

FINAL REPORT

SUCCESS FACTORS OF COMPANIES THAT SURVIVE THE
DEEP ECONOMIC CRISIS IN ARMENIA

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1. Executive Summary.

Project Objectives

Since the end of the 80's, Armenia has been falling into a deeper and deeper economic crisis. The reasons are many and include: the disrupted traditional economic ties with the republics of former USSR, the blockade imposed by Azerbaijan, the war in Karabakh and the energy crisis. This situation is aggravated by the absence (or delay) of appropriate laws for regulating business activities. More and more companies are reducing their operations or temporarily closing down, being unable to cope with all the problems. However, despite this overwhelming decline, some companies not only survive, but even succeed. Obviously, these companies have managed to find some solutions to overcome the economic crisis. It could either be the change in their strategies (financial, organizational, marketing, etc.), sources of raw material supply, markets, or all of these.

The goal of this project was to spot such successful companies among manufacturing businesses (both from the state and private sectors), to identify and explore the sources of their success, and develop the set of recommendations to be used by interested organizations, both for scientific and business purposes.

In order to achieve the project's objectives, the following steps have been undertaken:

- Identify the most successful Armenian manufacturing companies.
- Investigate these companies' activities and explore the ways and means by which they managed to solve the problems resulting from the blockade and the energy crisis.
- Analyze and summarize the variety of ways by which these companies solved the similar problems.
- Elaborate the set of recommendations to be used by interested organizations (potential investors, government agencies, manufacturing companies, entrepreneurs, etc.).

In the process of performing the project different methods were used such as: tours, interviews (personal and/or written questionnaire), development of new ratios that reflect the critical aspects of business for Armenia, correlation analysis, graphical representation of relations between different variables.

Findings

1. The current business environment in Armenia is not favorable to running a business. The taxation policy chosen by the government creates insurmountable barriers for the businesses. Those businessmen who run their own businesses hide their profits to be able to survive. The inflation rate is 1,000% per year, which is a serious obstacle for the businesses. This problem is aggravated by an unstable rate of the domestic currency (ruble) compared with the inflation rate.
2. The successful company in Armenia is defined as a company that satisfies two requirements:
 - a) Satisfies its employees' needs;
 - b) Satisfies the owner's requirements.
3. Not all the investigated companies appeared to be successful. It primarily relates to the state-owned companies. According to the rating of the ten companies, conducted by the team members, the state-owned companies got 5.08, whereas the private companies got 7.94 (using a 10 degree scale).
4. In order to survive the inflation and the taxation, the company must sell all its products by the end of year (assuming all costs are paid at the beginning of the year) for almost twenty times more than the costs were. Accounting for inflation rate, we estimate that with the current tax policy, the company's rate of return must be 100% (sales are twice more than the total costs).
5. The main success factors in Armenia are found to be:

1. **Exceptional ability of the top management to operate in the current situation.**
2. **Low level of dependency on raw materials**
3. **Low level of dependency on energy.**
4. **Low level of dependency on requirements to the technology used.**
5. **Uniqueness (demand) of the production in CIS (abroad).**

Recommendations

1. It is highly recommended to the new entrants to establish their businesses in those industries, that do not require a great deal energy and do not greatly depend on raw materials that need to be imported. Since the Socialism Era, Armenia has been a scientific and cultural center, so, there is highly qualified work force in Armenia which might be beneficially used. Therefore, new entrants would have more of a chance to succeed if their businesses were in such areas as construction, computer software development, computer hardware assembling, production of high-tech electronic medical equipment, architect design, high-tech research and development, etc.
2. The government should revise its taxation policy. The taxes must be brought down at least to the US tax rate. As the experience of some developed countries shows, by decreasing taxes the amount of collected taxes increases. As was mentioned, hiding profits has become chronic in Armenia; the state has a stated budget deficit of 10 billion rubles, so the recommended approach would improve this situation.

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2. Introduction.

2.1. Background

Since the declaration of the independence of Armenia and the collapse of the Soviet Union, the tendency of decline in the economy of Armenia (started at the end of the 80's) turned into a deeper and deeper economic crisis. The main reasons were both internal and external.

Among the external factors which brought the new-born republic into a crisis situation were:

- the break of long existing economic ties with the republics of the former USSR;
- the war in Karabakh, and as a result of it, the blockade imposed by Azerbaijan;
- the civil war in Georgia, which cut the railway through Abchasia;
- the difficulties caused by the transition from a fully centralized economy to a free market.

The negative internal factors, aggravating the situation were:

- the landlocked geographical position of Armenia;
- the scarcity of energy sources, aggravated by the closure of the Medzamor atomic power station in 1990 for political reasons;
- the lack of appropriate laws regulating business activities;
- the mistakes of the government (e.g. delaying the denationalization of the large and medium scale industries, taxation policy, etc.).

According to the data obtained by the team from the Central Statistical Department of Armenia [1], the economic situation is as follows: GNP in 1991 fell by 9% from the 1990 level, and fell a further 42% by 1992. The budget deficit in 1992 was over 10 billion rubles, nearly twice as large as total revenues.

With the economy in such grave conditions, more and more enterprises fail, being unable to handle all the problems. Although these companies formally still exist, they have to close down for the entire winter season, reducing the staff or forcing them to take leaves. Unfortunately, each ministry or company tries to solve its problems alone, in its original way, which is not always the best one.

However, there are some companies that not only survive, but even manage to make a profit. Unfortunately, there is not a corresponding agency that could explore and generalize the positive experiences accumulated by different successful companies, develop a set of recommendations for situations similar to the current one, and disseminate it among potential users.

2.2. Project Goals.

The goal of this project was to identify in Armenia the most successful companies among manufacturing businesses from both the state and private sectors, to identify and explore the factors of their success in strategic management, and develop a set of recommendations to be used by interested organizations, both for scientific and business purposes.

The set of recommendations was proposed to consist of advice outlining how to organize the activities to be strong in crisis conditions. The secondary goal of the project was to make interested parties in the US familiar with the leading Armenian companies and, if possible, to attract them to invest capital in the Armenian economy.

During the process of performing the project, however, the goal of the project underwent some changes. The fact is that after the selection of the companies, and in the process of the collection and evaluation of the data, the team found out that, in reality, the success of some companies recommended by corresponding ministries actually was exaggerated. The team decided not to drop them from the survey and instead compare those companies with successful ones in order to develop the most critical success factors. As a result, unlike its previous intention to investigate only the most successful companies, the team also surveyed unsuccessful ones.

2.3. Project Scope and Constraints

1. The geography of the investigation was reduced to the Yerevan and nearby regions due to the sharp increase in travel expenses (price of fuel during these months tripled);
2. The project concentrated on manufacturing companies only. The team did not consider merchandising businesses. Although this type of business currently earns the highest returns, this situation should be considered a temporal one - until the economy gets normalized. Armenian economy should be based on the manufacturing industries, since Armenia historically has been an industrial and scientific center of the former USSR;
3. Since almost all Armenian companies hide their profits to be able to survive the taxation law, the team acknowledges that the companies' financial statements are inaccurate and understands that it is impossible to rely on them.

3. Methodology.

The project was divided into two major parts: gathering and analyzing the data. Then, based on this key part of the project, the team developed a set of recommendations, which consists of advice explaining how to choose an area of business which will be strong in crisis conditions. The team use brainstorming sessions for idea generation. There were four brainstorming sessions with project advisors and four sessions with the University's faculty members.

3.1. Gathering Information.

The necessary data were gathered by visits to the investigated companies. The team members have visited and investigated 11 companies (six state and five private). They made 30 trips to the companies, spent 114,810 rubles and about 150 hours of the time budget in the field work. The team decided to drop "Cavor International" because of small capacity and small weight in the relevant industry. All the specific data about investigated companies are shown in Appendix A. The field work was organized in the following way:

- by means of the questionnaire;
- by means of interview.

3.1.1. Questionnaire.

Prior to the trips to the companies the team prepared a questionnaire. The main purpose of the questionnaire was to get the companies' top management's approval for working at the company and gathering all the information the team needed to complete the project. A copy of the questionnaire is in Appendix D. The questionnaire was submitted to the top management and chiefs of different departments at the time of the first trip. Initially, it was expected that each company would be visited two-three times. However, the team members made five or six trips to each company. The matter is that the team faced bureaucratic attitude, absenteeism, and lack of punctuality on the part of some companies' staff.

3.1.2. Interviews.

This tool was the main source of information. The team used both structured and unstructured types of conducting interviews. The basic set of interview questions coincides with the questions in the questionnaire, Appendix D. The team members interviewed the companies' top managers, as well as the chiefs and employees of different departments, such as Marketing, Finance, Accounting, Energy supply, Raw materials supply, etc. One of the reasons for conducting interviews with different levels of management was to make sure that the information given at different levels is consistent. Another reason was that the different departments are responsible for different aspects of the company's activities, so it is quite impossible to get all the necessary information from a single source.

3.2. Data Analysis.

In order to conduct data analysis different techniques were used.

1. The gathered data were organized and brought to a form appropriate for quantitative and qualitative analysis. [Appendix A]
2. The quantitative data were analyzed using computer spreadsheet software.
3. The ratios listed in Appendix B were calculated for each company (for which the team was able to get data).
4. The team rated each company's success using a ten degree scale.
5. Using the calculated ratios and the companies' ratings the dependency of success on the factors reflected by the ratios was analyzed using correlation analysis.
5. Graphical representation of the mentioned dependencies was done by using computer based graphics features.
7. Three brainstorming sessions were conducted for analyzing the qualitative data and finding out success factors for businesses in Armenia.

8. In process of fulfilling the project, the team interviewed the AUA's faculty professors several times in order to get advice on different problems (success factors in the developed world, financial analysis, etc.).

4. Findings.

4.1. Business Environment in Armenia.

As it was mentioned, Armenia is getting in deeper and deeper economic crisis. This can be illustrated by the following quantitative data for 1992 [1], [2]:

In 1992, the GNP was at the 1975 level. Comparing with 1991 it decreased by 42.8%.

The work force consisted of 1,550,000 people, which was 7.3% less than in 1991.

Each month, on average of 70,000 people were idle due to lack of energy and raw materials.

More than 10% of manufacturing companies were suffering financial losses.

The budget deficit was 9,600 billion rubles.

Due to the blockade, only 37% of requested cargoes were brought in to Armenia.

The manufacturing industry got only 30% of its energy requirements.

Currently, the GNP is at the 1971 level, and is still decreasing.

The government has postponed privatization of industrial facilities. In addition, the taxation policy chosen makes insurmountable barriers for the businesses. Private businessmen who run their own businesses hide their profits to be able to survive (section 4.1). Hiding profits has become chronic in Armenia. The state-owned companies suffer government regulations, often meaningless. As one of the state-owned companies' presidents stated: "Today you can pick up any of the functioning companies' presidents and send him to prison without investigating his activities. If the company is functioning, then the president has violated at least a dozen laws and government regulations."

Due to the blockade, the only way to procure raw materials and to ship finished goods is by air. This makes the cost of goods too high which is a serious disadvantage for Armenian businesses. In these conditions, the businesses that do not depend a great deal on raw materials or are backward integrated (that is, they produce components to be used in the final production), do not require a great deal of energy, and have access to a qualified work force, would have considerable advantages and much more of a chance to survive and even succeed. These are mainly R&D companies, computer software producers, architect design companies, etc. However, there is a threat even for these companies. This is a high emigration rate. People leave Armenia due to the inability of the government to provide them with appropriate living conditions. The worst is that most emigrants are those people with high professionalism level, who are sure that they can get a job anywhere.

Businesses as well as individuals are leaving Armenia. They go mainly to Russia, particularly to Moscow, which is called Hong-Kong because of its rapid pace of its development. In Moscow the businessmen expect to get those things which are not available in Armenia. That is:

- energy;
- information;
- huge market;
- problemless transportation issues;
- more developed financial market, etc.

For example, thousands of the Armenian shoe plants' former workers emigrate from Armenia to Russia and establish there their own businesses.

The inflation rate currently is 1,000% annually. The inflation itself is a serious obstacle to running a business. However, if it was stable with any hard currency, it would be possible to predict more or less precisely the future prices or even charge and pay in that currency. However, the current situation in which the inflation has its usual rate and the dollar rate is decreasing,

makes financial conditions very unstable. What many businesses are doing is waiting until the dollar rate gets adjusted with the inflation rate.

Taking into account all these, very few Western companies are investing in the Armenian economy, which in conjunction with its scarce domestic resources makes the economy very poor.

4.2. What Does it Mean to be a Successful Company?

It is obvious that before judging what are the success factors for manufacturing companies the definition of a successful company must be given. The team has investigated this problem. Different sources were used including text books of various subjects and interviews with AUA's CBM for defining a successful company in general.

After summarizing all these opinions and surveys, the team came up with the following definition of a successful company:

The company can be interpreted as a successful one if it [3]:

1. Satisfies the needs of its employees;
2. Satisfies the shareholders' needs;
3. Satisfies the customers' needs;
4. Is profitable.

The next step was adjusting this definition for Armenia. For Armenia there must be some justifications concerning the domestic peculiarities. First, no Armenian manufacturing company is a corporation (there are few corporations in area of services). Therefore, the owner(s) should be mentioned rather than the shareholders. Second, satisfaction of customers' needs cannot be considered as appropriate for the definition of a successful company in Armenia due to the fact that Armenia is currently in the Production Era; that is, everything produced will definitely be

sold. This means that the customers will be almost satisfied by any product until Armenia comes into the Market Era.

Therefore, the definition of a successful company in Armenia comes down to two conditions:

1. Satisfies the needs of its employees;
2. Satisfies the owner's requirements.

However, it is not a complete definition yet. We should define what are the employees' needs and what are the owner's needs.

Since the living standards are extremely low in Armenia and many people cannot satisfy their basic physiological needs, we will consider **the employees' needs satisfied if he gets as much as 30,000 rubles per family member monthly** (official amount of the consumer bracket [2]).

Satisfaction of the owner's requirements can be brought down to the return the business earns. Thus, **the owner's needs are satisfied if the company's rate of return is not less than the owner's required rate of return.**

4.3. Are the Investigated Companies Successful?

When the team started surveying the ten companies it was faced with a necessity to include not only successful companies, but also unsuccessful ones to be able to compare them and then decide what are the differences between them and what are the success factors. However, during the process of investigation, not all the surveyed companies appeared to be successful although all of them were recommended as such by the relevant ministries). Some companies (for example Hayk), although formally have profits concerning difference between the total revenue and total cost, in reality lose money since they do not take in account the inflation in the financial statements. Others (for example, Artashes Ltd. and Laser Technique) really earn profits that are being re-invested in equipment and/or in R&D activities.

In order to do some quantitative analysis the team needed quantitative expressions of the companies' success. In other words the team needed some grade for each investigated company. Of course, it would be appropriate to use such a measure as the company's rate of return. However, high rate of return does not necessarily mean that the company is successful. In addition, almost all Armenian companies hide their real profits, and the team is sure that the income statements, provided by the investigated companies' financial departments are inaccurate, so it is impossible to rely on them.

Evaluation of a company and deciding whether it is successful or not is a subjective issue. This is due to the subjectivity of assessing whether the employees' and the owners' needs are satisfied. Although in section 4.2 we defined when the employees' and the owner's needs are satisfied, the team could not get the relevant data. The companies refused to provide the team with the rates of the employees' salaries, and, as it was mentioned the financial statements were inaccurate.

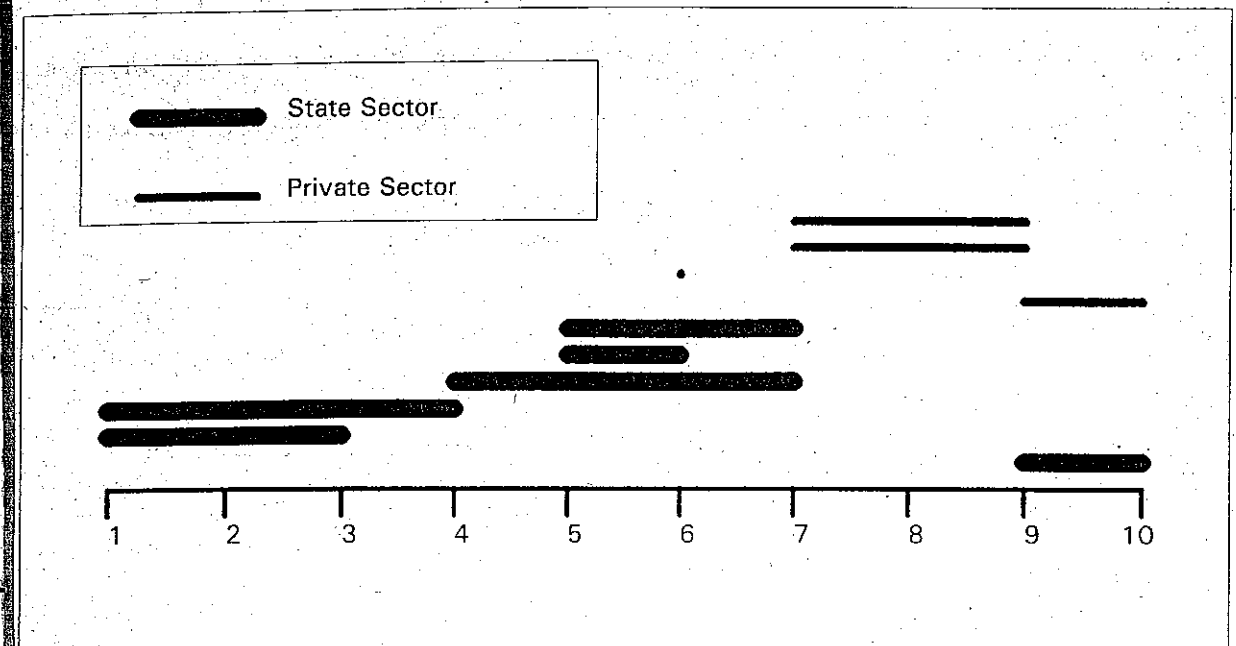
All the team members are already quite familiar with the investigated companies. Therefore, the team decided to do an independent evaluation of the companies assigning a grade

to each company that would reflect the person's opinion about it. Each team member did the evaluation and these evaluations were summarized by calculating means of the assigned grades. The Delphi approach was used, that is after the first evaluation the had a discussion of the results and then another evaluation was done by each team member separately. However, the results of the two evaluations were almost the same. Therefore, only the results of the second evaluation are shown.

The grades assigned by the team members were as follows (1 being the least successful, and 10 being the most successful):

		Ara Hakopyan	Aram Avakian	Arcady Amirian	Hambartsum Chilingarian	Average Grade
State-owned Companies	Laser Technique	10	9	9	10	9.50
	Masis	2	1	1	3	1.75
	Hayk	3	1	2	4	2.50
	Cognac Factory	5	6	4	7	5.50
	Bulb Factory	6	6	5	5	5.50
	ArmenMotor	5	5	6	7	5.75
Private Companies	Artashes Ltd.	10	10	10	9	9.75
	Arir-TOSP	6	6	6	6	6.00
	Aguits Ltd.	8	9	8	7	8.00
	Kargevan Ltd.	7	8	9	8	8.00

The following graph shows ranges of the assigned grades for each company.



As we can see not all the state-owned companies are successful, as it was stated by the relevant ministries.

The average grade for the private companies is 7.94, whereas for the state-owned companies it is 5.08. The conclusion is that private companies are more likely to succeed than state-owned ones. This is natural since private companies are more flexible in terms of reacting to environmental changes, and they are free from the government regulations, whereas state-owned companies are still (as they were in the former Soviet Union) regulated by the government.

On the other hand, unsuccessful private companies, not being able to survive, close down, whereas state-owned companies get subsidies from the government for a long time, even if they suffer losses.

That is why the list of state-owned enterprises might include unsuccessful companies, while the list of private companies could not.

Laser Technique is outstanding among the state companies. One of the main reasons is that although the company formally is still state-owned, almost all of its workshops (including R&D departments) are privatized, and in reality it is a private company. Excluding Laser

Technique from the list of state companies and joining it to the private companies, the average grade for state companies is 4.2, and the average grade for the private companies is 8.25.

5. Conclusions.

5.1. Is it Feasible to Start a Business in Armenia?

It is well known that banking system and money are the lubricant of an economy. Unfortunately, it is not so in Armenia. Moreover, the banking system in Armenia has become a serious obstacle to businesses.

The organization that has money on its bank account cannot use it since rare business in Armenia accepts bank transfers. Among the reasons of this reluctance are long delays in money transactions even from one Yerevan bank to another (up to two months) and possibility that the money transferred will be lost by one of the banks performing the transaction. What the organization can do is it can transfer this money into ready cash. This operation is done by the banks by illegally charging minimum 30% of the account sum. Thus, if the organization wants to get ready cash having on account 1,000,000 rubles, it will get maximum 700,000 rubles in ready cash. However, this is not the case in Russia, where this transfer can be done for 2-4% of the sum being transferred.

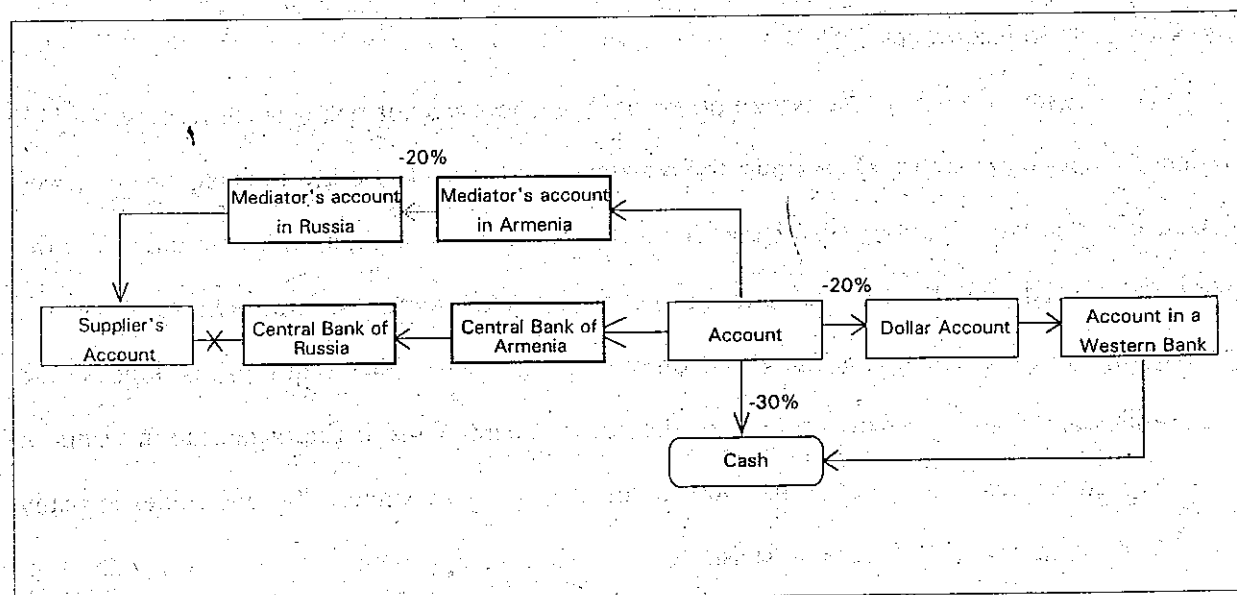
On the other hand Armenia has a heavy debt to Russia. Any money transaction from Armenia to Russia is captured by the Russian Central Bank for repaying this debt regardless of the organization that possesses this money.

Today it is easier to transfer money to a western bank than to a Russian bank. Therefore, one of the ways to convert account rubles is to transfer them into a hard currency (e.g. dollars), to get account dollars, to transfer them to a western (e.g. British) bank, to go there, to withdraw money from the account, and to bring it to Armenia.

However, there are companies that offer service of transferring account rubles to Russia. This service can be performed only in case of both the mediator and the client have accounts in Russian banks. The mechanisms are different. For example, a client signs a contract with a mediator for buying either spares or raw materials. After few days the mediator acknowledges that he cannot perform the order. Now he must return the clients money. But the return is done

not in Armenia, but in Russia. So, now the client gets money on his account in a Russian bank. The price of such a service is 20% of the sum being transferred.

The following figure summarizes the possible ways of transferring account rubles into cash.



The financial institutions cannot function appropriately due to unstable economic situation. The longest period one can get a loan for is six months. The interest rate varies from 20% to 25% for ruble loans, and up to 10% per month for dollar loans.

The instability is aggravated by the monetary reforms that the Russian government conducts periodically. Unfortunately, these reforms do not pursue economical issues, but often reflect the political conflicts in the Russian government. It is the second time when the Russian government unexpectedly declared a monetary reform and assigns time and sum constraints for the people to exchange the old bank notes with the new ones. Since Armenia is still in the ruble zone, it suffers all the losses connected with the Russian government's unpredictable monetary policy. The reform declared just recently resulted in enormous monetary losses, especially in the private sector of business. Some of the Russian government officers, however, must have made

enormous amounts of money, since the person who possessed the information would be able to make money on arbitrage (exchanging rubles with dollars and vice versa when it is appropriate).

The current taxation policy in Armenia also creates difficulties for businesses. As it is shown in Appendix E, in order to survive the inflation and taxes the company must sell the products at the end of year (assuming all costs are paid at the beginning of the year) for almost 20 times more than the costs were. Taking away the inflation rate, that is dividing it by 10, we get that with the current taxes the company's rate of return must be 100% (sales are twice more than the total costs).

Another major problem is fuel, the situation with which in Armenia is terrible. Lack of fuel increased the price unbelievably. Currently price of gasoline in Armenia is much higher than in many countries. This is due to the fact that the whole fuel supply is controlled by the fuel mafia. No one is allowed to import gasoline to Armenia without a permission from the mafia. Thus the fuel mafia holds monopoly. Therefore, it is able to keep prices very high. People believe that this mafia gets strong support from some of the government officers. If that is the case, it is a sad story since the opportunities to fully satisfy Armenia's needs in fuel are fairly high. As it is known, Iran, which borders with Armenia, currently suffers some difficulties in exporting its oil and oil products due to economic restrictions set by some western countries. Therefore, collaboration of Armenian and Iranian businesses would gain mutual benefits. But since it would not be beneficial to the fuel mafia, nothing is going on in this direction.

Despite all of the indicated difficulties the team, nevertheless, advises western companies to invest in Armenian economy. The team came to this conclusion taking in account the most essential preconditions for foreign investments. These are:

Despite of the war in Karabagh the political situation in Armenia is fairly stable.

The government has accepted the law which allows free transfers of any currency across the border (both in and out).

Recently the government passed the law on private ownership, in which Armenian state guarantees inviolability of private property, including property rights of foreign citizens.

4. The domestic market is in the Production Era, that is there is a dominance of demand over supply practically in all types of goods and services.

5. The level of competition is quite low due to small number of the businesses operating in Armenia.

Of course, the team strongly recommends to take into account some preconditions, called Factors of Success, in order to get success in Armenia.

5.2. Factors of Success in Armenia.

In the western business world there is developed set of factors called Key Success Factors (KSFs) [3], the major determinants of financial and competitive success in a particular industry. Key Success Factors highlight the specific outcomes crucial to success in the market place and the competencies and capabilities with the most bearing on profitability. Identifying KSFs is a top-priority strategic consideration. These factors vary from industry to industry, and even over time in the same industry, as driving forces and competitive conditions change. The most common types of key success factors are those related to technology, manufacturing, distribution, marketing, skill, and organizational capability.

However, the system of key success factors developed in the west, is not appropriate for assessing Armenian companies under present conditions. There is no competitive business environment (in manufacturing industries) here. Besides, the energy crisis, the blockade, and other peculiarities of Armenia's economy have created a unique combination of success factors, which differs from that of developed countries.

In the process of performing the project and after the analyzing the results of the trips to the companies, the team found out the major factors of business success in Armenia. These are:

1. Ability of the top management to operate in the current situation.
2. Low level of dependency on raw materials or their availability in Armenia.
3. Low level of dependency on energy.
4. Low level of dependency on requirements to the technology used.
5. Uniqueness (demand) on the production in CIS (abroad).

The most crucial factor is the **ability of the top management to find constructive and effective ways of solving problems** in this hard transitional period. Investigating the state-owned companies the team found out that the administration of most of them did not have the flexibility and creativity to adjust their activities to the current situation. The exception is the Laser Technique Company, which is now in a considerably preferred position due to effective and creative work of the top management. Among the private companies Artashes Ltd. appeared to best meet this need. The owner has organized the company's activities in such a way that stable and profitable work and satisfaction of the customers' needs are guaranteed.

The next essential factor for being successful is a **low level of dependency of the company on suppliers of raw materials**. Due to the conditions imposed by the blockade and lost links with traditional suppliers, it is vital either to have stable, functioning channels of raw material procurement or to use domestic raw materials. In this sense Laser Technique Company is in the most preferable position; its production process is backward integrated, that is, it produces the most vital components of its products (for example, crystals used in laser devices).

The **dependency on energy** is another important factor for being successful. There are production processes which consume a limited quantity of electricity. Such companies are in a preferable position. Among them are: Artashes Ltd., Cognac Factory, etc. This is a vital factor even the current scarcity of energy and fuel. The high-tech productions are in the worst condition

in this sense because they usually consume huge amounts of energy. Such companies as Laser Technique, Bulb Factory, ArmenMotor, etc. require huge amounts of energy.

The team developed the electricity supply ratio to define how much energy a particular company gets in respect to its demand for meeting the capacity. Some of the companies have installed generators and are able to function even during the state power supply cutoffs (in this case the company will work with only one shift).

Dependency on requirements of the technology is the next aspect defining the success of the company. Although, nowadays this factor does not have such vital influence as the first three factors, the success of some manufacturing companies depends mainly on technological features of the production process. For instance, functioning of the Yerevan Bulb factory fully depends on gas supply. According to the technological requirements of this high-tech production, in the process of bulb assembling the factory consumes a huge amount of natural gas for getting focused flame to cut the bulb's glass components and for heat treating at the end of the technological process. However, it is well-known fact that natural gas is an extremely limited product in Armenia now. This is one of the main reasons why the Bulb Factory is able to produce almost only half of the amount of production it is supposed to. Another company, Laser Technique, consumes huge amounts of electricity in the process of growing artificial crystals. Besides, in the times of a centralized economy, many technological processes were divided into separate stages which were performed in separate factories, often in different regions of the former USSR. For example, Yerevan Relay Plant till now produces components for the military industry, and nobody in the plant knows in which product these components will be used. So, the companies are fully dependent on their suppliers. Nowadays the Armenian companies are in the terrible conditions because they have lost the ties with the historical suppliers of the components used in technological processes and a new ones are not established yet.

The last factor which the team encountered frequently is **uniqueness of the production in CIS or abroad and the demand for it**. There are goods being produced in Armenia which are unique in their nature and have huge demand not only in the CIS, but also abroad such as a

carificator. This is a device which allows blood to be drawn without the use of needles and syringes. A laser beam is directed onto the skin and blood is drawn. The companies that produce such goods have a considerable advantage. Because the economy of the former USSR was centralized, there are companies which after the collapse of the USSR found themselves to be monopolies. That is why Armenia is a monopolist in such industries as bulb production, laser devices, artificial crystals production, some chemical productions, etc. These products are strategic products for Armenia. Many companies within these industries are in favorable positions and are able to produce 70-80% of the planned level of production. The state provides them with energy, even gas, and tries to provide them with raw materials and financial assistance. For instance, the government barter the production of the Bulb Factory against natural gas with Turkmenistan. The companies of the food industry are also in comparatively preferable positions. The reason is that in the current recession, there is a scarcity of food and first necessity goods in Armenia, so the demand on these products is huge. Besides, there are some products that are specific to Armenia, its customs and unique culture. Armenian cognac is of one of such goods. Different brands of Armenian cognac are well-known in the CIS.

In order to be able to compare different companies in terms of different characteristics, the team has developed a set of new ratios. The list of all ratios with their descriptions is exhibited in Appendix B.

The most crucial ratios would be those which reflect the mentioned factors. Unfortunately, not all factors can be expressed quantitatively. Actually, only two of the five factors are presented in the list of ratios. These are: the company's dependency on raw materials; and the company's dependency on the power supply. As is shown in Appendix C, there is a strong correlation between the extent to which the company's demand in raw materials is satisfied, and the company's success, and between the extent, to which the company's demand in energy is satisfied, and the company's success (0.70 and 0.73 respectively).

6. Summary of Major Findings.

1. The current business environment in Armenia is not favorable for running a business. The government has postponed the privatization of the major industrial facilities. The taxation policy chosen creates insuperable barriers for the businesses. Those businessmen who run their own businesses hide their profits to be able to survive. Due to the blockade, almost the only way to procure raw materials and to ship finished goods is air. Only 30% of the economy's energy needs are satisfied. The inflation rate is 1,000% per year, which is a serious obstacle for the businesses. This problem is aggravated by an unstable rate of the domestic currency (ruble) compared with the inflation rate.
2. The successful company in Armenia is defined as a company that satisfies two requirements:
 - a) Satisfies its employees' needs.
 - b) Satisfies the owner's requirements.
3. Not all the investigated companies appeared to be successful. It primarily relates to the state-owned companies. According to the rating of the ten companies, conducted by the team members, the state-owned companies got 5.08, whereas the private companies got 7.94 (using a 10 degree scale).
4. In order to survive the inflation and the taxation, the company must sell the products at the end of year (assuming all costs are paid at the beginning of the year) for almost 20 times more than costs. Excluding the inflation rate, that is, dividing it by 10, we find that, with the current taxes, the company's rate of return must be 100% (sales are twice more than the total costs).
5. The main success factors in the Armenian manufacturing industry were found to be:
 1. Ability of the top management to operate in the current situation.
 2. Low level of dependency on raw materials.
 3. Low level of dependency on energy.
 4. Low level of dependency on requirements to the technology used.
 5. Uniqueness (demand) of the production in the CIS and abroad.

7. Recommendations.

1. How the Results could be Used.

Here are some recommendations on how the results can be used in order to improve the current conditions in Armenia.

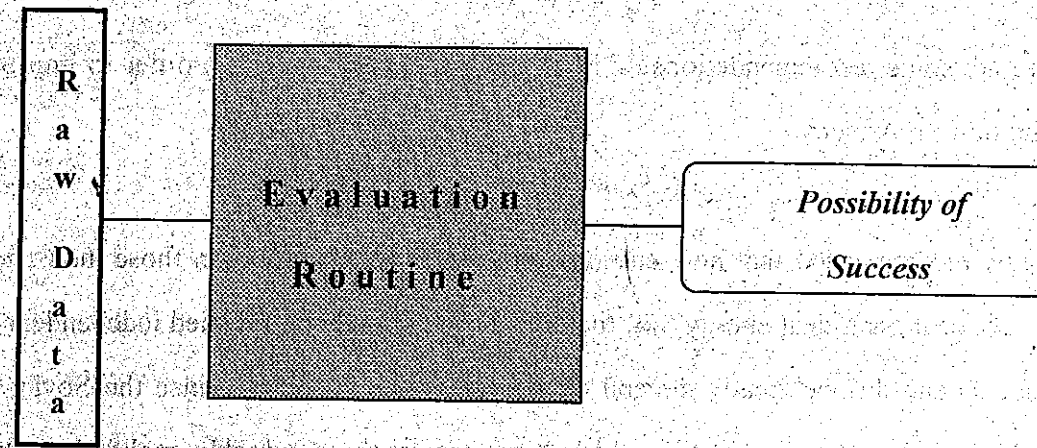
It is highly recommended that new entrants establish their businesses in those industries that do not require a great deal energy (so, the energy needs could be satisfied independent of the government) and do not greatly depend on imported raw materials. Since the Soviet Union period Armenia has been a scientific and cultural center, there is highly qualified work force which might be beneficially used. So, the new entrants would have much more of a chance to succeed if their businesses were in such areas as culture, computer software development, architect design, high-tech design, etc.

The government should revise its taxation policy. The taxes must be brought down to at least US tax levels, although it would be better for the whole economy to have even less taxes than in the USA due to the stage of development at which Armenia currently is. In addition, it would encourage western businesses to invest in the Armenian economy. As the experience of some developed countries shows, with decreasing taxes the amount of the collected taxes increases [4]. As mentioned, hiding profits has become chronic in Armenia and this has contributed to the state's budget deficit of 10 billion rubles.

2. Further Research: What is the Next Step?

The continuation of the project could be developing a technique that would automatically analyze any Armenian company (existing or prospective) and predict whether it will be successful or not. This might be achieved by using as the source data the company's quantitative

characteristics, expressed in terms of the ratios, listed in Appendix B. The following figure shows the system's scheme.



Evaluation routine would be a quantitative technique such as regression analysis, discriminant analysis, neural network, genetic algorithm, etc.

This system would be quite useful for any Armenian company. In the case of evaluating an existing company the system would be able to point at the company's main weaknesses and problems.

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- APPENDIX A. Summarized Data Gathered From The Companies.
- APPENDIX B. List of All Ratios.
- APPENDIX C. Graphical Demonstration of Relationships Between Different Factors.
- APPENDIX D. Questionnaire.
- APPENDIX E. Calculation of the Rate of Return to Survive the Inflation and Taxes.

APPENDIX A. Summarized Data Gathered From The Companies.

A.1. "ARTASHES Ltd."

Item Description	Data
Type of Company	Private
Primary Product	Preserves, jams, liquors
Number of management levels	4
Number of employees	50
Raw materials: actual supply	5,000 tons
Raw materials: demand	5,000 tons
Raw materials: actual usage	5,000 tons
Raw materials: cost	4,407,480 rubles
Energy: actual supply	130 kwt/hr
Energy: demand	130 kwt/hr
Energy: source of supply	State
Suppliers: actual number	8
Suppliers: contracted	0
Time to produce 1 unit: actual	5 sec
Time to produce 1 unit: planned	5 sec
Price in Armenia (the most expensive prod.)	1,500 rubles/can
Price in Moscow (the same prod.)	1,400 rubles/can
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	6,121,500 rubles
Capacity	2,000,000 cans
Actual output (1992)	2,000,000 cans
Weight of one unit of product	0.6 kilo
The market	Armenia

This is one of the most successful private companies. The company produces different kinds of preserved food (jams, juices, soft drinks, marmalades, stewed fruits etc.), and liquors. The uniqueness of the company is that it a property of one person. This is one of the rare companies that has been fully privatized.

The Company's Strengths:

Usage of domestic raw material supplies: Most raw materials are bought in Armenia. These are fruits and vegetables. The only production's component that is imported is sugar, which is bartered against the company's production with Ukraine.

Domestic market: The company's market is Armenia. So, it does not have to worry about shipment of finished goods to the final consumer.

Low energy usage: The production process does not require much electricity. The company has purchased a generator, which fully satisfies its power needs. However, the company has got a special limit of gas (200,000 m³) and electricity from the government.

High quality of the production: The quality of the production is higher than the other (state) companies' ones of the same profile. So, the company does not suffer any difficulties concerning sales.

Ability to respond to changes in the external environment quickly: Since the company is relatively small (only 50 employees) and is private (does not depend on any government regulations) it is able to respond quickly and properly to any changes in the external environment.

The Company's Weaknesses:

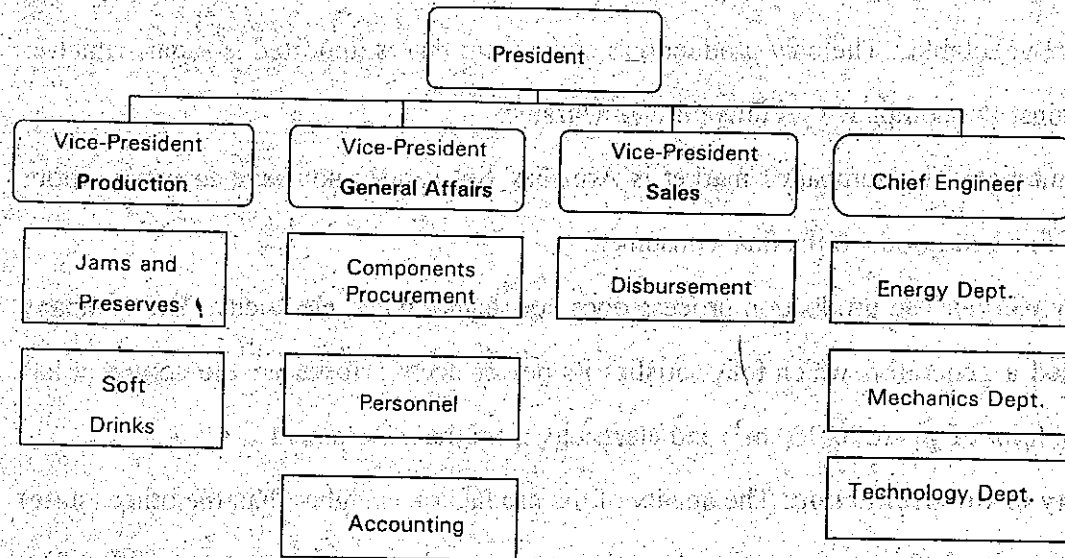
Small size: The company is fairly small, which might be considered as a weakness since in case of serious problems (either internal or external) the company would not be able to survive for long period of time.

Unpredictability of raw materials' supply: Since the company's source of supply is agricultural farms, and their output depends on different unpredictable factors (weather, diseases, pests, amount of crop) it is hard to plan the company's output and, therefore, the future sales.

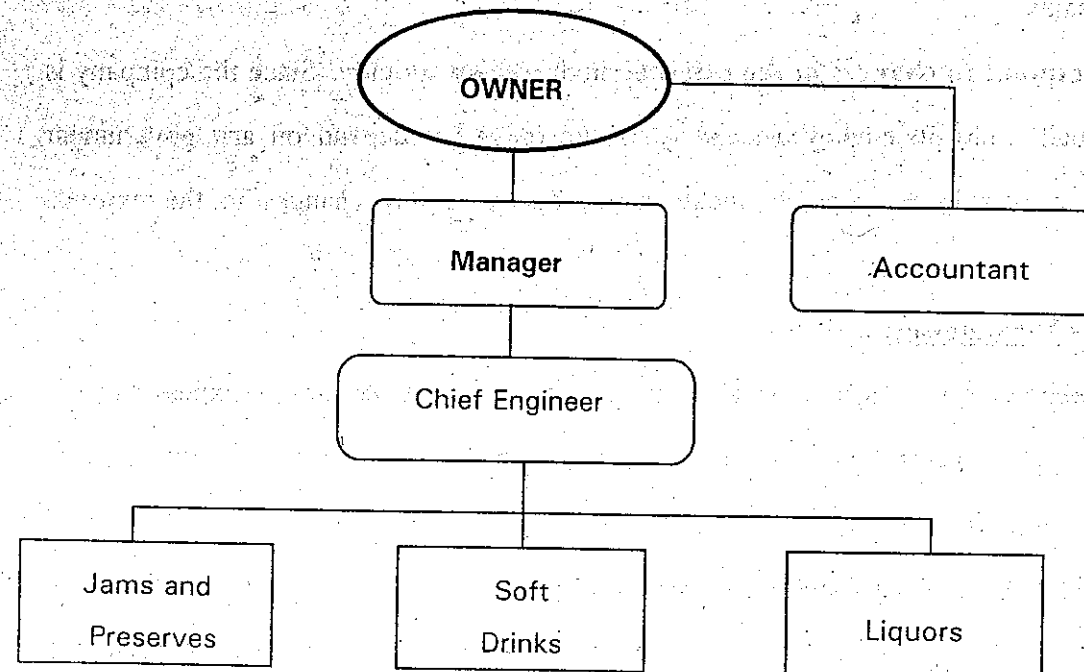
As it was mentioned the company was a state-owned one and then was bought by the president (Artashes Danielian). Figure A1 compares the company's structure when it was state-owned and its current structure.

Figure A1. Artashes Ltd.: Comparison of Organizational chart, 1986 and 1993

Organizational Chart, 1986.



Organizational Chart, 1993.



A.2. LASER TECHNIQUE

Item Description	Data
Type of Company	State
Primary Product	Lasers, artificial crystals
Number of management levels	3
Number of employees	346
Raw materials: actual supply	3,000 kg
Raw materials: demand	3,200 kg
Raw materials: actual usage	3,000 kg
Raw materials: cost	3,000,000 rubles
Energy: actual supply	3.6 mwt/yr.
Energy: demand	4 mwt/yr.
Energy: source of supply	State
Suppliers: actual number	10
Suppliers: contracted	2
Time to produce 1 unit: actual	36 days
Time to produce 1 unit: planned	28.8 days
Price in Armenia (the most expensive prod.)	5,000,000 rubles
Price in Moscow (the same prod.)	5,000,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	10,568,800 rubles
Capacity	25
Actual output (1992)	20
Weight of one unit of product	100 kg
The market	Russia

company's primary mission is to provide scientific organizations with modern laser devices, which are used in medical, military, space technology and scientific research. The company is successful despite the current difficult conditions. Although most of the company's production is in the area of high technology, it has begun to diversify. The company now also produces bread, crystal chandeliers and other consumer goods, all of which are incorporated in the private sector of the company. This is one of the most successful companies in Armenia.

The Company's Strengths:

- **Backward Integration:** The company, almost from its foundation, does not depend on the procurement of raw materials for laser device production. The most crucial component of lasers - crystals - are grown in the company. Moreover, the company became a supplier of artificial crystals for other laser producers (mostly in Russia) and the jewelry industry, which made it stronger from an economical standpoint.
- **The top management's flexible policy:** The company's top management keeps a flexible policy. This statement can be proven by the fact that the company was successful in the former USSR, and it is successful now under current conditions which are causing an enormous number of companies to close down because they are unable to survive. To show the mentioned flexibility let us exhibit the company's organizational charts both former (Soviet) and current. Figure A2 shows the structural changes made in the company since the Soviet Era. As we can see almost all departments have become independent business units, although depending on each other's production (used as components) or service.
- **Long Term Orientation:** The company is trying to invest in the long-term. The approaches it is using are: innovation - an attempt to improve the existing devices and find new areas of economy or science where lasers can be effectively used; new markets - an attempt to find the new markets (currently efforts are directed to Middle East) for laser devices.
- **Personnel Orientation (Marketing):** The company is doing whatever possible to prevent turnover. Even when the receipts of accounts receivable are delayed (due to poor banking services) the salaries of scientific personnel are paid on account of the subsidiary companies. However, many of highly qualified specialists leave the company (because of the deep recession in Armenia) and go primarily to Russia. That is why the company is establishing a branch in Russia to keep under its control the high technical and scientific potential of its employees.

Diversification: In the conditions of recession the company uses the diversification strategy by producing goods of common consumption the demand of which is very high now. As shows the company's experience this is very beneficial strategy in the current situation.

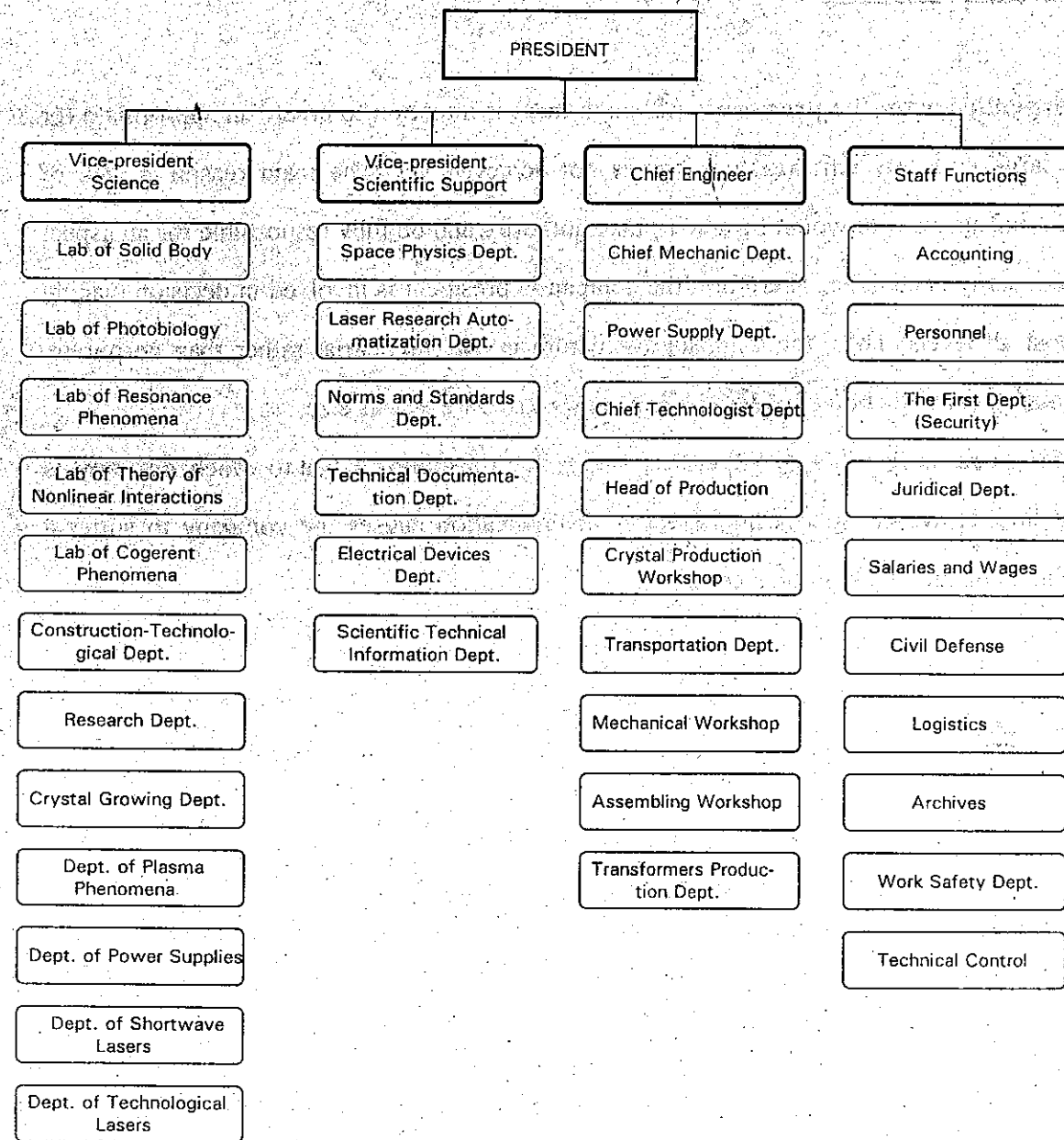
The Company's Weaknesses:

High dependency on the president: Although there is intention to create an appropriate for such a large company infrastructure, this is not achieved yet. The main reason is lack of qualified managers, who would be able to take authority and be fully responsible for an aspect of the company's activities. Therefore, the company's president is involved in decision making on almost all levels. Thus, the company's structure is entrepreneurial rather than corporate. This makes a contradiction between the company's structure and its size.

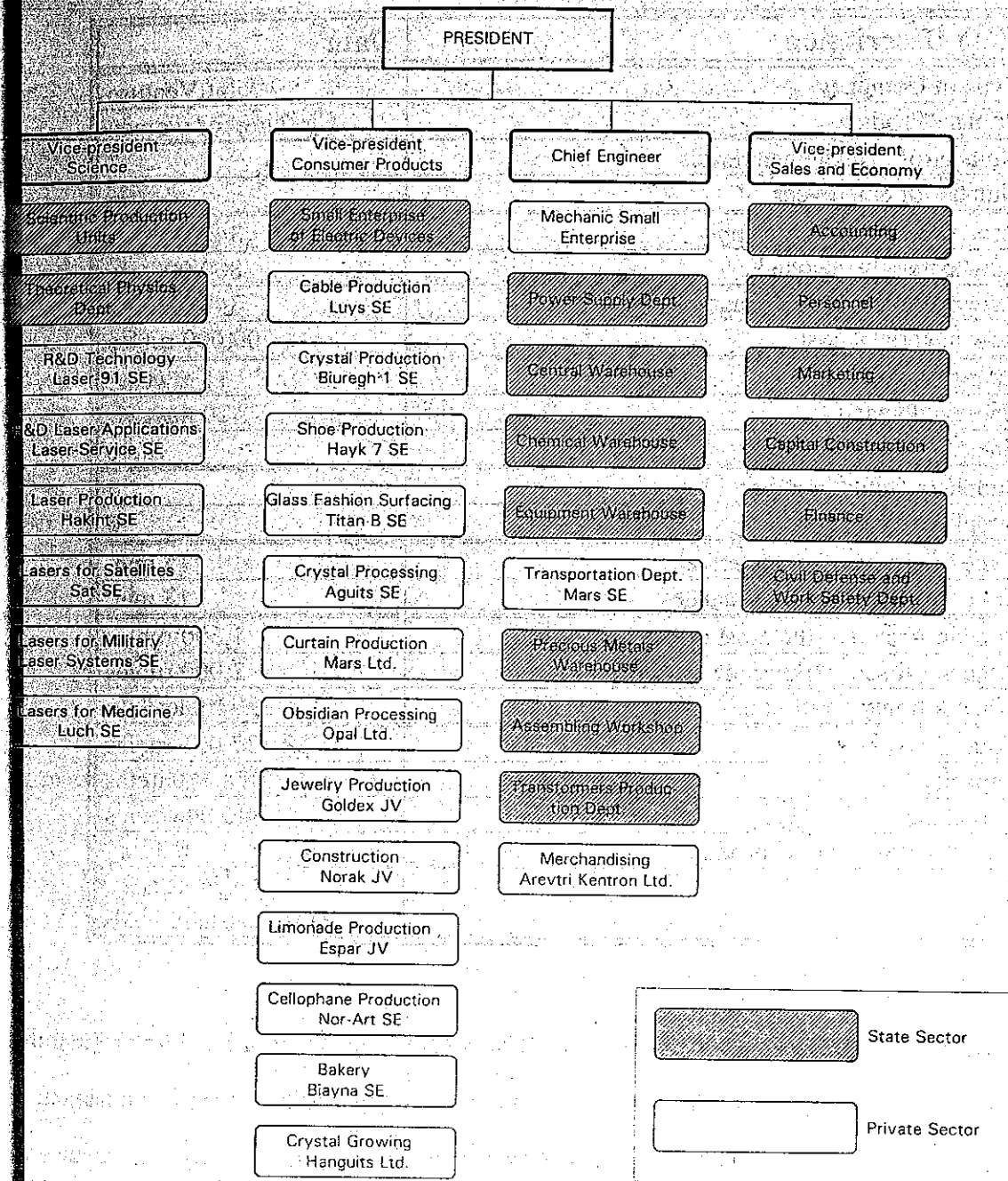
Loss of the company's image: Experience shows that the company had to widely diversify its product line. However, such a high level of diversification causes the company to suffer a decline in its image of a high-tech company.

Figure A2. Laser Technique: Comparison of Organizational chart, 1986 and 1993

Organizational Chart. 1986



Organizational Chart. 1993



Notations: SE - small enterprise,
 JV - joint venture,
 Ltd. - limited partnership.

A.3. Arir-TOSP

Item Description	Data
Type of Company	Joint Venture
Primary Product	Clothing for women
Number of management levels	3
Number of employees	406
Raw materials: actual supply	340,000 m ²
Raw materials: demand	800,000 m ²
Raw materials: actual usage	340,000 m ²
Raw materials: cost	18,700,000 rubles
Energy: actual supply	11 mwt/yr.
Energy: demand	20 mwt/yr.
Energy: source of supply	State
Suppliers: actual number	6
Suppliers: contracted	6
Time to produce 1 unit: actual	15 min.
Time to produce 1 unit: planned	13 min.
Price in Armenia (the most expensive prod.)	1,500 rubles
Price in Moscow (the same prod.)	2,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	32,137,000 rubles
Capacity	1,078,110 items
Actual output (1992)	840,048 items
Weight of one unit of product	0.35 kg
The market	Armenia, Russia, Turkmenistan, UAE

This is a part of an Armenian-Iranian joint venture. The facility produces fashion clothing (mainly for women). The Armenian party has invested the equipment of the facility, whereas the Iranian party was supposed to make financial investments. They partially did, but, as yet, not as much as was contracted. The facility is renting its work space from TOSP state-owned sewing company, hence the name Arir-TOSP). In addition, the part of the state company's store is rented to retail the production.

The Company's Strengths:

The Top Management: As the general manager of the Arir JV Mr. A. Nshanian mentioned the facility's main strength is its top management, which has been able to run the production process in the current hard conditions. The top management has received an allocation of electricity from the government (although it is not enough for meeting the company's demand).

The top management is trying to organize all the activities with a western approach, that is, they are looking for a qualified office manager as well as line managers who have a western education and are able to organize work of the workshops in an appropriate way.

Technology: Although the company's equipment in general is old, the company is taking steps to upgrade it. The equipment which is being bought meets the highest world contemporary standards, which allows the company to penetrate into western markets too (although its main market is still the Middle East). This is proven by a recent order from France, when the company was given fashions and raw materials, and simply had to sew clothes. The order was comprised mainly of fashionable women's and girls' summer clothing.

Favorable Image With Buyers: The company has got a favorable image among the buyers, who are primarily wholesalers from Russia and some Arabic countries.

Company's Weaknesses:

Raw materials: All the raw materials that are used by the company are imported from abroad, mainly from Russia. Of course, it is not the company's fault, but since Armenia is suffering from a blockade the only viable transportation means is by air. The same holds true with shipping that portion of finished goods that should be exported. This makes the cost of goods too high (compared, for instance, with the same type of Russian companies) which is naturally a disadvantage.

- **Power Supply:** Although top management has received an allocation of electricity supply from the government, it still is not sufficient to meet the company's capacity. The business day lasts six hours instead of 12 hours (if two shifts are used). Top management does not take steps to install a generator, which would be quite enough for satisfying the company's need for electricity.
- **Packaging:** The company does not attractively package its products. They simply use cellophane packs for these purposes. The buyers are to repackage the products themselves.

A.4. Hayk

Item Description	Data
Type of Company	State
Primary Product	Suits for men
Number of management levels	3
Number of employees	442
Raw materials: actual supply	400,600 m ²
Raw materials: demand	703,900 m ²
Raw materials: actual usage	400,600 m ²
Raw materials: cost	24,372,300 rubles
Energy: actual supply	264 kwt/hr
Energy: demand	352 kwt/hr
Energy: source of supply	Generator
Suppliers: actual number	13
Suppliers: contracted	36
Time to produce 1 unit: actual	4 min.
Time to produce 1 unit: planned	2.5 min.
Price in Armenia (the most expensive prod.)	8,000 rubles
Price in Moscow (the same prod.)	12,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	37,676,000 rubles
Capacity	115,000
Actual output (1992)	46,000
Weight of one unit of product	2 kg
The market:	Armenia, Turkmenistan

This is a sewing company which produces suits for men. In the past it was called Clara Cetkin's Fabrics Factory. It consisted of ten facilities located in different districts of Armenia. Now, this amalgamation has collapsed. Some of facilities has been privatized, others either have closed down or formally exist being unable to operate in the current conditions. The company's president has his own point of view on how the production process in Armenia must be organized. Although he blames the government for not being able to provide the state-owned companies at least with a steady power supply, with proper banking services, and supply of raw materials, he is

sure that the company should not be privatized (and no state-owned company should be privatized) since in conditions of war the economy must be fully centralized.

The company's Strengths:

- **Power Supply:** The company has installed two generators, so it is not highly dependent on the state power supply. However, the facility's capacity is still not met (the facility used to operate with two shifts, but now it is working with one shift mainly due to a lack of steam which is needed in the production process).
- **Highly Qualified Work Force:** The company's employees are highly qualified and experienced. This was evidenced by a recent visit by representatives of a Dutch company who, seeing the employees high professionalism, decided to make investments in the company by providing it with modern equipment, raw materials, and technology.
- **Stable Buyer:** A part of the company's production is exchanged by the government against the gas which is coming from Turkmenistan. This means that the products are sold for higher than in the market prices and that the customer is stable since this exchange is based on a contract between the two governments.

The Company's Weaknesses:

- **Raw materials:** Very similar to Arir-TOSP conditions, that is, full dependency on imported raw materials.
- **Financial Management:** The company's financial management is poor, as illustrated by the following fact. The company has difficulties with sales, since the price (set by the government) for which they should sell the products is too high for the domestic customers (due to low living conditions in Armenia). Therefore, the top management waits until the inflation makes this price reasonable for the customers and then sells it. Formally, the company is successful and even earns a profit. However, it loses money (due to inflation) and needs a subsidy from the government.

A.5. Masis

Item Description	Data
Type of Company	State
Primary Product	Shoes for children
Number of management levels	3
Number of employees	980
Raw materials: actual supply	11,144 tons
Raw materials: demand	45,500 tons
Raw materials: actual usage	11,144 tons
Raw materials: cost	141,103,900 rubles
Energy: actual supply	16 kwt/day
Energy: demand	68 kwt/day
Energy: source of supply	State
Suppliers: actual number	40
Suppliers: contracted	40
Time to produce 1 unit: actual	7 min.
Time to produce 1 unit: planned	1.5 min.
Price in Armenia (the most expensive prod.)	600 rubles
Price in Moscow (the same prod.)	1,200 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	201,577,000 rubles
Capacity	2,500,000
Actual output (1992)	610,000
Weight of one unit of product	1 kg
The market	Armenia, Russia, Turkmenistan

Masis was the leading shoe producing company in Armenia. In the time of the former USSR, the company included eight plants in different districts of Armenia. Now, each factory has become an independent unit. Masis is producing mainly children's shoes now.

The Company's Strengths:

Brand Name: The only advantage of the company is its brand name. The shoes with the "Masis" label are well known in many countries of the former USSR.

The Company's Weaknesses:

- **Management:** The top management of the company does not work effectively in overcoming its current problems. For instance, the company's problems in sales are solved by delaying them until the inflation makes the price of suits acceptable by the domestic population instead of trying to sell them in other countries of CIS.
- **Raw Materials:** As with most Armenian companies, Masis has a big problem with the procurement of raw materials, which is mainly done by air.
- **Marketing Department:** The company does not have a Marketing Department at all. Two persons who do not have special training in this field perform this essential work. Thus, they do not have appropriate qualification to work in this section of the company. That is why the company has a big problem with appropriate organization of logistics, promotion and other important marketing activities.

A.6. ArmenMotor

Item Description	Data
Type of Company	State
Primary Product	Electric motors
Number of management levels	3
Number of employees	2000
Raw materials: actual supply	7,200 tons
Raw materials: demand	42,000 tons
Raw materials: actual usage	6,200 tons
Raw materials: cost	576,000,000 rubles
Energy: actual supply	650 mwt/yr.
Energy: demand	812.5 mwt/yr.
Energy: source of supply	State
Suppliers: actual number	15
Suppliers: contracted	10
Time to produce 1 unit: actual	20 min.
Time to produce 1 unit: planned	15 min.
Price in Armenia (the most expensive prod.)	50,000 rubles
Price in Moscow (the same prod.)	50,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	1,080,000,000 rubles
Capacity	1,200,000 items
Actual output (1992)	480,000 items
Weight of one unit of product	20 kg
The market	Russia

ArmenMotor was established about 50 years ago, as part of the centralized machine-building system throughout the former USSR. The mission of the company is to provide the machine-building companies mainly in the Armenia, Russia and other countries of CIS with high quality electric motors of different scale (for lathes, and other machines).

company's Strengths:

Raw Materials: Anticipating the current poor condition of the economy and difficulties connected with reaching the permanent suppliers, the top management of the company bought

a huge amount of inventory and now has a stock of raw materials sufficient for one year. That is why this is one of the rare companies which were able to function without any interruptions until now.

- **High Quality of the Production:** The quality of the production is high enough to try to penetrate into the Middle East, Eastern Europe, and Latin America.
- **Management:** The management of all levels were changed. The new administration of the company now consists of young, energetic, well educated professionals. They do everything possible to adjust to the current hard times. However, there are no essential changes in the organizational structure of the company. The situation in the company changed after coming the new top management. The managers on all levels were changed, and actually it was change in the personnel not in the structure.
- **Promotion:** The company uses interesting and effective methods of advertising of the production. Besides of ads in different newspapers and magazines, the company makes its promotion through different TV programs. Particularly, there is a Game Show on Russian TV, and ArmenMotor company is the sponsor of that show.

The Company's Weaknesses:

- **Technology:** The company's equipment has depreciated and the average age of the technology is 14.5 years. There is gap in 10 between the level of the company's technology and the modern western analogies.
- **Personnel:** The main mistake of the new management is their Human Resource Management policies. They somehow continue the policy of the old management in this sphere. They do not have appropriate promotion and retirement policies. As a result, the workers are not interested in the quality of the output.
- **Low output:** There is a huge demand on the production of the company all over the CIS. However, the company is able to fulfill only 30% of its capacity (30,000 per month) due to

common for the relevant industry difficulties (problems with shipment of finished goods, procurement of raw materials, scarcity of copper in Armenia, etc.).

A.7. Bulb Factory

Item Description	Data
Type of Company	State
Primary Product	Electric bulbs
Number of management levels	3
Number of employees	5,387
Raw materials: actual supply	20,000 ton
Raw materials: demand	30,500 ton
Raw materials: actual usage	20,000 ton
Raw materials: cost	600,000,000 rubles
Energy: actual supply	38,000 mwt/year
Energy: demand	60,000 mwt/hr
Energy: source of supply	State
Suppliers: actual number	50
Suppliers: contracted	28
Time to produce 1 unit: actual	3 sec
Time to produce 1 unit: planned	2.5 sec
Price in Armenia (the most expensive prod.)	35 rubles
Price in Moscow (the same prod.)	50 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	835,000,000 rubles
Capacity	140,000,000
Actual output (1992)	85,000,000
Weight of one unit of product	0.2 kg
The market	Armenia, Russia, Turkmenistan

The electric light fixtures industry historically has been characterized by relatively high growth and attractive levels of profitability in Armenia. The industry was the leader in the production of bulbs and lighting fixtures in the former USSR and the countries of the Middle East. The representative of this industry is "Luis" enterprise, one of the largest companies of the industry in the former USSR. It consists of nine large plants in various districts of Armenia. The product lines of the company are comprised of different types of sources of light: for domestic and industrial use, car industry, heavy duty lighting (incandescent lamps, fluorescent lamps, automobile bulbs,

high pressure sodium bulbs, high pressure mercury bulbs, different types of quartz lamps), lighting fixtures and chandeliers. It is a monopolist in the Middle East region in the production of lighting fixtures. There is a huge demand on the production of the company not only in the above mentioned regions, but also in Russia, Asia, and countries of Africa. The main reason is that the company's products are much cheaper than the production of the western companies (Tungsram, Philips, General Electric, etc.), and have slightly lower quality than the products of the industry's world leaders. In addition, the government uses this production for bartering against the natural gas with Turkmenistan. During the 1990s this industry was negatively affected by the factors such as: economic recession, blockade, and energy crisis. In 1992 the company had sales of 2.7 billion rubles, and output of 83 million units which is about 40% of the company's capacity.

The company's Strengths:

- **Product differentiation:** The company is able to produce almost any type of bulbs, including bulbs for final consumer and industrial use.
- **High entry barriers for new entrants:** The expenses connected with establishing bulb production are so high that they make insurmountable barriers for new entrants.
- **Monopoly:** The company is a monopolist in bulb production in a huge region including the Middle East and South Russia.
- **Absence of substitute products:** There are no electrical substitutes for bulbs.

The Company's Weaknesses:

- **Raw materials:** The company hardly depends on imported raw materials. No one component is available in Armenia.
- **Technology:** The company's equipment is fully depreciated. The average age of the equipment is 16 years.

- **Dependence on natural gas:** The production fully depends on the supply of natural gas. Due to the current situation (Armenia gets a very limited amount of gas) the company is working with at half capacity.
- **Ill-timed changes in the top management:** Recently the president was replaced by the government. The main reason of the replacement was his age. He is about 70 years old. The former president was in charge during the last 20 years, so he was able to get all the necessary goods (monetary, raw materials, transportation facilities) using his own connections. The present president, however, does not have these connections yet, so the company is almost stopping due to lack of all the mentioned components. The new president began changing the managers on all levels, from top to bottom. In spite of current terrible situation, the new president makes its best to overcome the difficulties and provide the stable operation of the company. He is younger (53 years old) and has a rich managerial experience.

A.8. Aguits

Item Description	Data
Type of Company	Private
Primary Product	Crystal processing
Number of management levels	2
Number of employees	15
Raw materials: actual supply	100 kg
Raw materials: demand	100 kg
Raw materials: actual usage	100 kg
Raw materials: cost	50,000 rubles
Energy: actual supply	160 kwt/hr
Energy: demand	160 kwt/hr
Energy: source of supply	State
Suppliers: actual number	2
Suppliers: contracted	2
Time to produce 1 unit: actual	6 min.
Time to produce 1 unit: planned	6 min.
Price in Armenia (the most expensive prod.)	800 rubles
Price in Moscow (the same prod.)	2,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	13,440,000 rubles
Capacity	24,000
Actual output (1992)	24,000
Weight of one unit of product	0.4 g
The market	Armenia, Russia

This is a subsidiary of Laser Technique company. The company is engaged in the business of processing artificial crystals for jewelry producing companies. Although the company is quite young (it was established in 1991), it is one of the most successful companies of the relevant industry. The company's market is mainly the CIS countries. However, the top management is carrying out a strategy of penetrating into Western and Asian markets, i.e. to regions where the jewelry industry is highly developed.

The Company's Strengths:

- **Access to raw materials:** Aguits is one of Laser Technique's subsidiaries. Another subsidiary of the holding company grows crystals for both laser production and jewelry. That is the reason why the company does not suffer any difficulties with procurement of raw materials, and, thus has a competitive advantage.
- **Low energy requirements:** Processing of crystals does not require a great deal of energy, and these requirements are easily satisfied.

The Company's Weaknesses:

The company's weakness is top management's passive marketing policy. The company relies on its traditional buyers and does not take steps to penetrate into new markets.

A.9. Kargevan

Item Description	Data
Type of Company	Private
Primary Product	Medical equipment
Number of management levels	2
Number of employees	10
Raw materials: actual supply	1,800 tons
Raw materials: demand	3,900 tons
Raw materials: actual usage	1,800 tons
Raw materials: cost	5,600,000 rubles
Energy: actual supply	120 kwt/hr
Energy: demand	120 kwt/hr
Energy: source of supply	State
Suppliers: actual number	5
Suppliers: contracted	3
Time to produce 1 unit: actual	8 hr
Time to produce 1 unit: planned	7.4 hr
Price in Armenia (the most expensive prod.)	100,000 rubles
Price in Moscow (the same prod.)	100,000 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	10,000,000 rubles
Capacity	300
Actual output (1992)	180
Weight of one unit of product	8 kg
The market	Russia

The company is one of Laser Technique's subsidiaries. It is producing scarificators and other electric devices used in health care. The scarificators are used for getting blood for medical analysis. In the age of a rapidly spreading AIDS virus and other infectious diseases it has a considerable demand not only in the CIS but also all over the world.

The Company's Strengths:

- **Monopoly:** The company is the only producer of scarificators in the CIS.

- **Low dependency on imported raw materials and components:** There are producers of electronic chips and other spares used in the production process in Armenia. Although these companies' production falls short of their capacities (because of the blockade), the company's demand is easily satisfied due to its low capacity.
- **Low energy consumption:** The production process does not require a big deal energy because the devices are assembled manually, and consequently, in small quantities.

The Company's Weaknesses:

- **Absence of promotional strategies:** The company does not use any promotion strategy, so consumers are not familiar with the company brand.
- **Poor technology:** As mentioned, the products are produced manually, which decreases the quality of the products.

A.10. Cognac Factory

Item Description	Data
Type of Company	State
Primary Product	Cognac
Number of management levels	3
Number of employees	200
Raw materials: actual supply	50,000 tons
Raw materials: demand	250,000 tons
Raw materials: actual usage	50,000 tons
Raw materials: cost	100,000,000 rubles
Energy: actual supply	500 kwt/hr
Energy: demand	500 kwt/hr
Energy: source of supply	State
Suppliers: actual number	15
Suppliers: contracted	8
Time to produce 1 unit: actual	1 sec
Time to produce 1 unit: planned	0.5 sec
Price in Armenia (the most expensive prod.)	1,200 rubles
Price in Moscow (the same prod.)	1,250 rubles
Price of transportation of 1 kilo of cargo (air)	250 rubles/kilo
Total Cost (1992)	540,000,000 rubles
Capacity	40,000,000 bottles
Actual output (1992)	14,000,000 bottles
Weight of one unit of product	0.8 kg
The market	CIS

Yerevan Cognac Factory is one of the relatively stable functioning companies in Armenia today. This is defined by the technological peculiarities and particularly by the strategic importance of this company for Armenia. Production of the cognac has a reputation in the CIS countries and abroad as high quality. Thus, this is a real source for Armenia to earn hard currency. The output of the company is cognac of different brands (depending on the cognac's age).

The Company's Strengths:

- **High visibility:** Armenian cognac has historically been sold in many countries all over the world. There is a high level of demand for the company's products.
- **Small energy consumption:** The production process requires a power supply only at the bottling stage.
- **The production's high quality:** The equipment the company uses for making cognac is old (and does not need to be new) and reliable. It provides a unique taste and high quality.
- **Availability of domestic raw materials:** The raw materials used in the production of cognac are grapes grown in Armenia.

The Company's Weaknesses:

- **Poor management:** The company's management appears to be unable to quickly react to the environmental changes. The company continues to use the old management style as it did in the centralized economy. For example, it passively waits until either the government or another customer orders cognac, instead of actively using strategic promotional approaches. For instance, no ad has been issued by the company.
- **Lack of bottles:** The company in general uses recycled bottles collected from the population. Due to the low price of the bottles, the population does not turn them in. The population prefers to sell the bottles to the private recycle centers, because the prices are more higher. In addition, the capacity of the bottle producing company in Arzni, Armenia is not sufficient to satisfy the company's demand. Therefore, the company is forced to reduce the volume of its production.
- **Harm to the brand image caused by forgers:** There are many big and small producers of fake Armenian brandy operating both in Armenia and in Russia.

APPENDIX B. List of All Ratios.

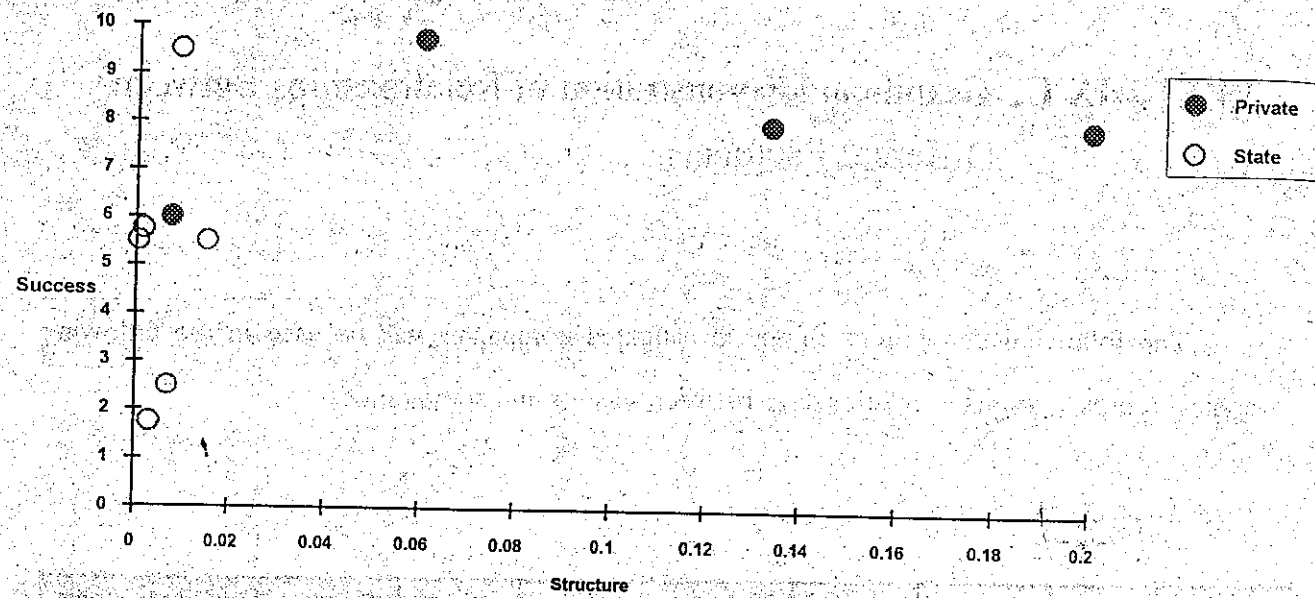
Ratio's name	Ratio	Description
The company's structure	$(\# \text{ of levels of management}) / (\text{Total \# of employees})$	Assessing complexity of the management system: the less the better.
Raw material supply ratio	$(\text{Actual Supply}) / (\text{Quantity Demanded})$	Assessing the company's satisfaction of demand in raw materials: the more the better.
Raw material usage ratio	$(\text{Actual Usage}) / (\text{Actual Supply})$	Assessing the company's capability to use the supplied raw materials: the more the better.
Electricity supply ratio	$(\text{Actual Supply}) / (\text{Quantity Demanded})$	Assessing the company's satisfaction of demand in power supply: the more the better.
Suppliers' ratio	$(\text{Actual \# of Suppliers}) / (\# \text{ of Suppliers Contracted})$	Assessing the number of suppliers that are performing the contract: the more the better.
Consumed Time Ratio	$(\text{Actual time spent on 1 unit}) / (\text{Planned time on 1 unit})$	Assessing actual time spent to produce one unit of production compared with the planned: the more the better.
Consumed Raw Material Ratio	$(\text{Actual quantity spent}) / (\text{Scheduled quantity to spend})$	Assessing actual usage of raw materials compared with planned: the more the better (it might seem that the less is the better. However, in Armenia it would mean that something, for instance lack of electricity, has decreased the company's capability to produce the planned quantity).
Weight of Raw Materials in Finished Goods	$(\text{Cost of raw materials}) / (\text{Total Cost})$	Assessing the extent of the company's dependence on raw materials: the less the better.
Electricity Price Ratio	$(\text{State Price/kwt}) / (\text{Actual Price/kwt})$	Assessing the company's sources of power supply by comparing the actual and minimal prices for electricity: the more the better.

10	Utilization Ratio	(Actual Output)/(Capacity)	Assessing utilization of the company's capacity: the more the better.
11	Market Prices Ratio	[PA + CT·W]/PO, where: PA - Market price of the product in Armenia; Q - Quantity sold; CT - Cost of transportation of one kilo of cargo; W - Weight of one unit of product; PO - Market price of the product outside of Armenia.	Evaluating whether the company should sell its product in Armenia or abroad. If this ratio is less than 1 the company should export its production. However, in this case time and risk will be involved in the company's activities. Therefore, the higher this ratio the better off the company.
12	Transportation Cost Ratio	(Actual Cost of Transportation / kilo)/(CA + CP + CT), where: CA - Cost of transporting by automobile CP - Cost of transporting by plane CT - Cost of transporting by train	Assessing the transportation modes being used by the company. The ratio evaluates expenses connected with transportation means used by the company regardless of the distance of travel: the less the better.

APPENDIX C. Graphical Demonstration of Relationships Between Different Factors.

The following denotations of the investigated companies will be used in the following graphical representations of relationships between success and some ratios.

Laser	Artash	Cognac	Agnits	Kargevan	Bulb	Arir-TOSP	Hayk	Armen Motor	Masis
S1	P1	S2	P2	P3	S3	P4	S4	S5	S6



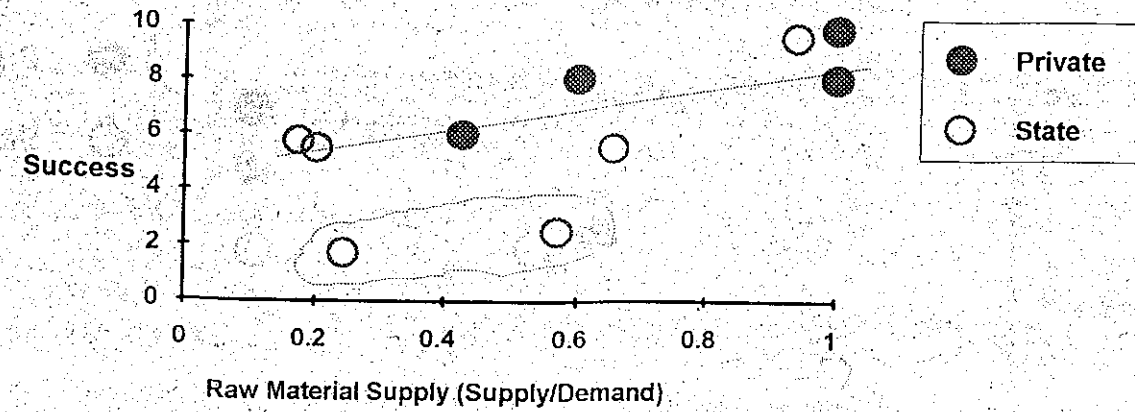
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Structure	0.0087	0.0600	0.0150	0.1333	0.2000	0.0006	0.0074	0.0067	0.0015	0.0031
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Structure: (# of management levels)/(# of employees)

Correlation with Success:
0.4688

Slope:
18.23

As we can see there is no dependency of the company's success on relation of the number of management levels to the total number of employees.



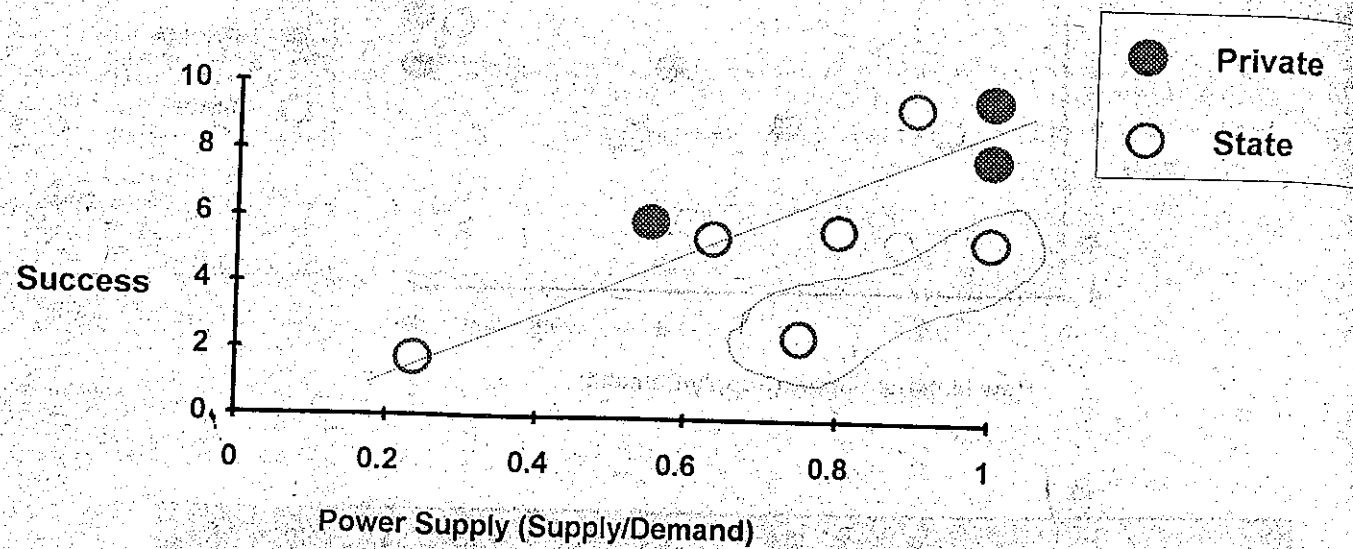
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Raw Materials	0.94	1.00	0.20	1.00	0.60	0.66	0.43	0.57	0.17	0.24
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Raw Materials: (Actual Supply)/(Demand)

Correlation with Success:
0.6974

Slope:
5.80

There is a considerable level of dependency of the company's success on extend to which its demand for raw materials is satisfied. The two outlayer companies that are taken in dotted area are Masis and Hayk, which means that the reason of their low level of success is not raw materials.



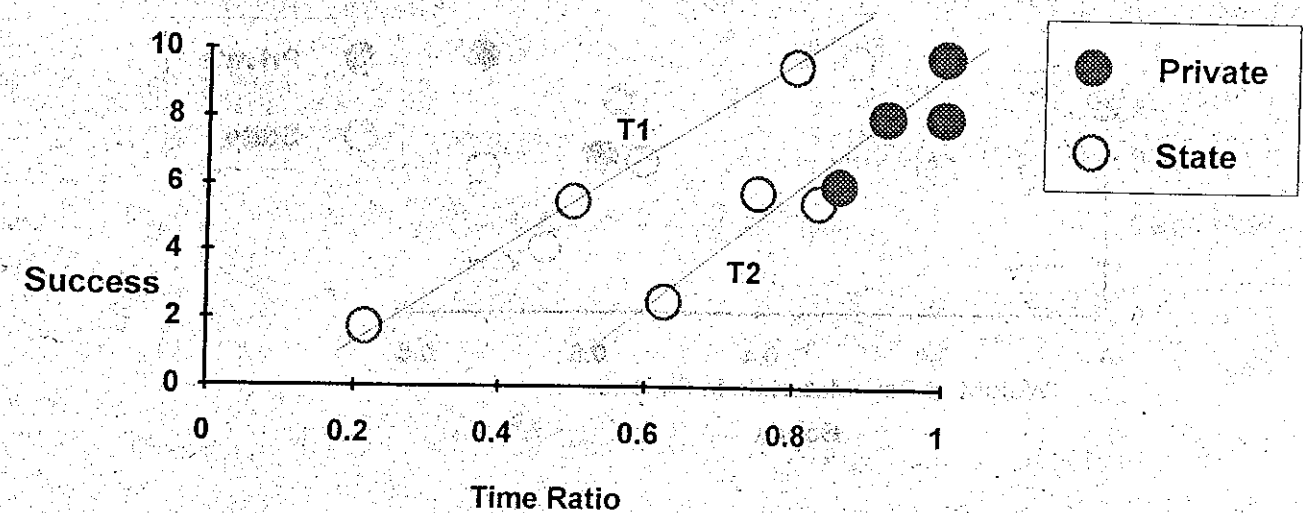
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Power Supply	0.90	1.00	1.00	1.00	1.00	0.63	0.55	0.75	0.80	0.24
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Power Supply: (Actual Supply)/(Demand)

Correlation with Success:
0.7328

Slope:
7.74

The correlation of success with satisfaction of the power supply need is quite high. The two outlayer companies taken in dotted area are Hayk and Cognac Factory, which means that most likely the reason of their low success is not energy. For each additional increase in power supply ratio, success is expected to improve by 7.74 (slope).



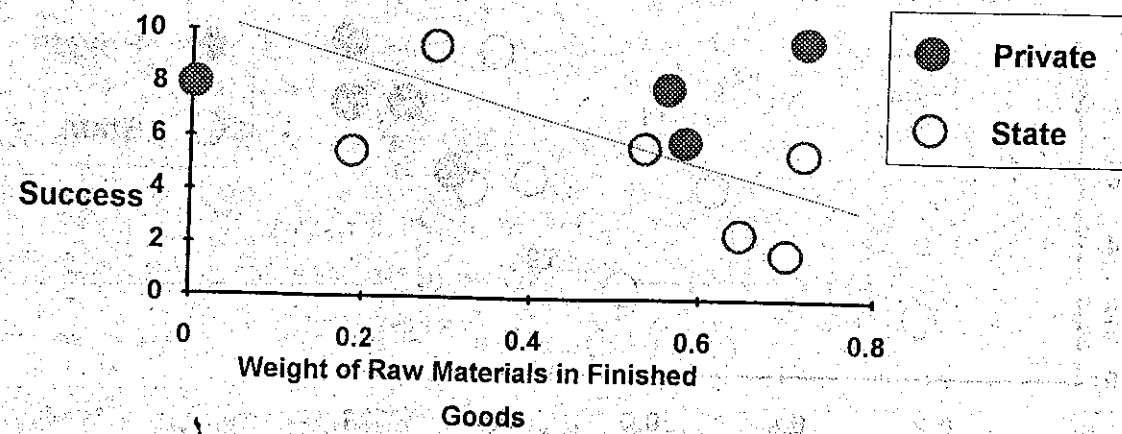
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Time Ratio	0.80	1.00	0.50	1.00	0.93	0.83	0.86	0.63	0.75	0.21
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Time Ratio: (Actual Time of Producing one unit)/(Planned Time to Produce one unit)

Correlation with Success:
0.8035

Slope:
8.78

The time ratio has one of the highest correlations with success. As it is shown on the graph there are basically two tendencies: T1 and T2. The companies defining tendency T1 are Masis, Cognac Factory, and Laser Technique. In general, it is expected that each additional increase in time ratio will cause 8.78 point increase in success.



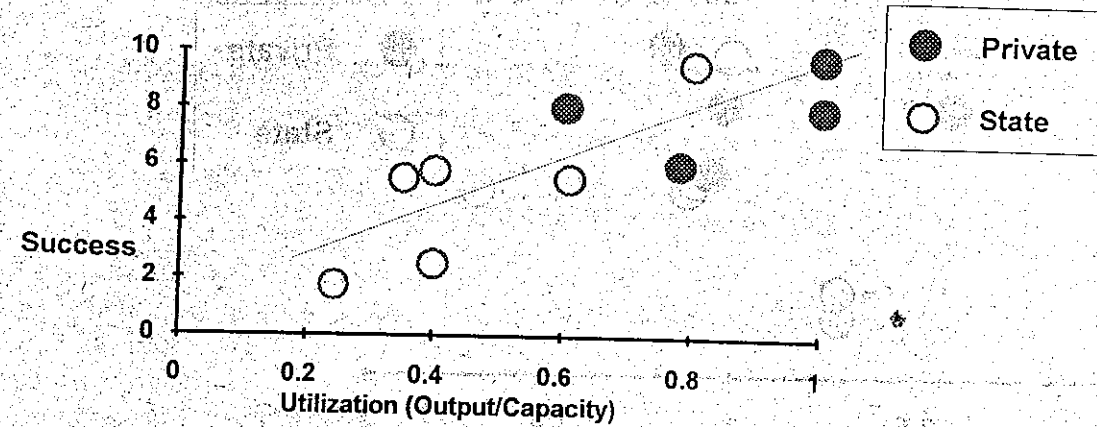
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Weight of Raw Materials Ratio	0.28	0.72	0.19	0.01	0.56	0.72	0.58	0.65	0.53	0.70
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Weight of Raw Materials Ratio: (Cost of Raw Materials)/(Total Cost)

Correlation with Success:
-0.3509

Slope:
-3.77

The slope is negative, which means that there is an adverse relationship between these two values. This means that in order to achieve more success the production must be chosen such way that cost of raw materials constitutes small part of the total cost. However, there is no high dependency of success on this ratio since the correlation is as small as -0.35.



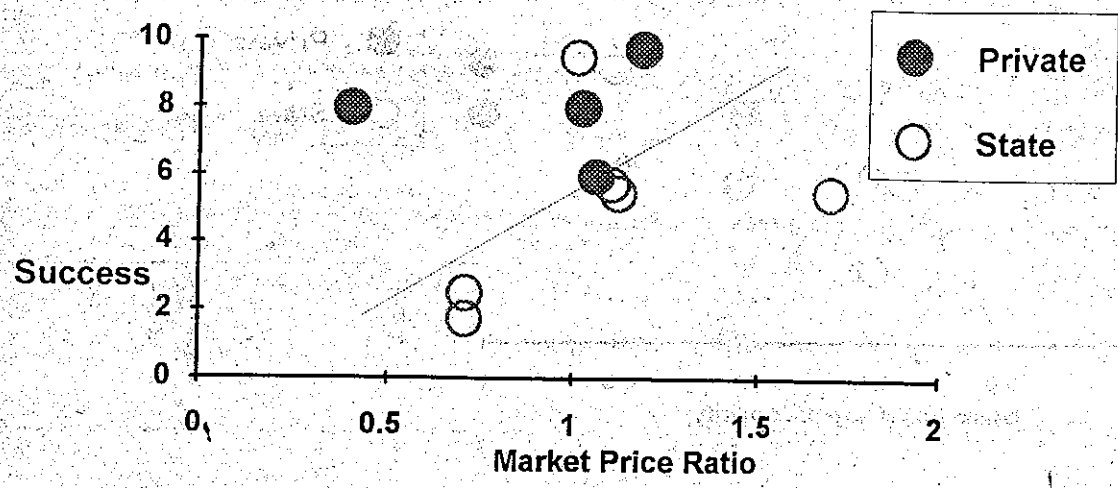
	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Utilization	0.80	1.00	0.35	1.00	0.60	0.61	0.78	0.40	0.40	0.24
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Utilization: (Actual Output / Capacity)

Correlation with Success:
0.8190

Slope:
8.12

Among all ratios utilization ratio has the highest correlation with success, which means that among the quantitative issues this is the most crucial for success ratio. The slope is also the highest. Each additional increase in utilization ratio will cause increase in success by 8.12.



	S1	P1	S2	P2	P3	S3	P4	S4	S5	S6
Market Price	1.01	1.18	1.12	0.40	1.02	1.70	1.06	0.71	1.10	0.71
Success	9.50	9.75	5.50	8.00	8.00	5.50	6.00	2.50	5.75	1.75

Market Price Ratio:

$[PA + CTW]/PO$, where:
 PA - Market price of the product in Armenia;
 Q - Quantity sold;
 CT - Cost of transportation of one kilo of cargo;
 W - Weight of one unit of product;
 PO - Market price of the product outside of Armenia.

Correlation with Success:
0.1619

Slope:
1.25

The least correlation with success. Actually this ratio is to indicate whether the company should sell its products in Armenia or abroad. If this ratio is less than one for a particular company's particular product, the company should sell this product abroad.

APPENDIX D: QUESTIONNAIRE.

American University of Armenia

QUESTIONNAIRE

Please, mark those topics, about which you would be willing to provide us with information

Organization's structure for:

- 1986
- 1990
- 1993
- The quantity of raw materials and energy necessary to meet the company's full capacity

Actual supply of raw materials and energy for:

- 1986
- 1990
- 1993

Personnel qualification: percentage of qualified managers, engineers and workers

- 1986
- 1990
- 1993
- The technology end equipment being used: when the equipment is purchased and how modern the technology is.

Financial statements for:

- 1986
- 1988
- 1990
- 1991
- 1992

Actual output for:

- 1986
- 1988
- 1990
- 1991
- 1992

Channels of distribution. Who are the main members of the channels.

The main markets in:

- 1986
- 1990
- 1993

Transportation methods used for importing raw materials (if any) and exporting finished goods.

The company's full capacity.

APPENDIX E. Calculation of the Rate of Return to Survive the Inflation and Taxes.

Here are some calculations indicating what the company's rate of return must be in order to survive if it does not hide its profits given the current economical conditions and the Armenian tax law.

The following taxes are levied against all Armenian companies [5]:

Value-Added Tax - 20% of the difference between total revenue (sales) and cost of raw materials

Fixed Assets Tax - varies by sector of economy from two to eight percent of the book value of the company's fixed assets. In the following calculations, this is ignored.

Profit Tax - progressive tax, the range is from 12 to 30 percent. In the following calculations, this is taken 30%.

The excise - currently they are levied on 17 types of products with tax rates varying from 5 to 70 percent of the wholesale price. Here it is assumed that the company's production does not fall in the list of 17 types of products (otherwise it becomes nonsense to pay, for example 70% of this tax, and 20% of value added tax and to survive)

The calculations are made by solving an equation:

$$\frac{\text{Net Profit}}{\text{Total Costs}} = \text{Rate of Inflation,}$$

which indicates for how much the company should sell its products to meet the inflation rate.

The rate of inflation taken is 10 (1,000%) [2].

To get net profit we must subtract total costs and all the taxes from the total revenue. So, we should subtract from total revenue: a) Value-Added Tax; b) Total Costs; c) Profit Tax.

Denotations:

S - Sales (total revenue);

TC - Total cost;

CRM - Cost of raw materials.

To calculate Value-Added Tax we should take 20% of the difference between sales and cost of raw materials:

$$\text{Value - Added Tax} = (S - \text{CRM}) \times (.2)$$

To calculate the profit tax we should first calculate the profit (which is total revenue less Value-Added tax less total costs) and take 30% of that value. So,

$$\text{Profit Tax} = (S - \text{Value Added Tax} - \text{TC}) \times (.3) = [S - (S - \text{CRM}) \times (.2) - \text{TC}] \times (.3)$$

We have the following equation:

$$\frac{S - (S - \text{CRM}) \times (.2) - \text{TC} - [S - (S - \text{CRM}) \times (.2) - \text{TC}] \times (.3)}{\text{TC}} = 10$$

Solving it we get

$$S = (19.1) \times \text{TC} + (.46) \times \text{CRM}.$$

That means in order to survive the inflation and taxes the company must sell the products at the end of year (assuming all costs are paid at the beginning of the year) for almost twenty times more than the costs were. Taking away the inflation rate, that is dividing it by 10, we get that with the current taxes the company's rate of return must be 100% (sales are twice more than the total costs).

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