

## **5. Investment Project of Company “X”**

### **5.1. Summary of the Investment Project**

The main aim of this investment project is to increase market share of the company “X” in PVC productions manufacturing sector. Company has second position in Lithuania now and has all opportunities to be first if they would increase their abilities to produce more PVC production. It can be reached by implementing new equipment and technology.

The market of PVC production is not fulfilled and almost all competitors of the company are not able to get bigger orders as they cannot suggest as good conditions of contracts as company “X”. Company already has a good reputation and permanent connections with many big construction firms. Substitutes of the project are still not as popular as PVC constructions, mainly because of its price.

This entire investment project and its implementation will cost LT12 998 000. Company “X” will invest LT4 752 000 from their own resources, LT5 528 000 will be the loan from bank, and LT2 718 000 – current liabilities (schedule 25, appendix 4). Another way of project implementation could be to receive some money from Structural Fund. Then, company should invest LT4 752 000 from their own resources, LT6 822 072 could be received from Structural Fund, another LT2 000 000 would be the loan from bank.

Note: all business project calculation are done and presented in the 1-5 appendixes by first variant.

There will be created 30 permanent work places in case, if the project was implemented. The salaries for that particular plant would vary from LT800 to LT2400 (schedules 7 and 8, appendix 2).

New technology will be implemented, which will lead to more ecological production and smaller pollution of environment. Total price of the technology will be LT6 822 072. All these money will be as a loan from the bank (or it could be received from EU Structural Funds trough their direct support to business).

Implementation of the project will take 10 months and manufacturing process could be started in October 2006. The capacity during year 2006 is expected to be 25% but should reach 55% in 2007 (schedule 1, appendix 1).

All investment costs should be repaid during 4,886 years (schedule 36, appendix 4). The risk of the project is quite low as all indexes of risk are not showing any threat of firm’s bankruptcy or

insolvency (see chapter 5.11). All financial indexes also prove that investment is safe and would make profits to the company (appendix 5).

## 5.2. Ltd. “X” Background, History and the Recent Activity

Company “X” was established in Vilnius, 21<sup>st</sup> of August 1995. It was established as a Limited liability company. All stocks of the company are owned by four people who are also executives of the firm.

### *The front office of the company:*

*The Chief Executive* – E. Ruzginis, born in 1960, finished Technical university of Vilnius and received a degree in engineering. E. Ruzginis started working for company “X” as Chief Executive from 1995.

*The supreme accountant* – R. Jonutiene, born in 1962, finished University of Vilnius with a qualification in Economics. R. Jonutiene has worked for the company since 1997, before that she was working in the area of finances for 14 years.

*Director of PVC manufacturing department* – L. Budvinas, born in 1956, finished Technological Institute of Kaunas and received a qualification in mechanical engineering. L. Budvinas is working as director of PVC windows manufacturing department from 1995.

The company was reorganised in the year 2000 into two separate trading and service. Also it was decided to concentrate on PVC windows manufacturing and to leave making of aluminium constructions as subsidiary manufacturing.

The positive outcomes of these changes:

- ✚ Successful implementation of integrated software system.
- ✚ The changes in the company allowed it to improve the efficient use of inputs, principals and methods.
- ✚ Working inputs were reduced.
- ✚ Savings were achieved in all basic resources.

In the year 2001, a lot of effort was put into establishing a new system for increased customer focus and new standards were established to attend to customer needs.

Windows from PVC, comparing it with other type of windows, are the same or better by their functionality, sound, thermal insulation and durability.

### **5.2.1. Basic information about the company "X" and its need for investment**

Limited liability Company (Ltd.) "X" specialises in manufacturing Polyvinylchloride (PVC) windows, different types of doors, winter gardens, and also in making windows from wood and aluminium.

The year when company "X" was established, the manufacturing of PVC started in collaboration with such big companies as "Schuco", "Siegenia", "Winkhaus" and "Rotox". The production was evaluated by experts and they were awarded a certificate of quality. All PVC windows are manufactured in accordance with the companies standard [ST 22050219.01.1996.

The main business process is concentrated on predicting and fulfilling the needs of buyers. The company is expanding in Lithuania all the time as their main aim is to be closer to the customers. Company "X" has its shops in all the biggest cities of the country since they were formed: Vilnius, Kaunas, Klaipeda, Panevezys, Siauliai, Utena, Marijampole, Mazeikiai, Kedainiai. In recent years, more shops were opened in other regions as the demand for the products has continued to rise. The company has also been successful in expanding their production in other countries: in 1999 a subsidiary of the company was established in Riga and a sister enterprise in Ukraine.

Company "X" was one of the quickest growing enterprises in Lithuania for the year 2004-2005. In the list given by magazine "Vadovo pasaulis", this company had 81<sup>st</sup> place, the year before it was at the 139 place in the same list.

The need of PVC windows in Lithuanian market is growing all the time and only by adjusting innovative technologies company can work successfully in this market.

### **5.2.2. The aims and strategy of the project**

The main aim of the firm is to become the number one company for PVC windows manufacturing. There are also other aims which the company is trying to achieve, such as:

- To change attitude that PVC windows are not healthy;
- Choose to use technologies and equipment which can minimise the pollution of surrounding areas;
- To create permanent training programs for all level of workers;

The company is going to keep the strategy they had before, which was orientated to markets expansion through the complex of quality and price of their products and services. This can be seen looking at the opportunities to get the same style of products for a very different price (prices of windows can verify from LT380 to more than LT 1000). The term of expansion for the company is much more than just figures. Expansion must be reached through satisfied customers. Company invested very much money in creation of their brand name in the past so they would not take a risk to lose it.

## 5.3. Market Research and Plant Capacity Determination of the Project

### 5.3.1. Economic situation in Lithuania

Lithuania is one of the smallest countries in the EU but is still considered to be one of the most promising countries from the new EU members.

Changes in gross domestic product are important for any enterprise as it shows the potential growth of the economy and how quickly the economy is developing, so it must be checked all the time and evaluated. Especially it is important for the construction industry.

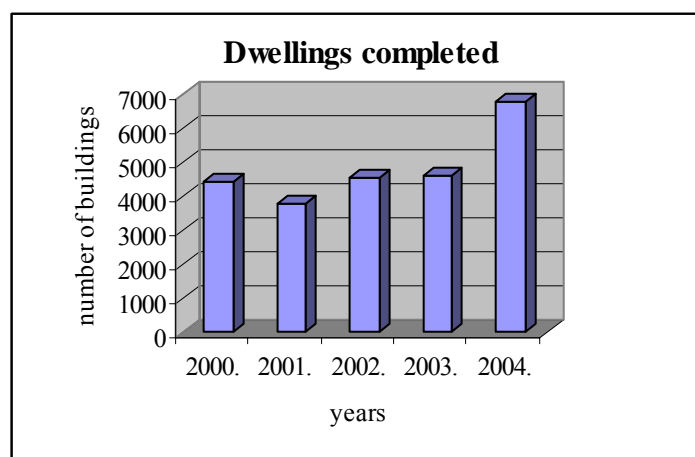


Chart 1: Living objects completed during year 2000-2004

Source: Statistics department of Lithuania.

During the last few years' lots of houses (chart 1) and not living objects (table 6) were built. It still has a trend to grow so the demand for PVC constructions is growing all the time.

Table 6. New non-residential buildings completed in Lithuania.

	Number of buildings					Total floor area thous. m <sup>2</sup>				
	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Total	1229	940	883	1348	2444	704	673	625	774	1193

Source: Statistics department of Lithuania

The construction firms prefer that their orders would be carried out by one supplier and it is necessary that the PVC manufacturers would have large capacities as these clients usually need a big number of PVC constructions at one time. Company “X” must invest more into their technologies as it would guarantee that they could make permanent contracts with big construction firms when their market will grow during the next few years.

The investment index into a country’s development is also very important in making decision if the country is beneficial for the enterprise (foreign investments can be attracted only buy ensuring that it would be profitable to do). All investment in Lithuania has grown by 12,6% during the 2004 year. The biggest part of the investment was made by private sector – 63%. Most investments were made to building and renovating houses and offices. Investments to dwelling houses increased by 67,3% compared with the year 2003.

It is considered that during the next few years’ direct foreign investment will be very important. The amount of foreign direct investment in 2004.10.01 was 14976,1 million Lt (table 7).

Table 7. Foreign direct investment during year 1996-2004 in Lithuania

	1996	1997	1998	1999	2000	2001	2002	2003	2004 10 01
Foreign direct investment, LTL million	1406	2801	4162	6501	8252	9337	10662	13184	14976.1
Foreign direct investment per capita, LTL	389	781	1168	1838	2350	2678	3068	3808	3912

Source: Statistics department of Lithuania.

The biggest part of direct foreign investment was attracted to manufacturing – 33,9%, to trading – 17,1% and to storage and communications – 15,3%.

### 5.3.2. Analysis of the commodity

The main product of company “X” is the manufacturing of constructions from PVC. The company is making, by individual orders, PVC constructions, windows of different measurement, doors, dividing walls, and winter gardens. Features of profile can be seen in a table 8. There is also a possibility to choose the colour of frame.

Table 8: Features of PVC profile

Features	The method of checking	Unit	Value
Ply	DIN 53479	g/cm <sup>3</sup>	1,4
Resistance to cold	10NM, 263	%	5
Changes because of the thermal chop	1h given 373 K	%	<1,8
Resistance to the air	DIN 53387	g/cm <sup>3</sup>	3-4
The coefficient of resilience	Between 293 K – 323K	K-1	8 x10 - 5

Source: UAB “Hronas”

#### Facilities of PVC windows, doors and glass-case:

➤ The basic standards and measures of the windows, doors and glass-cases must be indicated in the working drawing.

➤ The outside doors can be: single doors, two-leaved door, turn-up doors, dislodge doors, joined-up doors and other forms.

➤ The construction of conservatory can be made from the combination of doors and windows.

➤ By the requirement of the client the windows can be non-opening windows, or windows which you can open by its horizontal or vertical axis. The shape of the windows can be very different: three-corned, rectangular, round etc.

Price of one square metre can be different and vary from LT200 to LT7000 for one square metre.

### **5.3.3. Substitutes of the product**

Competition to PVC construction producers also comes from manufacturers of wooden and aluminium constructions. Clients who pay a lot of attention to prestige are choosing aluminium constructions even if they are much more expensive than plastic. On the other hand, price is the biggest obstacle for such companies to compete with manufacturers of PVC constructions

Special attention must be paid to companies which produce windows and doors from wood. Wood has deep traditions in Lithuania. The price of the wooden product, manufactured by old technologies, is not high but its quality is also low. It is not a direct competitor of our company but they still have a big share of market because of the attitude of people to wooden products. The wooden windows and doors made by new technologies has a good quality standards but its price is higher than productions from plastic so costumers still prefer companies "X" production.

### **5.3.4. Consumers of goods and services**

PVC customers can be divided by different features. They could be divided into the following main categories:

- ✚ Large-scale customers (banks, public offices, foreign capital companies);
- ✚ Architects, builders;
- ✚ Middle sized companies;
- ✚ Small customers

The biggest part of turnover is made from large-scale customers, the sum of such contracts are from 50 000Lt. The biggest part of the turnover of company "X" was made by getting orders from construction companies. Company "X" took part in almost all of the biggest projects of last year. Company has a flexible discount system for large-scale orders. The scope of turnovers form each group can be seen in figure 13.

Close collaboration with architects is an investment for the future. Architects' projects usually are practicable just after some time but working together with them is useful as they include the names of the suppliers already in project making process. To estimate turnovers here is hardly possible as the projects can include different construction companies.

Special efforts are made in trying to make connections with construction companies. It is possible to get lots of information about new objects building.

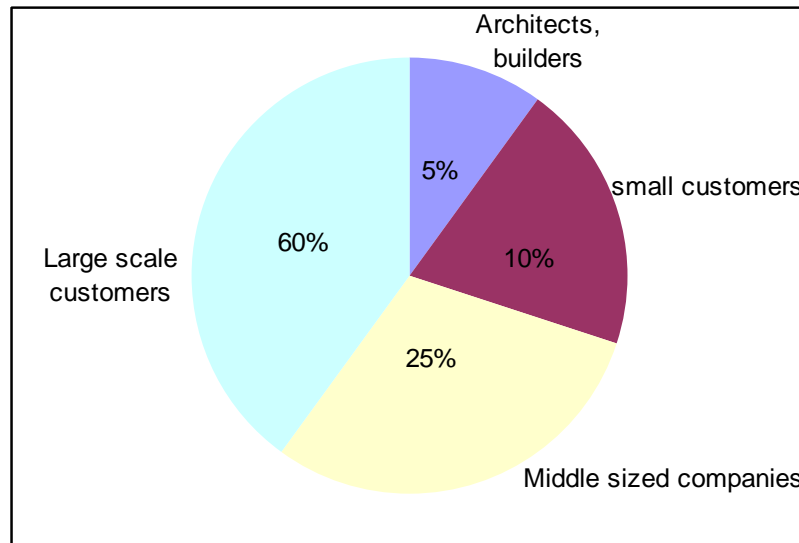


Fig. 13. Turnovers of the Company by Percents from Each Group of Clients

Middle sized companies can be personal companies, limited liability companies etc. who's amount of contract are from 10 000 Lt. to 50 000Lt.

Small customers can be individual people, little firms etc. The amount of such clients contracts are under 10 000Lt.

The hardest time for orders is from January till March when there are almost no buildings works going on. During that period the company is preparing for a new season: business plans for a year are made then, estimation of the last year rates, training for personnel. Most orders are made during autumn when building is most active.

### **5.3.5. Segmentation and tendencies of the market**

#### **5.3.5.1. Segmentation of the market by the customers**

The tendency of changes in the market should be analysed by separate groups of clients, which are different by their needs, the sources of finances and the purpose of the objects they are building. Customers can be divided into such groups:

1. Private clients;

2. Private enterprises;
3. Building or Construction firms
4. Government funded organizations;
5. Profit seeking government companies;

### **5.3.5.2. Situation by potential groups of clients**

#### **(1) Private clients (flats and houses)**

After the conditions of getting credit to buy or renovate flats and houses improved, the main buyers, in that group, should become successful workers who have prominent positions in the firms of the private sector (different directors at various levels, managers, specialists of technologies, financiers etc.). The good prospects of getting real estate include officers who are in high and stable positions.

The affluent families, which already have property, will invest more to the business of real estate as it is one of the safest ways to invest money and obtain profits.

The old flats, which are in the prestigious areas, must be renovated by private companies, with the intention to make it luxurious.

There will not be noticeable changes in renovation of old houses as mostly they are still owned by older people with low revenues. An exception can be with old houses in prestigious areas as people who live here may wish to sell it for a very high price and move to less expensive areas.

By the latest forecast, the market of flats in Vilnius is still growing and building will not stop within the next few years. Also the economy of some other regions is getting noticeably better compared with previous years and it can be expected that people there will start to renovate their living places.

The psychological attitude of people to getting credit has changed recently and now they prefer to take it and buy their own flat instead of renting it.

*The basic criterion of private client's choice:*

- The quality of the goods (big influence of word of mouth, importance of the name of the company, arguments the company gives why their products are better than others).
- The price (especially important if the customer is renovating the flat).
- The quality of services the company can produce.

## **(2) Private enterprises**

*Small and medium enterprise.* Despite very difficult conditions for small and medium enterprises, some companies are working successfully and expanding their business. Because of the huge competition between such firms they must modernise their offices, shops, storage, and places of manufacturing. Usually it is done from the profits of the company.

In these companies usually their owners are making the decisions about goods they are going to buy. For them the important things are the quality of the goods, the reliability of the provider, the warranty the company will get and the service that will be provided after the warranty expires. For such companies payment terms are very important as small investments are usually made from their current assets.

The successful enterprises of such size have a small prospect or chance of growing in all big cities (mostly these companies who are working in the service area).

*Big business companies.* Some big enterprises are implementing aggressive expansion of their activity by expanding their offices, their places of trading, and establishing their centres of logistics. It can be explained by the growing living standards in the country and the growing potential of buying. The main big enterprises which still are growing fast or renovating their premises can be divided into the following groups:

- The chains of food sellers (“V.P”, IKI, Norfa, RIMI etc.);
- The chains of building materials, domestic electric appliances, cars;
- IT and telecommunication companies;
- The chains of petrol stations (must start to invest more in rural regions);
- Food industry;
- Furniture, clothes and chemical industry;

The biggest foreign investments are most expected in logistics centres and of course to all other groups mentioned above.

In the objects building process, ordered by big businesses, the buying of constructions made from PVC is usually made by the company who is building the objects. However, the last word can also come from the client, especially if the goods they want do not exceed the estimate of building costs.

Here, the reliability of the provider is very important, as is the quality and functionality of the product. The best advantage of having such clients is that after the object is finished, and if the company has a good after warranty service, they can achieve long term collaboration.

The way of squaring accounts with the sellers is not so important for a big companies as usually their investments are made by taking credits or by attracting foreign investments.

### **(3) Constructional firms**

Constructional companies can be also divided into groups:

*Big construction companies.* Usually such companies belonged to the government or were its subsidiaries. Most of them were orientated to manufacturing large objects, usually owned by government. Despite their big profits many of them had big financial problems because of their debtors. The main aim such companies have now is to get as many orders as they can and survive from their current assets. Because of their inefficient structure and methods of working it is not expected that they will get orders from the private sector.

The main criterion of their choice is only price and conditions of payment. Most of such companies are at risk of going bankrupt.

*Private capital constructional companies established after 1992 – 1993.* Most of these companies work by Western technologies and methods, and have an effective structure and qualified personal. Some firms specialise just in building flats or houses.

The main criteria of their choice are price and conditions of payment. Stable collaboration can be developed with such companies by reducing their costs of choosing suppliers, agreeing terms of payment and orders. Such companies are interested in possibilities to choose different type of payment and accumulative discounts.

*Foreign capital construction companies.* The main criteria for such companies are the reliability of the suppliers firm and the quality. Price takes second place to choosing the firm. Very big attention is paid to the quality of orders realization. This can be important if the goods are from the same country as the companies owners. Collaboration is possible only after achievement of high quality level.

*Small construction companies.* Mostly small companies take jobs of renovation in a small offices and private house building. Permanent collaboration is possible if good terms of supply are offered. Most works of installation such companies are doing themselves and they do not have department for purchasing and finding best supplier deals.

### **(4) Government funded organizations**

Investments are made mostly from different funds and almost all the buying is made by companies who are building or renovating public objects. The main criteria of choosing are low

price and conditions of payment. Now companies can get lots of orders from renovating different objects financed by government (schools, hospitals, municipalities etc).

#### **(5) Profit seeking government companies.**

Most of these companies have big problems with payment to their clients and are loss making companies. They can give some of their resources for building renovation, which are controlled by their directors. Most buying is made through building companies that are making even more problems with payoffs.

### **5.3.6. Analysis of competitors**

Compared with other companies, firm “X” has two main advantages:

- Qualified, rationally, architecturally and technically justified solutions, combined with customers requests;
- Combination of quality and good service.

#### **5.3.6.1. Direct competitors**

The main competitors in manufacturing doors and windows are:

1. Ltd. “Megrame”;
2. Ltd. “Plasmeta”;
3. Ltd. “Aveplast”;
4. Ltd. “Alseka”
5. Ltd. “Aulaukis”;
6. Ltd. “Remika”;
7. Ltd. “Stamita”;
8. Ltd. “Vorto renovacija”;
9. Ltd. “Arvio sodas”;
10. Ltd. “Plastita”;
11. Ltd. “Jukunda”.

Despite the fact that there are many companies who manufacture PVC frames doors and windows, in recent years the gap between profits and turnover between companies has become bigger. Company “X” and company “Megrame” are getting the biggest profits and they are much

bigger than the third company in the list (company “X” got 85.850 Lt. thousands without VAT and their closer competitor got 16.200 thousand Lt. without VAT). The main aim for company “X” now should be to get closer to Ltd. “Megrame” and become number one in the market.

It is very important to reach a balance between price and quality. Everybody prefers to buy a high quality product but it is very expensive so, customers usually are choosing lower quality and cheaper windows. The manufacturers could be divided into four groups considering the balance of their production, price and quality as it can be seen in a figure 14. But the situation in the Lithuanian PVC production market now should not be forgotten. Companies cannot be strictly assigned to one group or another as their scope of production and price is very large. One company can suggest different combinations of price and quality.

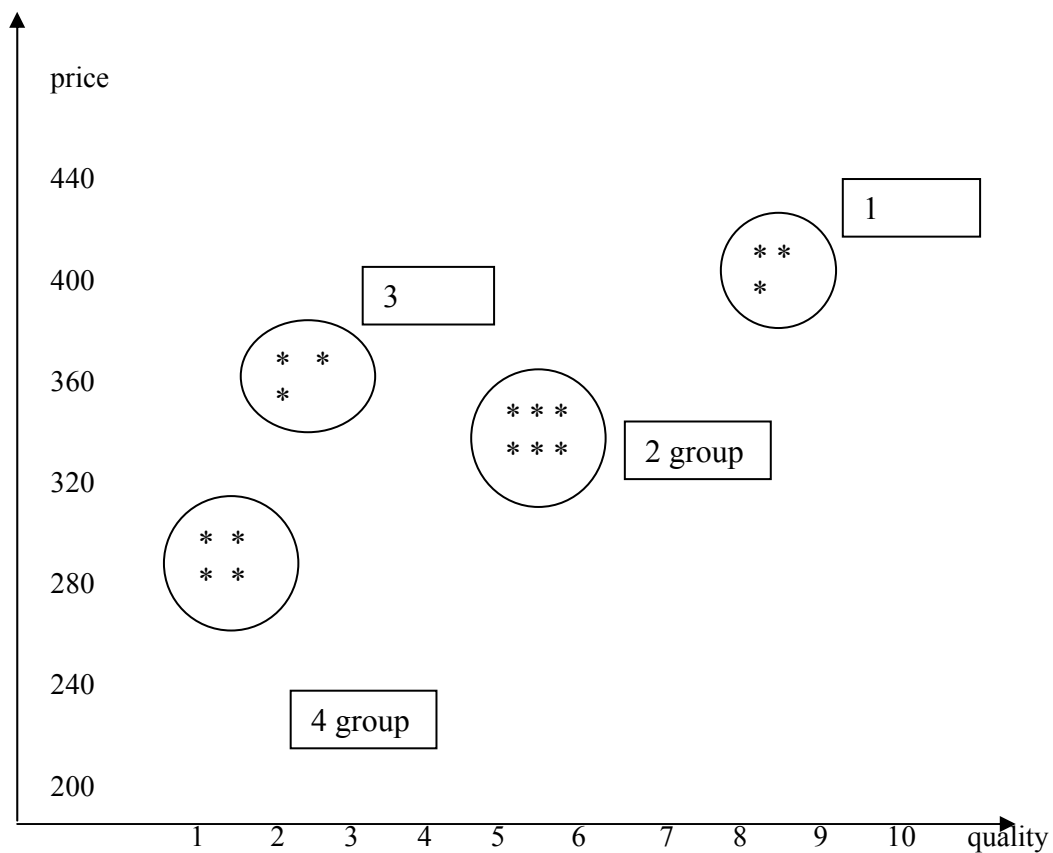


Figure 14. The proportion between price and quality

The first group includes companies which produce goods which are both high quality and expensive. The main criteria which save that group from other firms’ direct competition are the manufacturing systems of PVC profiles and the workers with very high qualifications. For this group belong such companies as Ltd “Megrame”, ltd “Aveplast”, company “X” and others.

The second group includes companies which are using middle level PVC profiles systems, which are cheaper, but the technical requirements of PVC high quality are also fulfilled. These

companies attract clients with their lower prices (Ltd. “Arvio sodas”, Ltd “Stamita”, Ltd. “Plasmeta” etc.).

The third group of companies are mainly importing windows from abroad, but with not very high quality. That is making their products expensive and not as attractive for clients as they cannot see the right balance between quality and price. Such practice in Lithuania is not popular anymore and none of the eleven companies mentioned are using that tactic.

Fourth group includes companies which are using low level PVC profiles system. The quality is low and prices are low too. Such companies usually provide individual customers who are renovating flats and houses but do not have big revenues for buying expensive products. There are many such companies in Lithuania but none of them in the main concurrent list mentioned above as their revenues are not high.

### **5.3.6.2. Indirect competitors**

There are 119 indirect competitors in that market. Most of them cannot suggest such quality and scope of products like company “X” so they cannot compete with the company “X” directly for big orders they get (which gives to the company biggest turnovers as it was mentioned above).

After survey of the direct and indirect competitors the following conclusions can be made:

- ✚ There is just one firm who is a really strong competitor and whose results are still much better than those of company “X”.

- ✚ Though more direct competitors are mentioned, the gap between company “X” and their turnovers and incomes are too big for them to make a real threat to the firm, at least in the short term. Of course their activity must be observed at all times.

- ✚ The company must invest into the development of their activity. The last forecast by the business newspaper “Verslo ziniuos” is that the buildings industry is one which will grow quickest during the next few years. It means that demand for PVC products will grow too and the company must use that situation or other potential competitors, who are much smaller now, will take that opportunity.

- ✚ One of the main advantages company has against other companies is in their brand name. Company “X” is known as a leader in making production from PVC. The company has stable and close collaboration with some big construction firms as they can suggest a flexible discount system.

✚ It is very important to find the right balance between price and quality, as the products themselves are very similar to each other in all of the top eleven companies in the country.

✚ Company has one more very important advantage against other competitors – a large number of representatives throughout the country.

### **5.3.7. The marketing strategy and planning of the manufacturing process of company “X”**

There are two main products and services programs:

1. Program for private houses (windows and doors);
2. Program for shops and offices (doors, glass-cases, windows, dividing walls);

The main aim of the company’s strategy – to be the best manufacturer of PVC windows and doors in Lithuania and to be in the top three in Latvia by sales in that market.

Reaching these aims the company must pay most attention to:

- Expansion of distribution channels and ensuring that the final customer will get the best quality product and service;
- Permanent modernisation of manufacturing, which would give the biggest capacity during the season and would allow the company to minimise the cost during times when orders go to the minimum;

The strategy of sales is based on segregation of client groups and concentration on the most potential clients. The company’s sales and marketing department tries to find the groups of clients which are the most attractive to the company’s aims and are likely to choose the firm “X” instead of others. Also the company is trying to influence these clients who have no real preference. For such clients the balance between price and quality is very important and also payment terms. It is noticed that advertisement companies are not important in that market as the main clients are large-scale companies who can not be affected by advertisements very notably. Priority groups, their needs are in table 9.

Table 9. Previous clients groups and orientation to their needs

Group of clients	The main needs and criteria of selection
Private clients	1. The culture of personnel, professional consultations, technical solutions; 2. Good conditions of payment; 3. The quality of goods and services, name of firm;

	4. Range of services: consultations, designing, delivery, mounting, decorations, warranties and service after warranty expire.
Promising business clients	1. Consultations in designing and choosing the goods, optimal technical decisions; 2. Performance of the firm: capabilities, terms of realization and service after warranty expires; 3. Good conditions of payment.
Constructional companies	1. Details about product and service connected with it (technical conditions, capabilities of performing the work, mounting), reduction of building costs; 2. Reliability of the firm and good quality of the products and services; 3. Competitive prices, discounts connected with the amount of purchase; 4. Good payment conditions.

The marketing in the company now could be described as orientated to expansion of the company's sales. The variety of the production can be suggested are very large. The prices and quality are also varied and can meet different needs of consumers. Company is also using the marketing strategy orientated to proportion between quality and price.

## **5.4. Materials**

There are five main materials company needs in manufacturing process:

1. Glass;
2. Glue;
3. Plastic strip;
4. Plastic profile;
5. Complement components;
6. Other materials.

The need of materials and costs of it can be seen in appendix 2 schedule 4.

### **5.4.1. Suppliers and marketing of supply**

There are 12 suppliers which can be considered by the company. All of them are big enough and can suggest a flexible discount system and payment terms. There are some smaller companies from abroad which could supply the materials company need but they cannot suggest

such good purchase conditions as big firms. The only way for them to get into Lithuania's market is to establish big warehouses or storage yards of the materials in the Baltic countries.

It is always risky to change a supplier to a new one as the firm must change the system of supplying, and introduce a new software program which can be too expensive.

Company already is working for ten years and their investment project is to expand their capacities, they does not need to look for new suppliers or change the system of supplying they are using now as the firms which providing company with materials are able to provide company with a bigger number of materials they need. The company is using special software system for supply which allowed them to get materials in time and minimise the costs of storage as they have just a minimal quantity of the materials they need for manufacturing in their storehouses.

## **5.5. Location of the Project and its Effect on the Environment**

Company is going to renovate one of their buildings in the land at the suburb of Vilnius. As they expanding their manufacturing it is very important that the new manufactory would be close to all complex of company's manufacturing system. It will be made more investments in cleaning surrounding in the manufacturing areas which now is very messy.

The list of contaminating materials, for emission of which the Company pays taxes, is presented bellow:

- ❖ welding aerosol;
- ❖ manganese oxide;
- ❖ butanol,
- ❖ solvent;
- ❖ carbon monoxide;
- ❖ carbon oxide;
- ❖ carbohydrates;
- ❖ nitrogen oxide;
- ❖ sulphur anhydride;
- ❖ lead compounds;
- ❖ hard particles;
- ❖ petrol, chlorides, sulphates;

❖ other materials.

Other waste are stored on the territory of the company, delivered to dumping grounds, burnt or salvaged by State Stock Enterprise “VARA”.

At this moment company pays taxes for protection of environment for emission of inevitable contaminating material of the production process. The company has not paid any fines for exceeding established standards for pollution of the environment.

It is also very important that all complex of manufacturing buildings is outside the city and is located in the engineering area, which is pretty far from residential areas. The company already has permit from the municipality of Vilnius to start renovating works in the object.

The manufactory will be located near road Vilnius-Kaunas, what will make easier the transportation part.

The production line for glass units which is planned to be bought is provided with all necessary ecological equipment and operates in an ecologically clean cycle. The production line for painting aluminium construction is not as ecologically safe as the line for glass units. But it should not increase the emission of contaminating material at a very large scope.

So the affection to the environment of surroundings should be minimal as the company is going to buy the best equipment considering the pollution. It could be seen a good point of investing money to this project as less developed areas of Vilnius can be improved just by attracting such private investments which are leading to creation of better infrastructure.

## 5.6. Equipment

*Basis for the choice of equipment.* Now the productivity of the equipment in the company is 115 units per shift. It is a high percentage of the total capacity but as the forecast for demand growth is also high it is obvious that company needs to change some of their equipment if they want to meet their aims. At the moment, the capacity of the company is almost fully utilised and it could not meet bigger orders.

The quick growth in demand for the company’s production and good forecast growth in the buildings market was the biggest stimulator to buy some new equipment for increasing the productivity of manufacturing in the company. The list of equipment can be seen in table 10.

Table 10. Equipment

Title of equipment	Price LT
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Automated equipment for cutting and drying glass	770 000
Half-automated equipment for assembling and installing glass	660 000
Equipment for processing a surface	520 000
An automated travelling crane	690 000
A line for painting	480 000
2 profile cutting saws	588 000
2 screwing on machines of armature	480 000
Water milling machine	490 000
2 automatics of perforation screwing	460 000
2 heads welding machine	340 000
2 machines of corners purging	280 000
Table of shoeing	110 800
2 Stand of glazing	160 000
A filter press	146 000
A smoke purification plant	246 000
A paint-spraying gun of a powder type	145 000
Spare parts and tools	5 152
Auxiliary equipment	166 000
Service equipment	25 120
Total:	6 822 072

Note: prices given in the table are relative

In making decisions about getting equipment one of the most important factors is environmental. The equipment and its production would match the EU environmental standards. This technology is more expensive than others and its production will be a little more expensive but people are ready to pay more and get a product which is better for both their health and the health of their workers.

## **5.7. Management Structure of Company “X”**

Most of the leading specialists of company “X” are the stock holders of the company. Controlling interest belongs to 4 executives.

Board of directors initiate strategic solutions connected with:

- development of production, implementation of new technologies and devices;

- systems of selling and supplying;
- development of new markets and warranty that old clients will get a good service.
- production and buying process of new products.

The organisational scheme of new branch of company “X” can be described as the functional organization (fig. 15). Everyone will be directly responsible for their work to the manager of the factory.

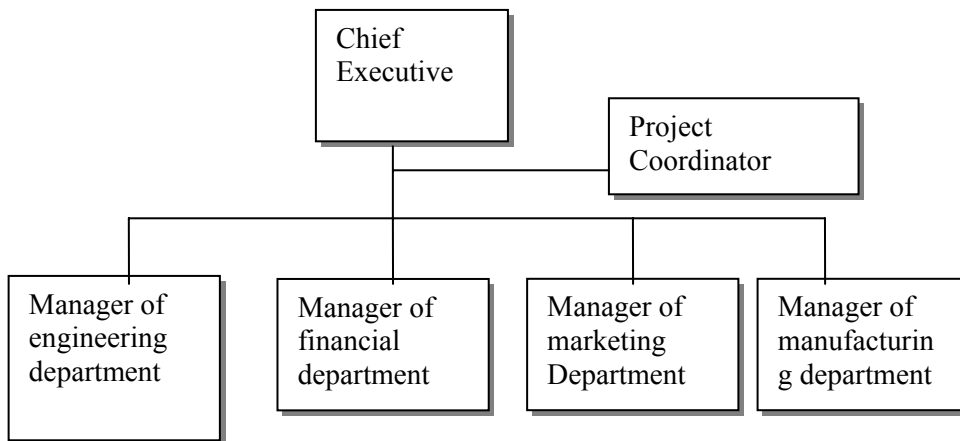


Figure 15. Project in Functional Organization

It is planned that it will be appointed one person from companies manufacturing department for controlling implementation of the project. He will be directly accountable to general manager.

## **5.8. Work Resources**

The total number of people now working in company “X” is 476. It is planned that in the new subdivision of the company in the first year there will be 30 employees.

The salaries for employees will fluctuate from 500 Lt. to 5000 Lt per month. It is also planned to update permanent program of training.

The list of employees and its qualification can be seen in table 11 and the amount of money which will be spent on salaries and wages can be seen in schedule 7 and schedule 8.

Table 11. List of required employees

<b>Position</b>	<b>Number of employees</b>	<b>Qualification</b>
Manager of the plant	1	Economical engineering
Chief of the shift	3	Engineer
Bookkeeper	2	Economics or finances
Engineer-Constructor	1	Engineer
Engineer-technologist	1	Engineer
Regulator of quality	1	Engineer
Manager of transporting	1	Business management or transporting management
Storekeeper of production	1	-
Storekeeper of materials	1	-
Workers for manufacturing of glass units	4	
Workers for operating the production line for painting	6	
Shop man	2	Non academic engineering
Drivers	2	-
Keeper	2	-
Cleaners	2	-
Total	30	

## **5.9. Implementation and Budget of the Project**

The amount of money, necessary for investment project is LT12 998 000 (appendix 4, schedule 24).

In the 3<sup>rd</sup> appendix is shown a calculation of all investment cost of the project. In schedule 9 is calculated all cost of pre-investment studies and preparatory investigations. In 14<sup>th</sup> schedule are calculated all costs, which are needed for project implementation.

## 5.9.1. Project life cycle

The start of the project is considered to be the start of writing investment project. All project life cycle could be divided into three phases:

- Pre-investment phase – the preparing of the project feasibility study and other preparatory investigations, then receiving of the loan from bank (first 2.5 months).
- Investment phase – reconstruction of the building, acquisition and installation of the equipment, trainings for workers, buying of the stock for the start of production, experimental manufacture, the beginning of manufacture using all potential of the technology and equipment. (10 months).

Notice: the first year should use just about 25% production capacity, as the implementation of more devices (production line for the painting) is planned just after 10 months. The performance first year will be not so good also because employees will not be as soaked up with the technology as after longer work with it.

- Exploitation phase - manufacturing and selling all kind of production using all potential of the technology and equipment (7 years until main technology used in the project could be too old, and the project would need bigger innovations).

The investments planned will be implemented in two stages:

1<sup>st</sup> stage: the acquisition and implementation of the production line for manufacture of glass units. The assets necessary for final preparation of premises for the production process and time required for this preparation have been included in this stage. This period will take about half of the year:

- ✚ 1-3 months of the project – a full preparation of the production base;
- ✚ 1-2 months of the project – the acquisition and delivery of equipment;
- ✚ 3-5 months of the project – the installation and adjustment of equipment;
- ✚ 2-6 months of the project – the training of workers and advertising;
- ✚ 6 months of the project – experimental manufacture, the beginning of manufacture.

2<sup>nd</sup> stage: the acquisition and putting into operation of the production line for the painting (7-10 months of the project).

Implementation of the project, till the end of 2<sup>nd</sup> stage, will continue 10 month. Start of manufacturing process should be started in April 2006.

For more detail planning of all works of project implementation could be used computer soft programme as MS Project. Using this programme it is possible to apply such methods as Gantt charts, or critical path method (CPM) or PERT.

## **5.10. Financial Analysis of the Project**

Calculations and forecast of the capital turnover and the main financial statements, and all financial rates and indexes are done for eight years periods. All financial calculations and forecast have been performed only for the sector of manufacture of constructions, for which investments have been planned. These have been made in order to avoid a misrepresentation of repayment of investments connected with favourable or unfavourable impact of results of manufacture of other goods.

The forecasts of receipts have been based by the volume of production and the strategy of prices of the company.

The possible largest investments and operation expenses and possible minimal receipts have been stipulated by the project. Such a method of calculations has minimized the manufacturing risk.

The proportional coverage of fixed property per service life or property has been stipulated.

The foreseen price of capital corresponds to expected average interest rate.

The profit tax has been calculated according to the rate established by the Law on Profit Tax of Legal Persons of the Republic of Lithuania.

The value added tax has been included into calculations of the project. Its tariff and the order for its payment have been established by the Law on Value Added Tax of the Republic of Lithuania.

VAT of purchase of equipment had not been included in flows of cash because according to the valid practise VAT for imported goods is paid back.

### **5.10.1. Production costs**

All calculations of production costs of the project are shown in the appendix 2 (schedules 3–8). All production costs were estimated per year under 100% production capacities. Total production costs by year are presented in the schedule 19, appendix 4.

Direct expenses in total production costs have been equal to 88,67% in the first year and 97,8% in the last year of the project. Raw materials and other inputs make up the biggest part of the direct expenses – 96,4%.

Labour expenses including social insurance have been assessed by taking into consideration the planned number of workers and modification of wages and salaries. It has been planned that the manufacture of constructions is performed by 30 employees.

The cost of electric power has been calculated by assessing the capacity and time of operation of engines used in manufacture of constructions.

Deprecation of the project have been calculated according to deprecation standards established by Ministry of Finance, which fix the physical wear of fixed assets (schedule 35, appendix 4).

### **5.10.2. Investment requirements and financing of the project**

Company “X” should invest LT4 752 000 from their own resources, LT5 528 000 should be the loan from bank, and LT2 718 000 – current liabilities (schedule 25, appendix 4).

Loan would be taken for 7 years with the 12% interest rate. The total amount of the money paid to bank will be LT8 127 680. All calculation of debt service is presented in schedule 34 (appendix 4)

All investment costs are estimated using schedules 9–14 form appendix 3, and schedules 5–18, 21–24 from appendix 4.

The greatest share of investments will be allotted to acquisition of the production line and its components for manufacturing of glass units (LT4200 000) and to acquisition and installation of the ventilation system (LT470 000) in the 1<sup>st</sup> stage of the project implementation. The investments of the 2<sup>nd</sup> stage will make up 27,5% of total investments. This share of investments will be mainly allotted to acquisition of the production line for painting the constructions (LT399 000). Building engineering works will require LT356 250 (schedule 13, appendix 3).

### **5.10.3. Financial accounts of the project**

Effectiveness of investment project can be seen in its financial reports in appendix 4.

There are quite few indexes for estimating effectiveness of investment project. Some of them are more common then others:

**IRR** of the project is equal 49.99% for project without outside financing (schedule 32) and 49.99% for project with outside financing (schedule 32). It shows that investment is very safe as no one can expect that discount rate can be higher than this percent.

**NPV** of an investment is the difference between the sum of the discounted cash flows which are expected from investment and the amount which is initially invested. NPV of investment project for the company is LT11304mln for project without outside financing (schedule 32) and LT11304mln for project with outside financing (schedule 32).

**Project pay back** is in 2.9 years. Estimation is presented in schedule 36 (appendix 4).

**WACC** of the project is 11.62%.

Cash flow table for financial planning is presented in the schedule 27 (appendix 4). In this statement net cash flow during all periods must be positive. In another way where will be lack of money to implement project in time.

In the net income statement (schedule 28) can be seen profitability of the project (appendix 4).

Cash flow account for net present value estimation is presented in schedule 32 (without outside financing) and schedule 33 (with outside financing). It shows that net cash flow will be negative during first years of investment, when capacity of manufacturing will be just 25% (appendix 4).

Balance sheet can be seen in schedule 29 (appendix 4).

Financial statements required by commercial banks (or other financial institutions) are presented in schedule 37 (Net income statement), schedule 38 (Cash flows table for financial planning), schedule 39 (Balance sheet).

#### **5.10.4. Financial indexes of investment project**

Financial indexes take a very important part in evaluating investment project. Analyzes of such indexes can predict and estimate the threats company can meet in the future (possibilities that company may not have enough money for paying their debts, to estimate if company will not have shortage of some resources in a long term and etc.).

Financial indexes of the company can be seen in appendix 5.

From these financial indexes can be made conclusion, that company will not have problems with payments for their creditors. Liquidity rates shows if the company is able to keep their payments on time to creditors. All liquidity indexes of the company are much hire than it is need to

be for stating that the company will be able to pay their bills. Only the net circulating capital-assets ratio is not so good and it has a tendency to vary, but this one index cannot be taken from the context and there is no need too panic, that company may be at bankruptcy risk.

Indexes of effectiveness rates of assets use reflect how quickly money or material resources can make turnovers. Company should work out some things in this area as its inventory turnovers does not reach the level which is considered good in a stable working company (ratio 6). But it has a tendency to grow every year so it cannot be considered that this index is in general bad. All indexes of turnovers do not show any real threat to a company but it must be checked constantly.

Rates of capital structure are very good and all of them have a tendency to decrease. It shows that every year the share of the companies own capital against borrowed capital is growing.

The indexes of profitability shows how effectively company use their assets for getting profits. As we can see in an appendix 4, almost all these indexes are growing, what shows that the company works effectively. Some of these indexes are not stable but its fluctuation is not strong enough for stating that company should work better.

Last group of indexes, market value rates, shows the value of the company and its shares. It can be seen that the value of the company is growing all the time as the capitalization ratio is bigger every year. Many indexes connected with shares are not stable but fluctuation of it is not very noticeable and market price of share is growing every year.

## **5.11. Financial risk of the project**

Company X business plan is researched on the base of the computerized model for preparation and evaluation of the projects, which allows measuring some elements of risk and indeterminacy. As the discount rate is taken in account as a random dimension, net present value is calculated as the particular distribution not as the concrete dimension. Besides, the detailed analysis of sensibility is made, what allows to examine the alterations of the main indicators of the project's efficiency NPV (Net Present Value) and IRR (Internal Rate of Return) and to analyze the financial indexes of the project (liquidation, efficiency of asset's use, capital structure, profitability, market value).

Computerized model, which allows to exercise investigations and to estimate particular risk factors, is developed on the base of EXCEL spreadsheet and theoretical and methodical fundamentals of preparation of business plans stated in Chapter 4.

The project is implemented in two stages. The manufacture is being started as from the 1<sup>st</sup> year. Investments are made from two sources: equity allocations (4752 thousand of Lt) and borrowed capital (5528 thousand of Lt). The made production used to be sold in Lithuania and abroad. That's why one should pay considerable attention to the influence of exchange fluctuations, efficiency rates and system of financial ratios in the light of financial evaluation

After the final calculations are made (appendices 1, 2, 3, 4, 5), we manage to obtain the main statements: statement of cash flow financial planning (see schedule 15), profit and loss account (see schedule 16), planned balance sheet (see schedule 17) and cash flow statement, on the base of which, net present values are being calculated (see schedules 18, 19). Net present value (as well as internal rate of return) can be calculated in two ways:

It is evident that internal rate of return is better, when borrowed allocations are used, whereas net present value is higher when financing the project with equity allocations. But the fact, that internal rate of return is better while borrowing capital (what means that the project is used to be efficient even if the capital market prize increases (not exceeding internal rate of return in that case)) enable us to conclude, that supporting the project only with equity allocations is supposed to be uneconomical.

Computerized research model enables us to exercise multi-dimensional analysis of sensibility, to evaluate the main efficiency rates of the versions of driven project and alterations of financial coefficients (see appendix 5). Efficiency rates of the project mostly react to the factors presented in table 12. We receive two values of net present value (NPV) and internal rate of return (IRR), whereas two cash flow statements during financial evaluation are gained (with and without external financing).

12 table. Rates of efficiency of alternative variants of project

Efficiency rates of the project Alternatives of the project	Net Present Value, thousands of Lt		Internal rate of return, %		Payback period, in years
	NPV <sub>1</sub>	NPV <sub>2</sub>	IRR <sub>1</sub>	IRR <sub>2</sub>	PP
Base	8953	7788	39,16	45,88	4,655
Working capital increases 5 %	8072	8296	35,41	47,43	4,655
Exchange rate decreases 5 %	4537	3734	26,71	28,20	5,997
Exchange rate increases 5 %	12955	12150	53,0	67,01	3,923
Productive potential decreases 5 %	7245	6370	35,56	39,69	4,981
Productive potential increases 5 %	9368	8626	41,99	51,55	4,369
Cost of loan capital increases 5 %	5891	4833	40,06	42,49	4,876
Direct costs increase 5 %	5074	4369	28,20	31,09	5,745
Labour costs increase 5 %	8477	7679	37,77	45,34	4,686

Sensitivity analysis (see table 12) empowers us to observe that the efficiency rates of the project (NPV, IRR, PP) mostly respond to exchange fluctuations and increase of the direct costs. The great influence of the exchange rate to the efficiency of the project could be explained by the fact that some part of the production is being sold abroad. Variable expenses (for example, decrease (increase) of productive potential, increase of price for borrowed capital etc.) are less influential to the efficiency rates than the direct costs as the most part of production costs is comprised of expenditure on material. On the base of accomplished sensitivity analysis the project manager can provide for particular actions securing effective implementation of the project conceived. The disposal of analysis on liquidity, efficiency of asset usage, capital structure, profitability and changes in market rates (see appendix 5) enable us to deliver values of net profitability considering alteration of separate variables. It should be observed that profitability factors are influenced by the aforementioned variables –exchange fluctuation and changes of direct expenditure on material.

Results of the project's risk and indeterminacy evaluation on the base of simulation confirm repeatedly the efficiency of the project. The calculations are got on the ground of cash flow obtained during investigation, taking in account one thousand of haphazard values of discount rates and receiving one thousand of haphazard values of net present value. The best way to describe dependence of discount rate and net present value is to get close to the exponential and multinomial functions (see figure 16). One of the most important factors imaging efficiency of the project – empirical density function of net present value (see figure 17) – shows that all the values of it are positive. The expectations of the investor will be covered, if probability will be higher then  $NPV \geq 7788$  thousand of Lt (NPV of the basic version). Evaluation of the risk level that has comparable probability to get positive or negative results will lead us to the calculation of the coefficient of expected losses  $K_L$ :

$$K_L = 1975,6849 / (1975,6849 + 6493,3607) = 0,23328.$$

If we use the probable evaluation of net present value to the alternative version of the project (exchange rate decreases 5%) (see figure 19, 20) we'll come up to  $K_L = 0,2339$ , but only in the case when investor complies with the condition -  $NPV = 3734,43$  thousand of Lt. Probability, that even one mean of NPV of alternative project will be more then 7788 thousand Lt is equal zero.

With reference to values of statistical data (see table 12) expected integral effect can be calculated (formula 17):

$$E_L = 0,3 \times 14852,12 + (1-0,3) \times 5155,3 = 8064,346 \text{ (thousand of Lt)}$$

Value obtained is large then the net present value of the basic project what gives the investor additional assurance on the final decision on investment to the chosen project. Expected integral effect of the previously examined alternative project is  $E_L = 3598,622$  thousand of Lt what is less 3734,4 thousand of Lt (net present value, if discount rate not incidental) and substantially behind the net present value of the basic project. By this we prove that basic project is used to be more efficient then the alternative one, but on the basis of overall positive indexes (see table 13) the conclusion can be made that project is efficient and reliable.

13 table. Statistics rates for basic and alternative (cost of main material is increased 5%) variants of project

	Discount rate	NPV	Discount rate (base)	NPV (base)
Mean	0,110501	4229,199	0,110459	8467,775
Standard error	0,000646	29,93764	0,00063	40,77874
Sample variance	0,020422	946,7114	0,019929	1289,537
Standard deviation	0,000417	896262,6	0,000397	1662906
Median	0,110343	4159,638	0,11061	8363,484
Mode	0,077042	5909,03	0,062538	12046,42
Kurtosis	-0,38888	-0,22315	-0,06025	0,438491
Skew ness	0,048004	0,346867	0,000452	0,449871
Maximum	0,170315	7389,923	0,173633	14852,12
Minimum	0,054611	1973,779	0,035168	5155,3
Confidence level (95%)	0,001267	58,74796	0,001237	80,02192
Amount of headcounts	1000	1000	1000	1000

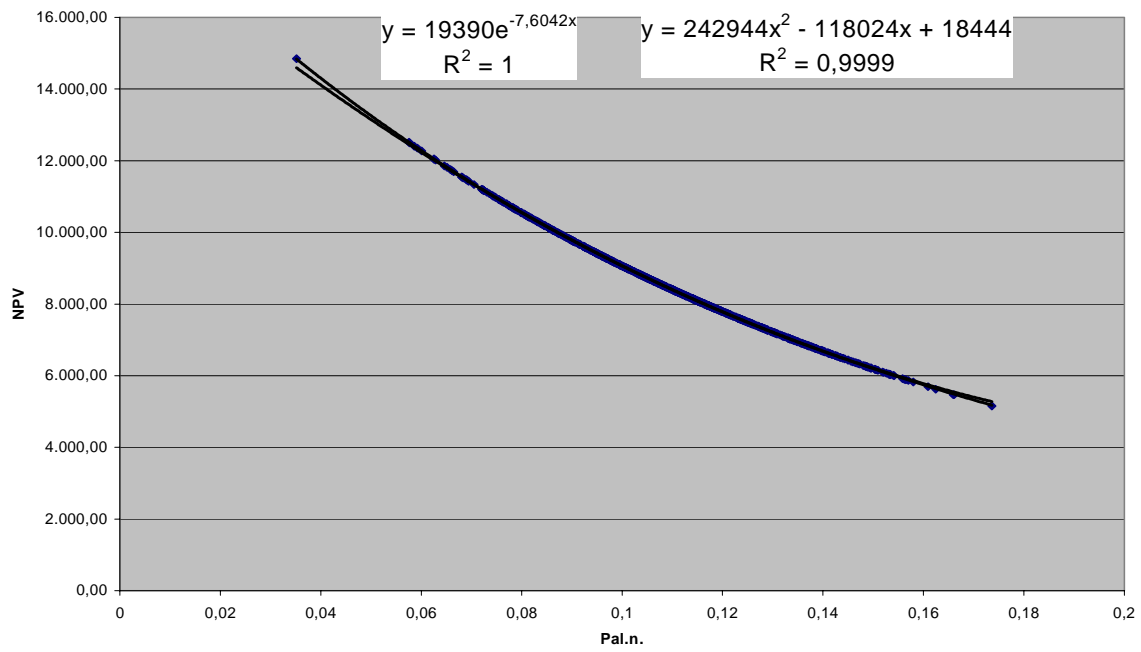


Fig. 16. Dependence of net present value on stochastic means of discount rate

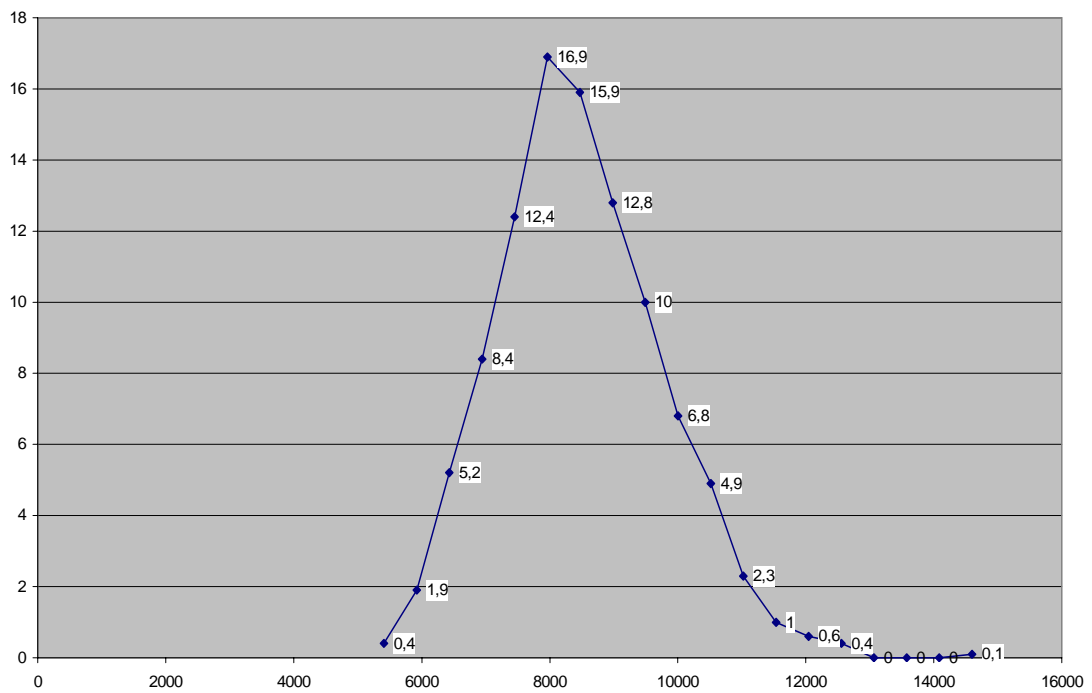


Fig. 17. Empirical density function

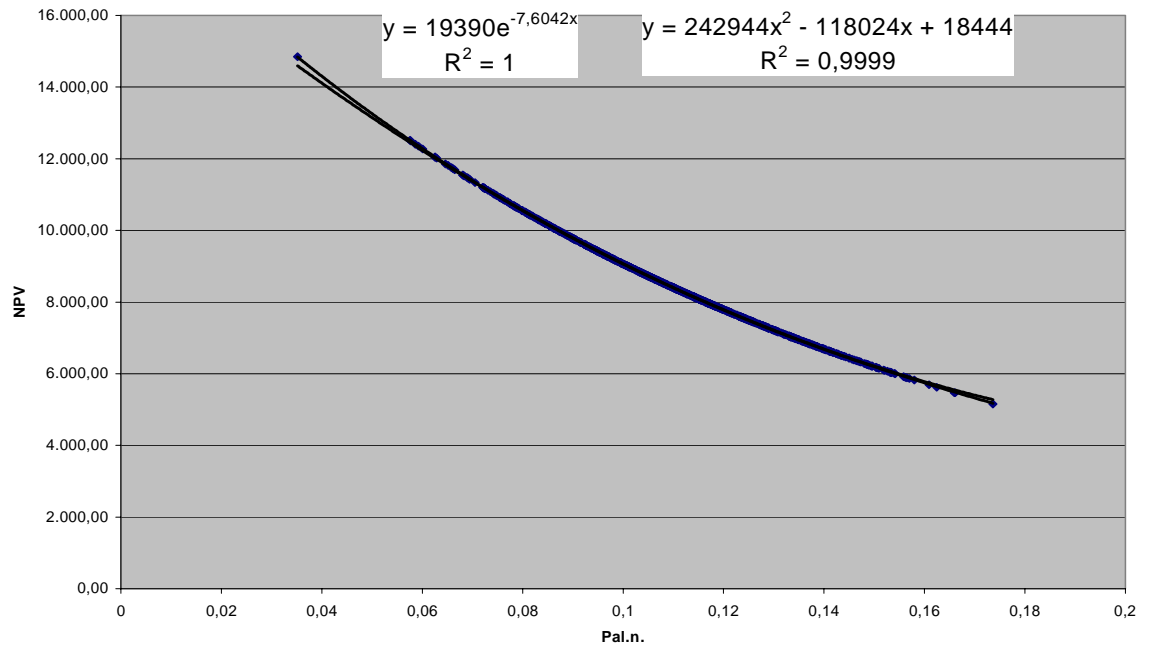


Figure. 18. Dependence of net present value on stochastic means of discount rate (for alternative project variant)

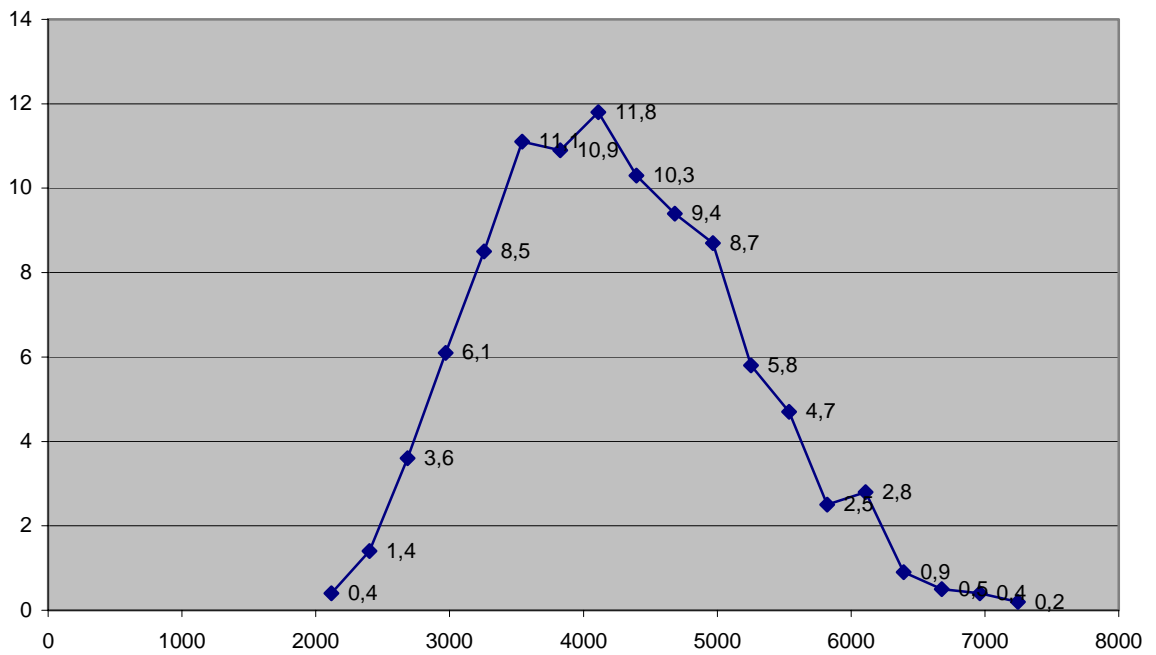


Figure 19. Empirical density function (for alternative project variant)

## **5.12. Social and Economical Benefits of the Project**

As stated previously, after implementation of the project, 27 new work places will be created. New employees would take a part in permanent training programs about the use of the newest technologies and management of such work. As the company is so successful they can spend more money on improving working conditions and salaries because a happy employee is a good employee.

The Company is going to buy new equipment that causes less pollution than what is currently used in Lithuania.

Company “X” is already in the list of biggest enterprises in Lithuania and is among the biggest employers in the country. Their revenues are growing all the time. New investments would not just create new work places but also would help increase Lithuania’s gross domestic product and bigger revenues would guarantee bigger taxes for the government.

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