to provide a favorable work environment to its working staff.

Effective management shows itself with having good relationships with its customers. It is very important for the prosperity of an enterprise.

Another way of having effective management is responding to changes in the economy and in market trends. Organisations could be the most successful ones with dealing most effectively with issues that appear in the economy and within the industry sector in which they exist.

For this purpose, Machiavelli wrote management principles to understand how to make organizations more efficient and effective. The principles that Machiavelli revealed in *Discourses (1531)* can be adjusted to use the management of organizations at present:

- An organization is more stable if their members have the right to express their differences and resolve disputes among them.
- A person may organize an organization, although "it continues when many people are concerned and many are eager to protect it".
- A weak manager can pursue a strong one, but not another powerless one, and keep authority.
- A manager who wants to change a structure must at least keep an ancient history shade.

Henri Fayol also wrote 14 general principles of management that can help current enterprises with managing issues.

Henry Fayol was a French industrialyst and developed a theory of general management applicable equally to all kinds of organisations and all kind of fields whether social, political or business and industry.

Fayol was born in 1841 and gratuated as a mining engineer. He was employed in a large coal and steel combine where he acted as a Chief Executive (General Director) of the combine for about 30 years. During the period, he brought the enterprise from the verge of bankrupcy to a great success. In the year 1916, he published his well-known work in French entitled “Administration Industriette et Generate” (General and Industrial Management).

Fayol identified six activities that he believed had to be accomplished in all industrial organisations. These activities are:

1. *Technical* activities appling to production.
2. *Commercial* activities regarding to purchasing, selling and exchange.
3. *Financial* activities refering optimal usage of capital.
4. *Security* activities that involve safety of the ownership.
5. *Accounting* activities which include final accounts, expenses and statistics.
6. *Managerial* activities which relate to planning, organising, leading, coordinating, controlling, etc.

According to him, the first was outstanding and as such, he focused on the description and explanation of the managerial activities. Therefore, Fayol proposed the following principles of governance:

1. ***Division of work:*** The principle accentuates the significance of specialization at all positions in an industrial enterprises to manufacture more and greater with the same attempt.
2. ***Authority and responsobility:*** These two concepts are connected and responsibility is conclusion of authority.
3. ***Disipline:*** İn principle, it is compliance, application, power, behaviour and outward points of respect performed by workers. Disipline is crucial for prosperity management.
4. ***Unity of command:*** This principle demands that an employee have to accept orders from one superior only.
5. ***Unity of direction:*** Every group of activities with common goals should have one head and one plan. While unity of direction refers with the functioning of stuff at all levels.
6. ***Subordination of individual interest to group interest:*** The interest of the group must dominate over personel interest.
7. ***Remunaration of personnel:*** It should be impartial and provide maximum gratification to both the company and its employees.
8. ***Centralisation:*** Everything, which goes to boost the sifnificance of the subardinate's role is decentralization, and everything that goes to decline it is centralization. Top management should determine the position of the

organization to be dispersed or maintained at a higher level, as the concentration of powers varies according to the needs of the situation.

9. ***Scalar chain:*** It donates course of authority from the highest to the lowest one for the objective of communication. It should be short-circuited and should not be proven to be dangerous to the business In other words, the worker should not hesitate to contact his superior.
10. ***Order:*** This organizational principle is refers to things and humans. There have to be a place for all things and each of them have to be in its selected place. Alike, there have to be an chosen place for each worker and every worker have to be in his selected place.
11. ***Equity:*** Equity is the mixture of benevolence and fair in a manager. He should appeal to the principle of equity while handling with his workers. This will bulid faith and honesty between the workers.
12. ***Stability of tenure of personnel:*** Management should work to minimize employment turnover. High circulation is dangerous to the organization.
13. ***Initiative:*** It concerns to freedom to offer a plan and implement it. Management must accept it to subordinates to take some actions in anticipating plans and implementing them. This will support in increasing emotions and energy on the working stuff.
14. ***Esprit de Corps:*** This principle accentuates the requirement for team-work and the significance of effective communication in getting it.

Another best example of management principles is Toyota's 14 management principles are called "Toyota way". Toyota, the world's biggest automaker enterprise, has a management philosophy based on two pillars – **continous improvement and respect to people.** The term "people" in this sentence mean customers, employers and supply partners. It believes for managing in the long term, facing problems with courage and creativity, continuous improvement and benchmarking with the best in the world. Over long-term by improving product

quality, minimalizing cost and improving human resource, the company achieves greatest value and effectiveness to quality.

I Continuous improvement:

Challenge – We form a long-term vision, meeting challenges with courage and creativity to realize our dreams.

Kaizen – "Continuous improvement". We improve our business operations continuously, always driving for innovation and evolution.

Genchi Genbutsu – "Go and see for yourself". We go to the source to find the facts to make correct decisions, build consensus, and achieve our goal.

II Respect for people:

Respect – We respect others, make attempts to understand each other, take responsibility, and do our best to create mutual trust.

Teamwork – We encourage personal and professional advancement, share the opportunities of progress, and maximize personel and team performance prosperity.

If any industrial organization honestly focused on having the powerful, and progressive business, they have to keep this management philosophy in their mind and they have to know the ***14 principles of Toyota Way*** as well.

1. Maintain a steady decision on long-term philosophy, even if it is not for the sake of financial crises.
2. Stretch the continious process to remove the problem of bumps.
3. Use the "pull" method to prevent the overproduction.
4. Diminish the workload (act as a turtle, not a rabbit).
5. Put the culture out of the way to solve the problem so that you get the best of your time.
6. The standardized tasks and processes - fund for continuous improvement and the obligation of the employee.

7. Use visual control facilities, thus, no problems are hidden.
8. Use only reliable, completely checked technology which serves your people and process.
9. Grow up leaders who completely understand work, live philosophy, and teach it to others.
10. Develop outstanding persons and team who follow philosophy of your company.
11. Respect the expanded network of partners and suppliers, throwing down a challenge to them and helping them to improve.
12. Visit for yourself completely to understand a situation.
13. Make decisions slowly on the general agreement, having completely considered all options; solutions of the tool quickly.
14. Become the organization of studying by means of continued reflection and continuous improvement.

Chapter 2. Methodology

2.1. Approaches to defining enterprise management problems

Problems in the management of industrial enterprises can be classified by various factors, as depending on the size of the entity, in which industry sector they activate, as well as minor shortcomings in the enterprise can create problems in management. To summarize these endless issues, firstly, the main common problems that arose in world-class industrial enterprises was examened. Whether these problems are relevant in Azerbaijan or not, have been studied by applying SWOT analyzes of some of the possible enterprises or simply by asking the experts working in those institutions.

Why S.W.O.T?

The methodology for determining the problems of industrial enterprises raises the issue of choosing the technique in view of which the investigation must be finished. For that purpose, ***SWOT-analysis*** is one of the most common methods, assessing the complex internal and external factors affecting the development of the company. This is an analysis of the strengths and weaknesses of the organization, as well as the opportunities and threats from the external environment. "S" and "W" refer to the state of the company, and "O" and "T" refer to the external environment of the organization.

SWOT analysis is a preliminary research stage in the preparation of strategic plans, the development of strategic goals and the objectives of the company.

Thus, the company strengthens on the strong side, reduces vulnerability, seeks ways to remove threats to the company, develops a stronger, more robust strategy against competitors and tries to maximize opportunities.

The term SWOT was first used by Kenneth Andrews in 1963 at Harvard at a conference on business policy issues.

Through all these studies, problems in the management of Azerbaijani enterprises can be classified as follows:

i. *Lack of Planning* - Whether it's a production area or a service area of industry, plan and planning are very important and critical for them. However, most enterprises in Azerbaijan are either poorly planned or generally unplanned which create many industry problems.

ii. *Lack of Controlling* - Fayol did not say in vain that planning as controlling is also a major function of the management. Because, weakness and lack of controlling creates delays, wasting, and inadequacy in enterprises, which is typical to Azerbaijan.

iii. *Risk management barriers* - The lack of specialist analysts reflects the risk management of industrial enterprises. Most Azerbaijani enterprises, however, only take into consideration their financial risks, while other types of risks exist and their threats should be avoided.

iv. *Manufacturing issues* - There are problems in the production of Azerbaijani enterprises, such as industrial enterprises around the world. In order to find out their cause and to find solutions, the top management of foreign companies should be reviewed.

v. *Technical and database problems* - Since industrial processes are technical processes, it is crucial that they have accurate data that provides their proper activities and technical equipments that meet modern standards.

2.2. Main industrial management problems of Azerbaijan enterprises.

Sustainable growth is one of the main aspects of industrial enterprises and every manager is responsible to increase the effectiveness and efficiency of his own industrial enterprise in order to realize goals of that company. However, it can't be done with the several problems which can occur on the management procedures. These problems could be related to the different parts of the management structure (human management, finance management, marketing management etc.,) and vary within difficulties. But with the help of investigations, we clasified them as "5 Main Management Problems of the Industrial Enterprises".

I. Lack of Planning.

Effective oversight of any enterprises requires a combination of long-term planning and identifies appropriate strategies for efficient resource planning to ensure timely fulfillment of the tasks associated with these strategies. Taking into account the high dynamic environment of many businesses, planning have to be consistent with unexpected events and should closely linked to ensuring responsiveness and flexibility.

İt is the fact that everyone who is responsible for a successful big event knows that without careful, methodological, strategic planning and hard work, success will not be followed. The same thing can be said to most business management successes at industrial enterprises. Because with an error in planning, the company can be faced by failure.

As a result of research by international graded engineer Seymur Ilyasov, there is no planning in many companies in Azerbaijan. Most of the large companies are gradually emerging. However, looking at the world's most powerful companies, General Motors, Mercedes, Toyota, their most important departments are planning. Because they get billions of dollars and the smallest detail there, can be very damaging. The larger the company, the more severe the planning.

What kinds of planning should Azerbaijani industrial companies pay special attention to?

Planning can be formulated by several ways, they can be classified by time-dimension, by functions, by continuity, etc., thus they can be formal/informal plans, expediency or contingency plans and strategy, annual operating or short range-plans. They all have their own various advantages. They are usefull in all

enterprise management activities. Because planning helps to eliminate sudden and haphazard activities, to adjust internal coordination, to facilitate control and to take care of future of enterprise business. Any organization can take overall efficiency owing to the well-organized planning procedures.

Therefore, on one hand, it is important for enterprises, firstly, to have a *business plan*. Many small enterprises fail due to major shortcomings in business planning. The future of any enterprises should be realistic and based on accurate, current information and educated predictions.

On another hand, there are three planning functions which are typical for all areas of management:

1. Production planning.

2. Workforce (cadres) planning.

3. Financial planning.

Material resources for the impletation of the production should be planned so that the money can be delivered to see how is the work and is the workforce adequate. For this reason, planning is essential for performing all three functions. Taking into account the impact of time, planning can be divided into three stages: *a) strategic; b) medium term; v) current (operative).*

Medium-term planning - stems from strategic planning and focuses on its implementation. Intermediate planning can be based on the results of both real work and for comparative combination of norms.

Current planning - is directly related to the execution of the work and should be proportionate to the routine of daily work.

The Strategic Plan - is a long-term planning of the work to be done (strategy - the Latin "maneuverability"). Without this plan, the development and

implementation of medium and current plans will not be possible. It is the basis of the organization and planning of governance.

Figure 1. Strategic Planning Cycle

Strategic planning is a set of previously adopted decisions and ideas that lead to the development of a specific strategy for achieving the goal. Strategic planning is a guiding tool for managing decision-making. His job is to provide the organization with updates and changes at the proper level. More precisely, it includes four main types of managerial activities within the strategic planning process: resource allocation, environmental compliance, internal coordination and organizational-strategic vision.

- Sharing of resources - this process reflects limited resources, such as stock, management, capital, personnel and technological experience.

- Environmental adaptation. This adaptation should be explained in broad terms. Adaptation to the environment should reflect all strategic activities that improve the organization's environmental relations. It is important to take into account

such important factors as prevention of nature and environment pollution, protection of flora and fauna, protection of the health of the population, and other similar factors.

- Internal coordination - coordination of strategic activities to express weaknesses and strengths of the firm in order to achieve effective integration of internal operations.
- Understanding the organizational-strategic vision, the implementation of its regular and dynamic development by managers for the organization and survival of the organization.

II. Lack of Controlling.

The open nature of economies and markets in the world creates a dynamic, competitive environment. Of course, if an industrial entity wants to keep its financial position and maintain its position in this changing market, they must use a variety of new, up-to-date methods and tools to track their economic performance. One of these modern techniques is controlling, which is an effective tool for industrial enterprise management.

The controlling is a supporting system that helps to accomplish the objectives of an industrial enterprise; eliminate unforeseen negative issues and timely inform the possible troublesome situation. This tool for comparison of planned activities with current reality of enterprise.

Obviously, Controlling, as planning, is virtually absent in Azerbaijani industrial enterprises or just starting to be used in some large enterprises and that companies accept Controlling as only formally, though they are inclined to this process in theory, practically there are no measures taken.

Why Controlling Is Important for Azerbaijani Industrial Enterprises?

1. Implementing the Organization's objectives:

The control process is implemented to pay attention to plans. Due to the control, detections are immediately detected and corrective actions are taken. Therefore, the difference between expected outcomes and actual results is minimized. In this way, control is useful for achieving the organization's objectives.

2. Assessing Standards Sensitivity:

The manager can easily compare current work performance with standards while controlling function is used. He understands whether the standards are more or less than the general standard. That standards are redefined if there will be need.

3. Efficient use of resources:

Control ensures that human and physical resources are used effectively. Under supervision, it is ensured that no worker delays his deliberate work. Likewise, all physical sources wastes are checked, too.

4. Increasing employee motivation:

Through the means of controlling, efforts are made to motivate employees. Implementation of controls ensures that all employees are fully functional, as their performance indicators will be evaluated and the identification of the progress report will determine their identity in the organization.

5. Ordering and discipline:

Control provides order and discipline. Through its implementation, all unwanted actions, such as theft, corruption, delays in the workplace, and unobserved attitudes are checked.

6. Facilitate coordination in the event:

To achieve the organization's goals, coordination between all departments in the organization needs to be achieved. All the departments of the organization are interconnected. For example, the supply of orders by the sales department depends on the production of the goods by the production department.

Efforts are being made to find out that production has been carried out in accordance with the commands received through management. If not, the cause of the deviation is determined and corrective actions are initiated, and therefore coordination between the two departments is established.

III. Risk management barriers.

Risk management is the identification, evaluation and prioritization of risks after the agreed and economical use of resources to minimize, control and monitor the probability or impact of unfortunate events or to maximize the capacity. To undertake a Risk Analysis, an industrial entity should first identify the risks that it faces and then assess the likelihood that these threats will be implemented.

Risk Analysis may be complex to obtain comprehensive information, such as company's project plans, financial information, security protocols, marketing predictions, and other relevant information. But it is a means of planning and a means that can be saved from time, money, and influence.

The first and the most important step in risk analysis are to identify the existing and potential threats facing the industrial enterprise. They may come from many various sources such as human, operational, reputational, procedural, project, financial, technical, natural, political, structural etc.

Such tools as *SWOT analysis* and *Failure Mode and Effects Analysis* can help detect threats, while *Scenario Analysis* helps to explore possible future threats.

The reason we take risk management as one of the biggest problems in managing industrial enterprises in Azerbaijan is that businesses do not pay special attention to it. In addition, when interviewing employees from various industrial enterprises, it is possible to see that the industrial enterprises in Azerbaijan attach only great importance to *financial risks*. However, there can be also *compliance risks* which are associated with the need to comply with laws and regulations, *operational risks* which associated with company's activity and administrational procedures and *strategic risks* those associated with risk arising from mergers, from changes in industries, in demand and in customers, from research and development. Other risks include:

- environmental risks, including natural disasters,
- employee risk management, such as maintaining
- sufficient staff numbers and cover, employee
- safety and up-to-date skills,
- political and economic instability in any foreign
- markets you export goods to,
- health and safety risks,
- commercial risks, including the failure of key
- suppliers or customers

Research on SOCAR and SWOT analysis on it are a useful tool for better understanding of this situation. According the consolidated financial statements

in accordance with International Financial Reporting Standards of SOCAR, there are a number of information and prevention techniques to manage financial risks, however about other types of risks there is no any information. Risks can arise from environmental issues, natural disasters as well as from health and safety of the employees. SWOT analyses of SOCAR shows that the company did not pay attention another risks as much as its financial risks, because the big weakness of the company is that the company remains from other companies for technical equipment and employee safety. The terrible fire that took place on December 4, 2015, as a result of an outbreak of one of the devices due to the severe weather condition, was a clear example of this.

STRENGHTS

- SOCAR plays a major role in the country's economy
- SOCAR is also a minority shareholder and representative of the state in large international oil exploration and oil exploration projects in the Azeri-Chirag-Gunashli (ACG) and Shah Deniz fields (11.6461 percent and 10 percent, respectively).
- The number of employees of the company is about 70,000 people

WEAKNESSES

- Remaining from other companies (BP, etc.) for technical equipment and employee safety

OPPORTUNITIES

- SOCAR signs 26 agreements on joint development of oil and gas fields in Azerbaijan with over 30 companies from more than 20 countries
- SOCAR and BP, Lukoil, NIO, Statoil, TPAO, TOTAL have signed an Agreement on the Exploration, Development and Production Sharing of the

Shah Deniz Exploration Area located in the Azerbaijani sector of the Caspian Sea, one of the world's largest gas and gas condensate fields

THREATS

- The lack of alternative energy investments complicates competition with competitors in the market
- The drop in oil prices in the world market
- Credit rating service kept the long-term credit rating of SOCAR in foreign and local currency at "BB +" level. The rating is "Negative"

SWOT ANALISYS OF SOCAR (2016).

Generally, any industrial company has to understand its risk value to deal with any type of risks. Once enterprise has identified the threats that an enterprise faces, the company should also consider the probability of these threats and their possible effects.

One way of doing this is to evaluate the probability of an event as well as then to sum it up with the amount of money that can be spend when company will do it. It gives a value for the risk:

Risk Price = Event Probability x Event Costs

As a simple example, imagine that there is a considerable risk of leakage.

Let's assume that next year it could be 80 percent of the event because the owner recently increased rental rates for another business. If this happens, next year current business will cost an additional $ 500,000.

Therefore, the risk value of the rent increase:

0.80 (Event probability) x $ 500,000 (event value) = $ 400,000 (Risk Value)

Risk assessment / probability scales can also be used for risk assessment. This will help company identify the risks that need to be addressed.

IV. Manufacturing issues.

Comparing the Statistical Indicators of Azerbaijan's Industrial Production Index for the country over the past 6 years, it is clear that production growth is very weak. By examining the reasons for the fact that the production of other countries is more than ours, one can conclude that industrial enterprises of other countries are constantly optimizing production processes. Although, they carry out a technique called lean production. Nevertheless, Azerbaijan is just acquainted with this technique there are no companies that apply this technique. Whereas, one of the company's 3 major pillars, the most cost-effective area is undoubtedly operations / production.

Years	Total industry	of which:			
		mining industry	manufacturing industry	electricity, gas and steam production, distribution of supply	water supply; wastes treatment and disposal
2010	104	278	47	89	59
2011	99	255	50	96	66
2012	96	244	53	107	67
2013	98	246	56	111	75
2014	97	240	57	117	81
2015	99.6	245.2	61.1	116.9	81.9
2016	99.1	243.5	61.7	116.3	81.3

Table 1. Indexes of industrial production, in percentage

Each industry enterprises, especially those operating in the production line, aims to increase productivity by balancing the production line and thus to ensure the development of the production facility. Nevertheless, industrial enterprises face problems with the analysis and optimization of all processes leading to their manufacturing, and thus often have difficulty with increasing productivity and profit.

Another big problem affected to the production line is production wastes which is known as “TIMWOOD”. The simple description of the wastes is as “Something which adds no value”.

"TIMWOOD" stands for:

- *Transport*
- *Inventory*
- *Motion*
- *Waiting*
- *Over-processing*
- *Overproduction*
- *Defects*

Identifying these wastes helps to reduce enterprise’s unnecessary costs, increase financial gains and customer satisfaction.

- ***Transportation***

Transportation waste refers to product movement between processes. This usually involves using a forklift truck or less similar equipment to maneuver products around the plant. The situation usually causes overproduction and ineffective building layouts.

Factories are typically set in a traditional style where certain processes take place in different areas. For example, all moldings are made in one area and all work is done in another. This creates a need for transporting a product over potential long, unnecessary distances.

- ***Inventory***

Inventory contains finished products and everything that company needs and takes up place and cost money to company. One of the lean manufacturing principles is "just in time", which is based on the production that implements just according to customer wants. Failure to comply with these principles is the result of overproduction and accumulated inventory.

Inventory is created by extraction and is the worst of all seven waste. Seeing an unnecessary product lying around, it is an indication that the production process does not have a continuous flow.

- ***Motion***

The traverse of movement is related to movement in the process, or moves through the process of transport. You see that when you look at a worker and see how often they will run out of the way, rebuild their project or build a gymnastic maneuver to make it to your business.

You can also watch your computer while you are watching for a decade or two seconds before you start to get the product and start your own functionality. Namely, we have to make good products and equipment in the easy and convenient way to prevent the stress and drowsiness.

- ***Waiting***

Waiting consists of any leisure that occurs when two interconnected processes are not fully synchronized. This may include machines, products, people, and information that forces them to wait or work for their ineffective operation. When we wait for various reasons, we spend a lot of time:

Previous operations are running longer than expected
Unsolicited deficiencies
Unreliable people and machines
Poor human / machine coordination
Instead of fulfilling one product, there is a need for a party
It takes time to re-run the product

- ***Overproduction***

Two types of global production:

- Take something before you can
- It produces many products that produce many products and products

The three main reasons we produce many products are:

1. We always hoped that customers would buy it. Ideally, you produce a product based on a precise analysis or forecast, but this is not always the case. Large parties may arise from time to time to build and operate machines. We have to test the amount of time machines to minimize the relative time taken to build them.
2. We should not rely on our suppliers and other internal processes. The extra part goes wrong and gives us comfort when the product can not be manufactured.
3. Our production processes are uneven. One process can be faster or slower than the other, so inventory is established. Instead of slowing down or speeding up others, we're producing faster we can corrupt.

The additional inventory you need is stored and transported, and the company's money and spending should be stopped. Generally, reproduction is one of the worst types of waste because it leads to other waste and needs improvement.

- ***Over-Processing***

Generally, overtime is more time consuming and productive than customer desires. Some examples of this are invisible drawing areas, creating intense tolerances, and cleaning a product that is not needed.

The designer, in turn, asked for a high-tech machine to achieve, how many engineering descriptions did you see that there was a very high degree of tolerance? In fact, the product can be made cheaper and broader tolerant.

- ***Defects***

When many people go into waste, they only think about the defects, but only make up only a fraction of the seven wastes. Unfortunately, the flaws are more costly than you think it might be. The defect causes the product / service to be reworked, filling out reports, and meeting problem-solving sessions. You need to spend and spend more time and energy not just the time and energy you spend on the party, but also the changes. Defective costs are normally described as iceberg. The main costs are hidden beneath the surface and most calculations place the real value of a defect at ten times the original price!

V. Technical and database issues.

Indicator	Azerbaijan	Europe & Central Asia	All Countries [2]
Percent of firms using technology licensed from foreign companies*	24.1	17.5	14.6
Percent of firms having their own Web site	33.0	62.2	44.4
Percent of firms using e-mail to interact with clients/suppliers	64.5	84.7	71.7
Percent of firms that introduced a new product/service	1.4	27.0	36.7
Percent of firms whose new product/service is also new to the main market	84.5	67.1	65.6
Percent of firms that introduced a process innovation	12.0	22.8	33.9
Percent of firms that spend on R&D	0	10.0	16.0

Table 2. Enterprise Surveys- Azerbaijan 2013 (http://www.enterprisesurveys.org), The World Bank.

For many years, Azerbaijan has taken steps towards modernity in every aspect of business, enterprises use innovative and high technologies, and promotes information technology. But from the enterprise surveys taken by World Bank can be easily seen that, efforts made by Azerbaijan is not enough, It is considered as still behind other countries due to many factors. These factors are:

NETWORK SAFETY / DATA SECURITY

Generally, Network Security is not a big problem for big companies. However, actually, each firm is in danger of cracking. In fact, small businesses are exposed to more risk because most of them do not even have security policies.

What Is Enterprise Data?

Enterprise data is the information shared by workers of an enterprise, of departments from different geographical areas. Loss of enterprise data can cause

in essential financial losses to all parties. The key asset element is that enterprise data is divided into internal and external information categories, classified regarding to organizational processes, resources, and / or standards. There is no clear standard for identifying enterprise information from small or medium size businesses. However, once an organization has come to the point where there are many operational units in different locations, its needs are much more complicated than one job with a single IT department.

The features of enterprise information include:

• Integration: Provides a serial consistent version of enterprise information to share throughout an organization

• Millenium Enhancement, Inequality and Mistakes: The overpopulation and inequality of information should be minimized as business information is shared by all users of an organization. Data modeling and management strategies are focused on these requirements.

• Quality: To ensure the quality of the data provided, enterprise information should comply with organizational or other defined standards for various internal and external information components.

• Scalability: Data should be scalable, flexible, and robust to meet the needs of different businesses.

• Security: Enterprise information should be provided by competent and controlled means.

TOO MUCH PAPER

The work of many businesses is still on paper. This also causes the information to be late or lost. Since industrial enterprises are the most engaged in information transmission, it is necessary to fully address this problem. Businesses need to take this issue seriously if they want to work on information rather than seeking information from employees.

NO IT PLAN

Enterprises especially industrial enterprises don't plan out the strategy for Information Technology. Mostly, manager spends more time to research personal benefits rather than they took to research software critical to running their business. Information technology could be a power supplier for their business – saving money, making your employees more productive and energetic, and helping to attract more businesses. Information technology is not a kind of business plan. However, it supports a business plan. Enterprises need to identify the IT infrastructure that will support its business today and can help to forecast for the future at the same time.

HARDWARE & SOFTWARE ISSUE:

Most businesses do not take into consideration the working cycle of the techniques and technologies they use and thus face many problems. Machine tools are depreciated as they are used and the working capacity may be weakened. Adjacent PCs need repair over time. All this leads to excess costs, loss of business, demotivation of employees, less sales, and other possible losses.

Chapter 3. Problem-solving methods.

The above chapters highlighted the major problems and their importance in the industrial enterprises of Azerbaijan. But was it possible to solve these problems? Are there any ways to solve them?... Answers to some of the questions listed in this chapter. However, in the first part of chapter about the general analysis and techniques for the solution of problems in industrial enterprises were mentioned. These are the Ishikawa diagram, the Short Facts Method, and the trade-off analysis that identify the root cause of the problem and help businesses find alternative solutions.

As mentioned in methodology there are problems which need to be dealed with problem-solving methods. To find the solution for problem firstly, there is need to understand what causes it. The best way for deeper study of the problem and the root cause of that problem is **fishbone diagram**. It performs a *cause and effect analysis* which helps to solution of the problem as well. This technique is also called **Ishikawa diagram,** these names can be used interchangable.

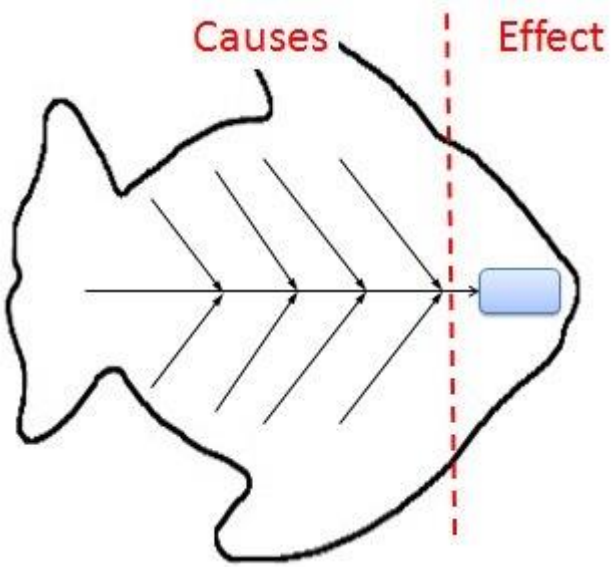

Diagram 1. Ishikawa Fish Bone

The shape of diagram looks like a fish, that is from where comes its name.

The first stage in any problem-solving precedure is to identify the issue. The problem should be properly identified and anyone should be agreed on it. After the problem statement will be ready, the problem has to be typed in the box on the right side of the diagram.

After placing the problem in the diagram, the main causes should be written on the left side and associated with the "backbone" of the chart. Causes can differ for the activities of the enterprises. Then, you need to find the causes of the problem through the brainstorming, which is the most effort demanding part of

the process. After preparing the list of results, they should be placed in the appropriate diagram.

Ideally, each reason should be placed in only one category. However, some of the "People" can belong to more than one category. For example, “Lack of experience” may be a legitimate reason for ignorance of Machines, as well as ignorance about a particular Method.

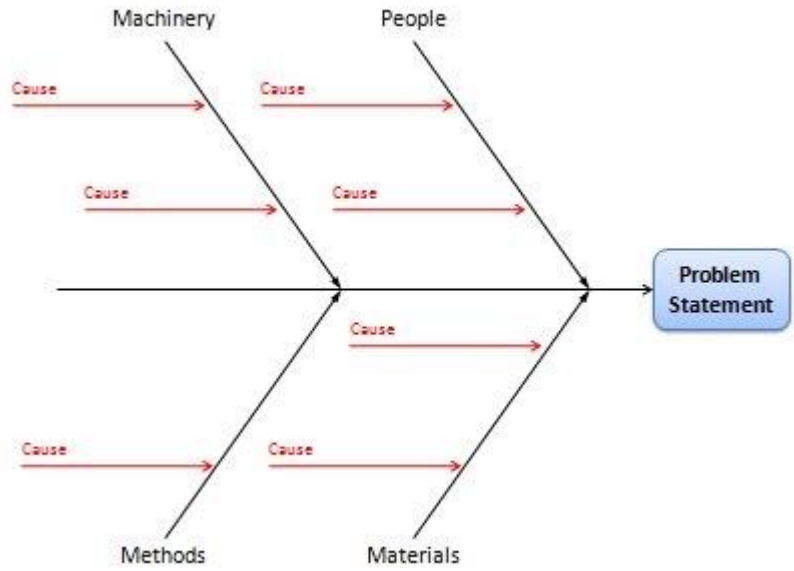

Diagram 2. Ishikawa - Categorize Causes

The root causes of the problem can be determined in several ways ...

- By searching for obvious repeatedly causes
- By using Group Consensus Methods
- By selection the frequency of the process

Another problem-solving problem method is **Short Facts Method**.

This method is implemented by managers and supervisors of the company according to the theory of Frederick Taylor. The short facts method begins with a case with no more four paragraghs where a problem is specified. Then, the work is analyzed by the working group and enterprise managers, after finding

the key facts, the group is beginning to debate the possible solutions. At the end of a brainstorm, they choose the best solution that can be applied to their company. The main reason for using this method is that all employees and managers based on the company can have more insight into how to handle the problem and find out more about how employees can change their behavior.

If enterprise come up with several ideas that can deal with the problem, best problem-solving method is a simple ***trade-off analysis***. To conduct tradd-off analysis, managers have to determine the critical criteria for the problem that can be used to evaluate how each solution is evaluated relative to each other. Evaluation can be done with a simple matrix. Solution gained highest points will be the best solution for this problem.

3.1. Solutions to 5 main problems of management of Azerbaijani Industrial Enterprises.

How to improve Planning in Azerbaijani Industrial Enterprises?

I. Engagement.

Planning is a process, but not an event. A key element of process is attraction of all levels of personnel of all organization. Interaction with personnel creates an additional contribution and helps to realize the commitment to the final plan. It is extremely important to involve employees in planning of strategy and activity of the organization. The entrance of employees will provide understanding of problems and opportunities which, perhaps, haven't been known or completely understood. The team of the senior management won't carry out strategy - employees will be, thus contribution of all work force in that process is important.

II. Communication

Processes of planning are successful when using approach "from below up" and "from top to down". He begins with the message everything to the employees informing them that planning process will be carried out. It includes as they will participate in this process. This message from below up. Employees will make a contribution to process of planning by means of polls of feedback, focus groups, meetings, etc. Concerning the ideas for the organizational management, etc.

İt is followed by infromation from top to down of work structure. The senior management will distribute the plan with workers. They will tell all employees as their participation will help to provide success in realization of these strategy.

III. İnnovation

Some plans include the strategy for development of a new product or providing new service or restructuring of department, etc. They unite groups of people for work on these large initiatives and provide them investment money for ensuring success. However, over time becomes obvious that this team doesn't realize the strategic objective provided to them and strategy will be considered as a failure. It isn't right, that is not a failure of performance. That is lack of innovative process for management of strategy which has led to a failure. Thus, Many organizations speak to the employees to be more innovative. They create strategy for new products and services. there is a set of examples of the organizations which have the strategy of innovations, and it helps to stimulate their new strategy of granting products and services. Apple, Google, Zodiac and BMW are examples of them.

IV. Culture

"There is a failure to understand the culture of the organization as well as a failure to develop values and culture to support the plans."

Strategic Planning Failure – Mark Mendenhall, Encyclopedia of Business

Organizational culture is the standard work relations, values, beliefs and behavior of the employees. The culture of the organization is so unique and various, as well as identity of the personality. If the staff of the organization considers that change is what should be been afraid and avoid, then realization change often happens jet and casual. If employees consider that all changes have to be aggressively realized "from above", then change is seldom supported. However, if the staff of the organization considers that change costs also responsibility of everyone; that change and growth happen to relative ease. These are several "excellent" organizations which continue to succeed in the branch.

That have to be followed by the information from top to down. The senior management will distribute the plan with workers. They will tell all employees as their participation will help to provide success in realization of these strategy.

How can control problems be avoided?

In the majority of situations managers can avoid some problems of management, without allowing an opportunity for the wrong behavior. One of opportunities - automation. Computers and other automation equipment reduce impact of the organization on problems of management because they can be ready for performance properly (that is at the request of the organization), and they will work more consistently, than people. Therefore, control improves.

Other possibility of avoiding is centralization, for example, what happens to very critical decisions at the majority of levels of the organization. If the manager makes all decisions in certain areas, these areas stop being problems of management in administrative sense because other persons aren't involved.

The third possibility of avoiding is division of risks with external body, such as insurance company. Many companies connect employees with sensitive positions and by that reduce probability that the behavior of employees will do serious harm to firm.

At last, some problems of management it is possible and it is necessary to avoid by full removal of business or operation. Out-of-pocket managers of control over certain kinds of activity, it is possible because they badly understand processes, managements can fix the problems connected with it, having turned the potential profit and the related risk for the third party, for example, by a subcontract or deprivation.

If the management can't or doesn't want to avoid the problems of management caused by use of other persons, they have to solve problems, applying one or several tactics of management. A large number of tactics which are available to achievement of good control can be classified with advantage by three main categories according to subject to control; that is, whether control over specific actions, results or personnel is exercised.

How to mitigate risks of the management procedures of Azerbaijan industrial enterprises?

Since risk management is also applied as a separate science, the best way for every industrial enterprise will be to reduce or eliminate the risk by bringing

analysts to the company. However, according to the study, it is only possible to show what methods should be used to avoid them.

After the risk has been identified and estimated, the team of the project develops the plan of mitigation of risks which represents the plan for decrease in influence of an unexpected event. The team of the project softens risks in various ways:

- *Elimination of risks*
- *Exchange of risks*
- *Reduction of risks*
- *Transfer of risk*

Each of these methods of mitigation can be the effective instrument of reduction of individual risks and a profile of risk of the project. In respect of decrease in risks approach to decrease in risk for each identified event of risk and action which the team of project management will take for decrease or elimination of risk is considered.

Elimination of risks is usually connected with development of alternative strategy which has higher probability of success, but usually with higher cost connected with performance of a design task. The general method of avoiding of risks is use of the checked and existing technologies, but not acceptance of new methods even if new methods can show big productivity or lower expenses. The team of the project can choose the supplier with the checked reputation over the new supplier who provides considerable price incentives to avoid risk of work with the new supplier. The team of the project which demands testing for drugs for members of the team practices prevention of risk, avoiding damage caused by someone under the influence of drugs.

Distribution of risks assumes partnership with others to divide responsibility for risky actions. Many organizations which work on the international projects will reduce types of the risks connected with the political, legal, labor and other risks connected with the international projects, way of development of joint venture with the company located in this country. Partnership with other company is favorable to sharing of the risk connected with a part of the project when other company has experience and experience which the team of the project doesn't have. If the event of risk takes place, the partner company absorbs some or all negative consequences of an event. The company will also get some profit or benefit on the successful project.

Decrease in risks are investments of means for decrease in risk for the project. In the international projects of the company often buy a guarantee of an exchange rate for decrease in the risk connected with fluctuations of an exchange rate. The project manager can employ the expert for consideration of technical plans or the estimate of expenses on the project to increase trust to this plan and to reduce risk of the project. Appointment of highly skilled personnel on projects for risk management is a one more method of decrease in risk. The experts operating high-risk activity can often predict problems and find solutions which prevent activity to exert negative impact on the project. Some companies reduce risk, forbidding key heads or technical specialists to go by one plane.

Transfer of risk is a method of decrease in risk which transfers risk from the project to other party. Purchase of insurance in certain objects is method of transfer of risk. The risk is transferred from the project to insurance company. The construction project in the Caribbean Region can acquire insurance upon hurricanes which would cover the cost of the hurricane causing damage to the building site. Insurance purchase usually is in the areas which are out of control of design group. Weather, political disorders and strikes of work are examples of

events which can significantly influence the project and which are out of control of design group.

How to deal with manufacturing problems at the industrial enterprises?

First of all, it is have to be mentioned that application of lean principals before removal of each of the wastes may be favorable for every industrial enterprises. Because the enterprise may not be able to deal with the problem of waste, if the lean principle will be organised there. But there are still ways to overcome them.

Solution for transportation issues:

- Placement of processes as is possible closer
- Improvement of a production way
- Existence of several places of storage
- Not to create the long or difficult systems of processing of materials

Solution for extend inventory:

- Adjusting production
- Working with the smaller sizes of party
- Reducing switching time
- Ensuring that workers observed procedures

Motion Reduction methods

- Improvement of configuration of workstations for prevention of excessive walking, a bend or achievement
- The organization of the methods allowing particles to pass smoothly from one to another
- Revision of structure of a workplace to provide smaller reorientation of materials
- Reduction of the sizes of party

Eliminating Waiting waste can be made by:

-Balancing of productions with use of Tact Time and Yamazumi will help to trace time.

-Increasing in reliability and quality of the car with use of Total Productive Maintenance (TPM) and tools of quality.

-Reduction of overflow and stock for minimization of transport and movement between cells and in them.

Reduction overproduction by:

- Work with the smaller sizes of party
- Creation of more reliable processes
- Establishment of stable schedules
- The balancing cells or departments

Eliminate over-production by:

- Standardization of the best methods for employees
- Installation of accurate specifications and standards of the acceptability of quality

To reduce defects by:

- To organize adequate preparation for professional development of employees
- Improvement of processes
- To reduce a mistake of the operator
- To lower an excess stock
- Improvement of transport plans

Yamazumi chart can be used for Waste disposal and as well as for Line Balancing activities. It sometimes called Takt Time bar chart. Process steps can be re-organized to optimize and balance the target process. In order to deal with

these problems, an enterprise must manage the production line by a systematic approaches. One of these approaches is line balancing technique. The overall objective of balancing the assembly line is to minimize the number of work stations for a given period and to minimize the number of operating hours. It made by help of Yamazumi table, a stacked bar chart showing the source of the loop time in a given period. Diagram is used to represent the graph of processes for optimization purposes. The process takts is highlighted separately in the chart. Therefore, this chart can rebalance a procedure when takts change fastly.

The axes of the chart are:

- y-axis shows cycle time.
- x-axis shows each process step.

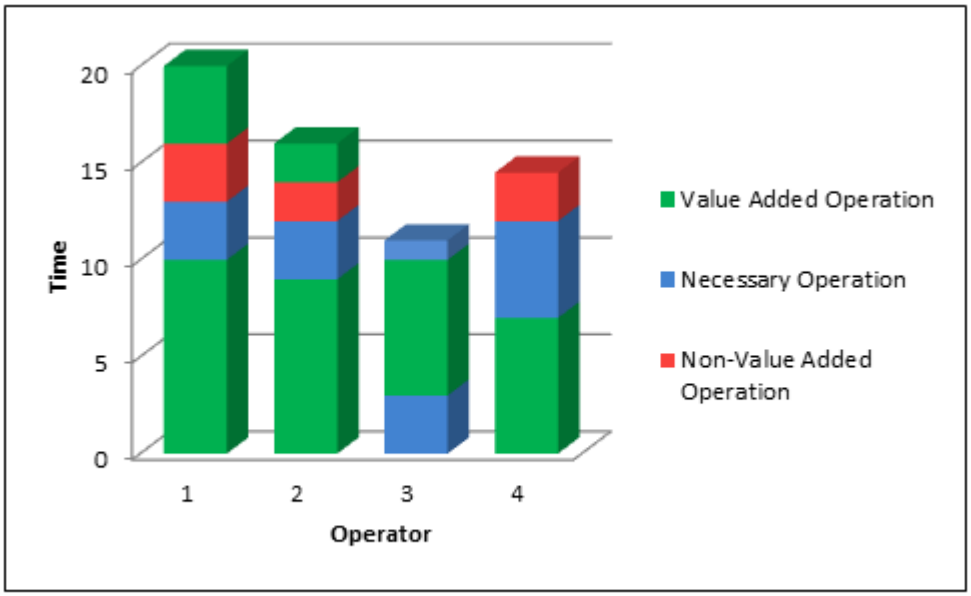

Figure 2. Yamazumi bar chart

How can be handled technical and database problems in the management of Azerbaijani industrial enterprises?

Taking these steps to solve the latter problem will lead to the development of each enterprise.

- the introduction of the enterprise's IT plan and implementation of the system,

- involvement of professionals in the business,
- Creating an affordable netvork system for transmitting paper stock to an electronic version and conveniently transferring them to enterprise employees when needed
- Provide necessary technical safeguards

4. Recommendations and Conclusion.

All type of Businesses exist first of all for earning money, if it doesn't gain money, company can't pay salary, overhead costs and finally fails. Even the charitable organizations can earn money for the business. The traditional view of profit is where we base our profit;

Sale price = Profit + Expenses

However, as approves Taicii Ohno, one of the chief architects of the Toyota Production system; if the client sees that our product or service have a certain value, they will pay only respectively. If company raise its prices because of its own benefit, in that case, clients will cease to buy as much as possible. Therefore Taichii Ohno and Toyota look at profit and expenses as follows;

Profit = Sale price – Expenses

The price of sale is a perceived value mark that payed by customers. Therefore, profit of company wiil bee depend on reduction the costs of good. Thus, the purpose of Lean and Toyota Production System is receiving profit, but not price manipulation.

Currently, Azerbaijani competitive industry index is ranked 104 from 148 according to statistics of UNIDO (United Nations Industrial Development Organization, 2017). However, first 3 ranked countries are Germany, Japan and USA. So if Azerbaijan starts to take steps to solve all of the above mentioned issues, it will take a great step forward. Because enterprises that carry out the

aforementioned have always been in the most reputable places in the world. For example, most of Japanese companies are always leading companies. This can be illustrated by the example of Toyota. Based on the company's management principles, they produce a high-quality machine just for 35 seconds. Some other methodological tools for the development of industrial enterprises are as follow:

The Diagnostic Method of the Enterprise is a management theory developed based on the development of new ways in which firms can change without foreign aid based on Frederick Winslow Taylor's principles. Some methods lead to the superiority of managers' ability to work without damaging enterprise development. These methods can be used in many ways, without any time and training expense. This method can be applied almost to all enterprises.

Business Process Reengineering (BPR) plans to reduce enterprise costs and reduce recycling, but this is done on a larger scale, unlike other process management methods. Business Process Reconstruction (BPR), which is known as the redesign of the key process, removal of inefficient management layers and redistribution processes. Many companies such as Ford Motors, GTE, and Bell Atlantic have been testing BPR in the 1990s to change their operations. The reconstruction process made them a significant difference, dramatically reduced costs, and more effective against increasing competition.

According to World Bank's 390 surveyed businesses, small-scale firms in Azerbaijan are higher than middle and large companies. In Azerbaijan, all the above problems are mostly found in smaller firms. This can hamper the development of the Azerbaijani industry. In addition, most industrial enterprises are concentrated in the Baki-Absheron economic region, and most are manufacturing-oriented industrial enterprises. This is an indicator of the

inefficient utilization of resources within the country and high transportation costs between the raw material and the final product.

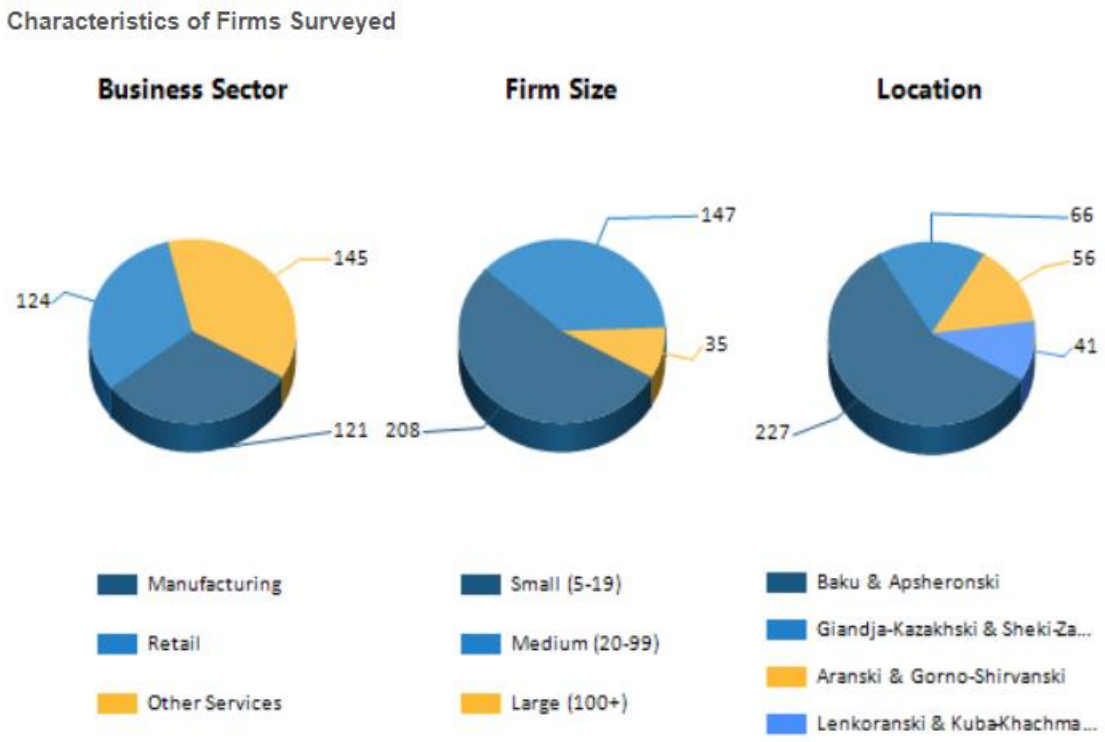

Figure 3. Characteristics of firms Surveyed - 2013 (Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank)

The establishment of all above mentioned steps will stimulate to ensure the sustainable development of the non-oil sector of Azerbaijan, create a favorable environment for the development of competitive industrial production and to be ranked on the first top countries. Additionally, GDP of Azerbaijan will grow, industrial products will be exported to with brands “Made in Azerbaijan”, and unemployment of population of Azerbaijan will decline in the industry.

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