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**SUPPLY CHAIN MANAGEMENT
LOGISTICS FOR SCRAP METAL COMPANY**

By

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**SUPPLY CHAIN MANAGEMENT
LOGISTICS FOR SCRAP METAL COMPANY**

Dissertation Approved

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Abstract

The purpose of this paper is to explore all market factors affecting supply and demand for scrap metal. It provides an analysis of iron production industry, in which is determined that the demand for scrap metal is driven by the steel, automotive and construction fields. There have been some personal contacts with people involved in the scrap metal trade to identify the type of equipment, the cost and manpower required and generally how the trade of scrap metal works, from the collection, processing and transportation for the export of raw materials.

The results from these personal contacts show that such businesses are capital intensive and require more equipment than labor in the production process. Also the demand for scrap metal is driven by the steel, automotive and construction industry so when they deal with recession problems, trade of scrap metal also faces problems.

Given the exploratory nature of the research there is potential for further studies on the analysis of each product separately to confirm the generalization in findings.

The existence of a link between iron industry and trade of scrap metal provides a possible route for those wishing to improve their business performance, focusing on the steel, construction and automotive industry.

The exploratory research in this paper focuses on the connection between steel and scrap metal trade and the implementation and management of these firms, which has received little attention in previous studies.

Keywords: logistics, steel, scrap metal trade, buyer behaviors.

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CHAPTER ONE: INTRODUCTION

Nowadays, recycling is a key concept of modern waste management. Recyclable materials, also called "recyclables" or "recyclates", may come from many sources, including houses, public services and industries

Recycling is the process by which anything that comes as a direct or indirect result of human activity, and is in a form that is no longer good for humans, is reused partially or totally. Usually in this process waste is converted into raw materials from which new goods are produced. Recycling reduces the consumption of raw materials and energy use and, hence, greenhouse gas emissions. According to June 1993 (the topic of the School and College Magazine) over 5400 BTU of energy is reserved for each pound of recycled steel.

To meet the challenge of global competition, many enterprises have invested significant resources to the collection, processing, export and re-use of these products for the manufacture of new goods with better, inexpensive, faster, safer and easier processing than their competitors.

The role of recycling is recognized as a critical determinant of the success and survival of many modern businesses and organized countries. The President of America (Barack Obama) established the 'Recycles Day' on November 25 2009. In April 2009 the Recycle bank was rewarded by the 'Champion of the Earth by the United Nations Environment Program' (<http://files.harc.edu>).

Recycling is also seen as a source of competitive advantage, innovation and direction towards a new organizational culture. Therefore, many companies put in their products labels that inform the public that these products after the end of their life must be recycled. Consumers are increasingly becoming aware of the importance of recycling and contribute to its realization.

Despite any attempts to modernize waste recycling methods with modern systems of production and transportation of raw materials, in some emerging market economies such as India and China, the recycling companies still continue to operate as labor intensive due to cheap laborers, without requiring as their ally the new technologies,

economies of scale, and innovation since they have the greatest competitive advantage in the market. (Nonferrous Metals Industry Association and China Statistical agency, 2010)

Today, recycling waste has become a multibillion dollar global enterprise (Timothy J. Considine, 2012). The Institute of Scrap Metal Recycling Industries, Inc (ISRI) is an industry trade association representing 1,300 companies that process, broker, and industrially consume scrap commodities. ISRI's primary objective is to promote greater awareness of the role of industry in the future conservation through recycling.

This paper refers to the companies that deal with the collection, processing, transportation and recycling of scrap metal through their exportation abroad to be reused in the market as new products.

The aim of this paper is to analyze the field of scrap metal industry, the analysis of Paphos market and the operation of these businesses.

The second chapter is a detailed analysis of the scrap metal industry; the third chapter analyses the business plan of our business, the fourth chapter discusses the results and the fifth chapter presents the conclusions and in the next section the relevant literature is presented.

CHAPTER TWO: INDUSTRY ANALYSIS OF SCRAP METAL

2.1 INDUSTRY ANALYSIS

Metallurgy is a branch of the materials science, relative to the production of various metals and alloys from ores and other raw materials, as well as the processing of metals and alloys aimed at the modification of their properties. The industry of metallurgy is divided into the categories of **extraction metallurgy** and **natural metallurgy, which is the science of materials**. (<http://el.wikipedia.org>)

Extraction metallurgy, the subject with which the current essay deals with, is the science of production (the extracting of) of pure metals, or alloys of metals, or other raw materials (e.g. scrap metal from materials recycling, etc.). Often in extraction metallurgy, the following fields are mentioned:

- **Pyrometallurgy** – which is the extraction of metals and alloys through the use of high temperatures (e.g. blast furnace in order to produce pig iron, etc.).
- **Hydrometallurgy** – which is the extraction of metals using aqueous solutions (e.g. extraction of gold through cyanidation of gold ores, extraction of copper through the use of sulphuric acid, etc.) and finally,
- **Electrometallurgy** – which is the recovery of pure metals or alloys through the electrolysis of aqueous solutions (e.g. copper, zinc, gold, brass, etc.) or molten salts or oxides (e.g. aluminium, magnesium, etc).

The science of materials (**natural metallurgy**) examines the attributes, and their modifications, of various metals and alloys, through the use of microscopy and mechanical testing. Typically, natural metallurgy is divided into the five areas listed below:

- Metallography – the science and the art of preparing various metals and alloys for study through optical or electron microscopy.
- Casting and machining – the change of the mechanical properties of various metals and alloys by melting, heat process (dye), mechanical means (rolling,

extruding, forging, drawing, etc.) or through a combination of mechanical and thermal process.

- Welding – the study of the methods that are used for the welding of various metal objects by the melting of the metal background, or through soldering.
- Plating – the coating of certain metals with another metal layer in order to prevent corrosion (e.g. steel galvanization with molten zinc), or merely for aesthetic reasons (e.g. gilding of jewellery).
- Powder metallurgy – the production of metal objects with precise dimensions, through precision sintering of pressurized metal powder, in either solid state or semi-solid state.

A special branch of metallurgy is **Archaeometallurgy**, which is the study of the history of metal objects production in the pre-industrial era (before the 18th century). Since the demand for metals cannot be met by the mining production alone (natural metallurgy), a large percentage of it is met through the recycling of scrap metal (extraction metallurgy). For example, 55% of lead is produced through the process of recycling (mainly of old car batteries). Likewise, 40% of copper, 32% of steel, 30% of aluminium, 25% of nickel and 1% of zinc worldwide is produced through recycling also.

Scrap metal recycling companies' production lines have three main components: Collection, processing and resale of metals. Half of the industry's total revenues come from the processing of iron and steel. The great demand for scrap metals derives from the steel, automotive and manufacturing industries. Each year the processing of scrap metals results in over 70 million tonnes of ferrous metals and over 9 million tonnes of non-ferrous metals.

The scrap metal industry is a capital intensive one, which means that it requires equipment, rather than labour, during the production process. On average, each employee in the industry can generate up to 740,000 thousand dollars of revenue through collection and 270,000 dollars through the processing of such scrap metal. (<http://el.wikipedia.org>)

2.1.1 Industry size

A just-released report by Timothy J. Considine, reveals that the American steel industry is playing a significant role in leading manufacturing's post-recession resurgence primarily because it is highly interrelated with many other sectors of the economy.

In his analysis titled, "Economic Impacts of the American Steel Industry," Dr. Considine notes that, "Every one job in the U.S. steel industry supports seven jobs in the U.S. economy, reflecting its ripple effect on employment." For 2011, the report states, the American steel industry directly employed 150,700 and given the multiplier effect, supported more than 1,022,009 jobs.

In his report, Dr. Considine points out that the significant economic impact of the industry is based on the fact that steel is the most prevalent material in the economy, and the steel industry purchases a wide variety of inputs from other industries that create a favorable ripple effect. "This is one reason why so many countries around the world welcome investments that establish steel mills, because they stimulate industrial supply chains," he states.

These indirect impacts support jobs in industries supplying the steel industry with inputs of energy, materials and services, examples of which are identified in the report. A third and final set of economic impacts arise from the stimulus that additional labor and capital income provides for households to spend on goods and services, the report explains.

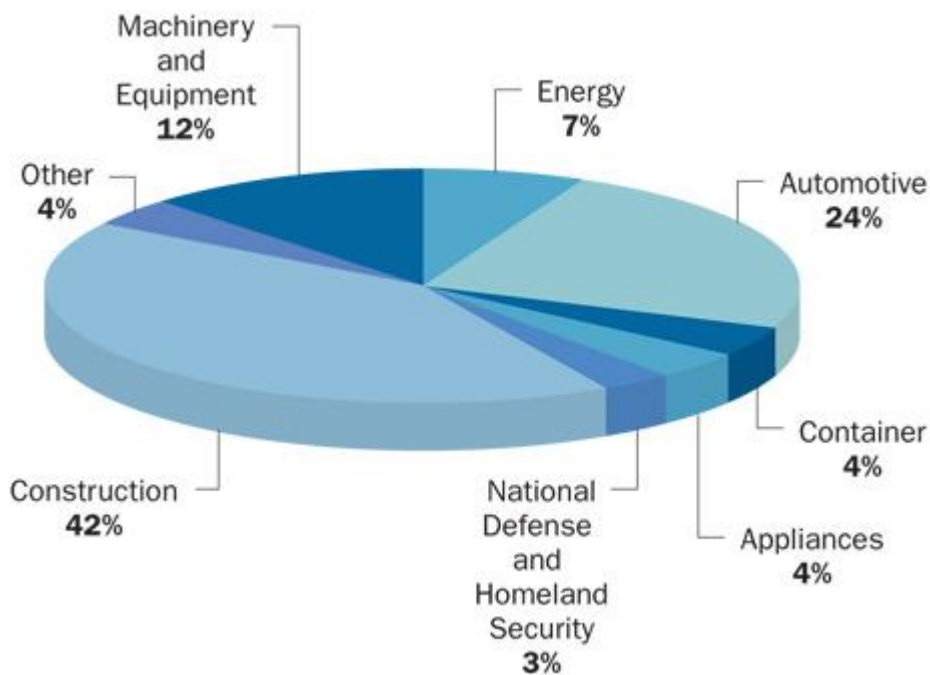
"These so-called induced impacts together with the direct and indirect impacts constitute the total economic impact of the industry," the report states. "Thus, for every dollar increase in sales for iron and steel mills and ferroalloy industries, total output in the U.S. economy increases by \$2.66."

Based on the estimated 2011 direct steel sector employment of 150,700, the Considine report states that the steel sector supported 1,022,099 jobs in the U.S. economy, contributed over \$101 billion in value added and \$246 billion in gross output. Based on tax multipliers utilized in the analysis, during 2011 the steel sector generated nearly \$23 billion in local, state and federal taxes.

Dr. Considine’s analysis was commissioned by the American Iron and Steel Institute (AISI) to provide an updated look at the American steel industry’s overall impact on the U.S. economy. In his study, Dr. Considine employed the IMPLAN system developed by MIG, Inc., one of the most widely used and highly regarded systems for economic impact analysis.

The report describes the industry’s purchases of a highly diverse range of products and services, thus supporting hundreds of thousands of jobs along the supply chain. For example, in 2010 the steel industry purchased more than \$20 billion of materials produced in other industries, \$8 billion of machinery, \$4.4 billion from wholesale and retail trade sectors and more than \$4 billion of transportation services. It also generated \$12.4 billion in labor income. (<http://www.steel.org>)

2010 Steel Shipments by Market Classification



Source: American Iron and Steel Institute

Figure: 2.1 Steel Shipments by Market Classification

<http://www.steel.org/About%20AISI/Statistics/Market%20Applications%20in%20Steel.aspx>

2.1.2 Growth rate

The rapid economic development of China has brought about a rapid progress in the non-ferrous metals industry, the renewable sources of the said industry, and has a phenomenal growth rate. In 2010 alone, the nation's renewable materials count has reached 7,75 million tonnes of non-ferrous metals, which is significantly higher than the 2000 figure of only 720,000 tonnes. (www.sourcejuice.com)

The rapid development of renewable materials in the non-ferrous metals industry has brought about a development of the non-ferrous scrap metal import industry. Through this regeneration of the non-ferrous metals imports industry, China saw an increase from 2001's 3,703,000 tonnes to 2010's 721,000,000 tonnes of such materials.

According to China's Non-Ferrous Metals Industry Association, 2010's renewable materials count has reached 7,75 million tonnes, which is a record for the country.

www.sourcejuice.com These rapid increases in China and in other developing economies, such as India and several others, are due to the fact that this type of business does not operate as capital intensive, but as labour intensive. This business function is primarily due to the fact that there is a large supply of labour, at a low cost that in some cases translates to earning just enough to make a living, on behalf of the worker.

In such developing countries, there is the competitive advantage of scale economies, environmental science and technology. Such businesses do not have to operate as capital intensive, but rather as labour intensive. The large workforce pool, available at a very low cost, makes the markets of these countries very competitive.

(<http://www.articlesnatch.com>)

2.1.3 Global sales forecasts

The scrap metal industry has become a booming industry as of late, producing about \$80 billion a year in revenue. In the United States of America, there are about 8,000 companies in the scrap metal industry. However, about 50% of all revenue is made by the top 50 companies of the field (Schnitzler Steel, The David J Joseph Company, Omni Source, and America Nam Chung), which is something that indicates that the proceeds of the industry are not evenly distributed. (<http://www.personal.psu.edu>)

According to the Institute of Scrap Recycling Industries (ISRI), in the United States in the last year alone, waste recycling reached 125 million tonnes of recyclables. These are destined for domestic and overseas markets. The total amount includes:

- 68 million tonnes of iron and steel scrap
 - 4,3 million tonnes of aluminium scrap
 - 2 million tonnes of copper scrap
 - 1,4 million tonnes of stainless steel scrap
 - 1,3 million tonnes of lead waste
 - 214,000 tonnes of zinc
- (<http://files.harc.edu/Projects>)

Moreover, the 2005 world metal production (el.wikipedia.org) was as follows:

- steel: 1,13 billion tonnes
 - aluminium: 23,5 million tonnes
 - copper: 16,4 million tonnes
 - zinc: 10,2 million tonnes
 - lead: 7,6 million tonnes
 - nickel: 1,3 million tonnes
 - gold: 2,593 tonnes
- (<http://el.wikipedia.org>)

2.1.4 Sales Forecasting in Cyprus

In Cyprus, the largest company of scrap metals, EIPHANIOU SCRAP METAL LTD, has been awarded 3 times, in 1994, 2005 and 2010, by the Cyprus Chamber of Commerce and Industry, the Cyprus Exports Award for Industry.

In 2010, the exports of ferrous and non-ferrous metals amounted to 47,000 tonnes and 10,000 tonnes respectively. Indicatively, 2011 exports of ferrous metals exceeded the 64,000 tonnes mark. Apart from managing recyclable materials in Cyprus, the company also conducts international trade of said materials and has close contacts with recycling industries and merchants from various European, African, Asian and Far East countries. (www.ccci.org.cy)

2.2 Industry structure of Metallurgy

General

The structure of the scrap metal industry consists of five axes. The first axis is people (clients) that use metals, either for household or industrial use. The second axis is workers (suppliers) in various sectors of the economy that are related to metal objects, who deal with the collection and transportation of scrap metal. The third axis consists of wholesalers (small businesses) who buy metals from the suppliers, process them, and transfer them to scrap metal merchandisers (importers of industrial metallic materials). The fourth axis is importers who supply the industry (producers of industrial metals) with raw materials for the manufacturing of new products with a reduction on the final price of the product.

When a new product is ready, it is re-imported into the market by the manufacturer, something that is the final stage of product manufacturing. The producer then goes on and sells it to the importer with some discount, the importer then sells it to the clients who demand it, the consumers will produce scrap, scrap is then collected by the suppliers and the process starts again from the beginning.

In many cases, the structure of the industry varies. For example, a car mechanic or a building contractor does not give away scrap metal to citizens, or to local wholesale stores, but instead store it in order to reduce transportation costs. After that they transfer it themselves to the importers, with greater gains. Many wholesalers can afford to bypass the importer/exporter, storing large quantities of products and shipping them to producers overseas who are willing to cover the transportation costs.

2.2.1 Nature of participants

The Timothy J. Considine, reveals that the American steel industry is playing a significant role in leading manufacturing's post-recession resurgence primarily because it is highly interrelated with many other sectors of the economy.

<http://www.steel.org>

Throughout the scrap metal industry there are entrepreneurs, non-profit organizations, environmental organizations, private businesses, citizens, public agencies and other organizations and businesses that share the ultimate goal of

personal, environmental, social or economic benefit. Depending on how someone participates in the industry, they have a relevant personal interest to gain, such as:

- Citizens, who aspire to cleanliness and new jobs
- Collectors and transporters, who aspire to gaining an income
- Merchants, who aspire to make a profit
- Producers, who aspire to acquiring raw materials for their products
- The public sector, who aspires to receiving revenue from taxes, operation licences, and a surplus at landfills
- Protection of the environment from carbon dioxide, greenhouse gases and the conservation of scarce natural resources

<http://www.usgbc.org>

2.2.2 Key success factors for our business

People, i.e. anyone who has old and useless metals can bring them to us in exchange for a fee, like:

- Mechanics and auto electricians.
- Electricians, blacksmiths, aluminum fitters and plumbers.
- Janitors of public and private construction companies.
- Semi-governmental institutions such as the Cyprus Telecommunications Authority (Cyta), the Electricity Authority of Cyprus (EAC) and the airport.
- The government and public organizations such as the army, police, hospitals, schools etc.
- All non-profit organizations such as the ecological associations and environmental organizations. (<http://www.steel.org>)

2.2.3 Industry trends of scrap metal

To see the trends of the scrap metal industry we should look at the last few years' trends compared to today. Below, the fluctuations in raw materials, derivatives, mergers, technology, new alloys and industry are examined.

(<http://www.opentrac.com>)

- **Raw materials.** Prices of raw materials have clearly fluctuated since the market collapse of 2008, with a slow rise to pre-recession rates now showing.
- **Production.** As mentioned above, stock levels are returning to normal levels, with the new growth of an uncertain character. This includes the automotive industry, precious metals, aerospace, medical and manufacturing sectors.
- **Mergers.** Mergers and acquisitions (M & A) and integration slowed down primarily due to the recession, but it slowly rebounded, much like the rest of the metal market. Apart from the acquisition of plants, companies have started the Greenfield projects and reopened plants that were forced to stop all operations for the last two years.
- **Technology-Green.** This has prevailed in recent years, in every industry available. However, in applying green theories, the principles of innovation are still the same as ever. Recycling of scrap steel and other metals is clearly a matter of great importance. While prices of scrap remain at relatively low levels, an emphasis on the effective management of recycling and processing and keeping down costs is of great importance. Other functions of the supply line must be checked in order to offset fluctuations in prices.
- **New alloys.** New alloys and stronger, lighter alloys of precious metals have boosted the aerodynamics market. The use of new, lighter aircrafts means more fuel efficient, faster, flights. In the automotive industry there is also an effort to reduce weight as much as possible, for the conservation of fuel, something that is of great importance for the modern consumer.
- **Industry.** Automation and the use of new technologies is a hot topic for modern manufacturing practices. The new processes of design, the use of robots and more efficient systems in place, such as ERP MES, are applied in car production, as well as in other areas. Hardware and software investments have increased by nearly 12% in 2011, according to the magazine Industry Week. (<http://www.opentrac.com>)

2.2.4 Long-term prospects of the global market

Today, recycling waste has become a multibillion dollar global enterprise. The Institute of Scrap Metal Recycling Industries, Inc. (ISRI) is an industry trade association representing over 1,300 companies that process, broker, and industrially consume scrap commodities. ISRI's primary objective is to promote a greater awareness of the role of industry in the future conservation through the recycling process. (<http://files.harc.edu/Projects>)

ISRI's program, Plan for Recycling ®, works with manufacturers to ensure that consumer products can be safely and economically recycled using recycling methods and technology that already exist. The program also works to reduce the environmental risks from the use of consumer products, and provides assistance when needed for manufacturers who are required to modify the design or manufacture of the product processes in order to ensure that products can be recycled in an effective and safe way. ISRI also has teaching aids for children depicting different recycling processes.

The Recycling Steel Institute (SRI) is a unit of the American Institute.

Iron and Steel (AISI), promotes, educates and supports the recycling of all steel products. Steel SRI Circles program (Pre-K through 12), aims to provide educational and community leaders with educational tools to teach young people about the logic of solid waste management.

Recycling is also included as part of the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED™) Green Building Rating System ®.

Based on well-founded scientific standards, LEED™ is a voluntary, consensus national standard for developing high-performance, sustainable buildings. The LEED™ Materials & Resources Credit 4: Recycled Content intends to increase the demand for building products that incorporate recycled content materials, thereby reducing the resulting impact from extraction and processing of new virgin materials.

Recycling scrap metal during new construction is an opportunity that will help achieve Credit 4 and reached a point of one is LEED certified building. As individuals, we can also help in the promoting of waste recycling and in turn help to preserve our natural resources. We must remember the three R's: Reduce, Reuse and Recycle. We should teach our children about the many benefits of recycling. Educational materials on recycling for children are available through various organizations, such as EPA, ISRI, and SRI.

We can check to see if our schools, places of business, neighborhoods or cities have local recycling programs in place. If such a program is not available, we can self-recycle metals in a local scrap yard. The best way to sell metals is to know the value of both ferrous and non-ferrous metals. The American Metal Market (AMM) is a daily publication that provides the consumer with an update on current prices of a wide range of scrap metal.

The prices paid for scrap vary by region. So the next time someone mentions scrap metal recycling, we should not just see the business, but also consider the contribution that our industry makes to conservation the planet's natural resources and significantly improve the environment both for us and for future generations. Long-term prospects of the industry of scrap metal are numerous and vary from country to country, such as:

- Recovering the automobile and construction industry.
- New technological breakthroughs reduce costs in the industry and make it easier to process scrap metal.
- New uses of existing metals come to light.
- New precious metals (alloys) on the market.
- New legislation requires the recycling of products that cause pollution to the environment.
- Provide new jobs and employment.
- Children learn from a young age about recycling and its importance.
- Special seminars for citizens and entrepreneurs to help them understand the scale of the industry. (<http://www.steel.org>)

CHAPTER THREE: BUSINESS PLAN FOR SCRAP METAL COMPANY

3.1 Company description

Our company will be called SCRAP METAL LTD and will deal with collecting, processing and exporting of ferrous and non-ferrous scrap metal. The company's operations will be aimed at recovering old and useless scrap metal.

The process of recovery is of paramount importance in the recycling process, since it is the initial stage of the whole process. It includes the collection, dismantling, separation, processing and upgrading the quality of metals that are suitable for casting in overseas facilities. After the molding process, the various metals are reused in the industry to manufacture new products.

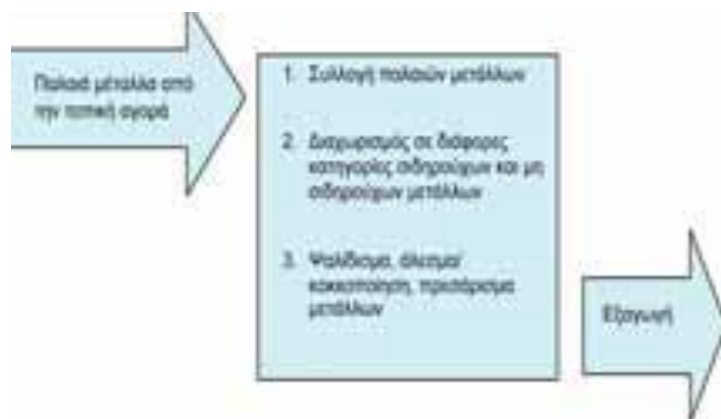


Figure 3.1: Process of scrap metal recovery

www.ccci.org.cy/Resources/Files/APRIL%202012.pdf

3.1.1 Mission statement

Our company's mission is to improve the quality of metals that are suitable for casting in specialized facilities overseas to help preserve the planet's natural resources and improve the environment, add value to our shareholders' stocks and maintain a significant market share.

3.1.2 Products and Services

3.1.2.1 Products

A product is a material, or intangible item, offered for sale to people in need. The products with which our business deals with, that from now on be called raw materials, are all ferrous and non-ferrous scrap metal. Below the main categories of scrap metal for processing, and their sources, are mentioned:

- Ferrous metals such as old cars, scraps of iron, iron from demolitions, old industrial machinery.
- Non-ferrous metals such as:
 1. Copper – such as overhead and underground electricity and telecommunication cables, plumbing systems' copper pipes.
 2. Bronze – from fountains, buds.
 3. Aluminum – such as industrial scrap, aluminum cans, mechanical components.
 4. Alloys of the above along with nickel, such as food industry waste, kitchen fittings.
 5. Waste of Electrical and Electronic Equipment (WEEE) such as televisions, computers, refrigerators, small appliances, telecommunication equipment.
 6. Lead and acid batteries (mainly used in vehicles).
 7. Plastic waste – such as plastics from WEEE, plastic car bumpers, plastic containers. (<http://www.steel.org>)

3.1.2.2 Services

The services we will provide are in regards to our suppliers and our customers and will be divided into 2 categories, as shown in table 1.

Table 3.1: Services provided to suppliers and customers

Services	
Customers	Suppliers
1. Free transport of large metal appliances from the customer's home to our business.	4. Collection, dismantling, separation, processing and upgrading of the quality of metals that are suitable for casting in specialized facilities.
2. Lending of equipment (cutters, etc.) to customers who have the knowledge to use them and transport large amounts of scrap to our business.	5. Transfer of large quantities of metals, of upgraded quality, from our business to theirs.
3. Staff circulation to clients who are unable to use by themselves the equipment needed to carry large amounts of metal to our business.	

3.1.3 Legal status and ownership

The legal framework for the operation of our business is set by the Dealers of Old Metals Law (<http://www.cylaw.org>). The ownership and management of the company belong to Menelaus Theodorou, who will finance, using his own funds, 75% of the funds needed to operate the business, with the remaining 25% coming from bank loans.

3.1.4 Key partnerships

Key partnerships could be formed with all the individuals who work with various metals, such as mechanics and car electricians, plumbers, electricians, blacksmiths, aluminum fitters, development company supervisors, overseers of public works, as

well as individuals from the broader public sector, such as the army (old vehicles and armor), the Licensing Authority (old car withdrawal plan) and any other person or company involved in metal objects.

The aforementioned private and public entities must be given a significant financial incentive, depending on the raw materials they produce, so that a long-term cooperation will be established.

Apart from the suppliers, collaborations could also be formed with the customers of our business. We could, for example, not purchase a truck (or a presser, scales, etc.) to transfer our products to Limassol (where we would have reduced foundation expenses and transport costs), but instead the customer could come to us directly, to get a reduced price (this would represent reduced income in the long term, delays in product transfer, delays in repairs of damaged machinery).

3.2 Market analysis

The scrap metal market is a place where buyers and sellers meet to purchase/sell old metals. The determination of consumers, or their companies, who are intent on buying metals is also made in this market (Πασχαλουδης, 2003:107)

There are two key markets for metals:

1. The domestic market, consisting of people who buy metal objects for personal use, which in turn generates even more waste.
2. The business market, consisting of people who buy metal objects for non-residential uses, such as office use, hotel use, rental use, clinic use, which in turn generates large amounts of waste.

3.2.1 Market segmentation and target market selection

Our company will focus its attention to the professional market, mainly because the individual's active in it will be our key customers (suppliers of scrap metal).

The Paphos market in which we will operate can be divided into two parts (industrial zones), A and B. Area A is located in the Mesoyi industrial area in the city center,

while area B is located in the Anatoliko industrial zone, which is located just outside of Paphos.



Figure 3.2: Market segmentation and target market selection

Our company has chosen to operate in the industrial zone A, based on the following:

Geographic features

- Geographic area: Paphos
- Urban: Yes
- Suburban: Yes
- Agrarian: Yes
- Population density: Large

Area A is located in the center of Paphos, where most of the local population lives. People living in areas north of Paphos will prefer to come to area A (if our prices are competitive), rather than go to area B, which is on the southeast of Paphos, 30 minutes away. Someone coming from the north of Paphos to area A would need about 30 minutes to come and another 30 to return, while the coming and going to area B would take 60 minutes to come and 60 minutes to return.

Demographic characteristics

- Gender: Male

- Income: Low
- Age range: 18-70
- Marital status: Everyone
- Ethnicity: All

Individuals that will make significant contribution to our business are mostly men aged from 25 to 50, with relatively low incomes, who are seeking for new sources of additional income. Their marital status is of no relevance. Usually the nationalities of those individuals involved in the collection and transportation of scrap metal are Turkish Cypriots, Greek Cypriots and a small number of people of Arab descent.

Psychographic characteristics

- Occupation: Unemployed or self-employed workers and foremen
- Interests: To work
- Personality: All types

The number of people who are currently unemployed in Cyprus has reached 34,000 in 2011. According to a survey carried out by the Statistical Service, the work force pool reaches 432,000, of which 52,6% were male and 47,4% female. The number of employees reached 398,000, while the employment rate of people aged from 20 to 64 was 73,4%. The survey also showed that employees in Cyprus have a high education level, since over one third of them have tertiary education. Moreover, the highest unemployment rate is among persons of a younger age, under 25 years old, who reached 22,4%. According to recent figures from Eurostat, in August 2012, unemployment in Cyprus reached 10,9%, while in July that percentage reached 10,7%. (<http://www.fpress.gr>)

Behavioral characteristics

- Frequency of product use: Every day
- Confidence in the product: Safety
- Benefits that are expected: Money

The product has been integrated into the lives of our clients, is being used on an everyday basis and makes the individual that has it in their possession feel safe. The

customer is obsessed with the principle of the least sacrifice (transport costs and effort) with the highest percentage of profit they could exchange the product for (best market price).

3.3 Buyer behavior

The term ‘consumer behavior’ describes the behavior that a person formulates in the market, which can be observed or registered. This term includes all those actions aimed at acquiring the use of goods and services, including the decision process that precede and determine these acts (Πασχαλουδης, 2003: 93).

In our company customers will act as sellers, rather than buyers, so the demand side of the market will be examined, instead of the supply side.

3.3.1 Factors that can influence consumer behavior

Purchasing behaviors are heavily influenced by cultural, social, psychological and personal factors. Below there is a detailed analysis of these factors:

Cultural factors

Culture is the set of values, perceptions, preferences and behaviors that a person acquires through the process of socialization, which is influenced by his/her family and other key institutions in a society. Culture is the most deciding factor on the buying behavior of an individual. Each culture consists of smaller subcultures, influenced by ethnicity, religion, race and geographic location.

All societies have a specific social stratification, which often takes the form of social order. Social class is fairly homogeneous, it has a hierarchy and its members share common values, interests and certain behavioral characteristics. Thus, we have a number of people who belong to the same class acting in a certain way that is different to that of people belonging to other classes (Πασχαλουδης, 2003: 94).

Social factors

The second variable that influences purchasing behavior is social factors. Each individual’s behavior is influenced by the behavior of other individuals or groups. All

groups exert a certain amount of influence, directly or indirectly, on the behavior of individuals within them. They are called reference groups:

- Primary groups are those with which there is continuous contact on behalf of the individual (family, friends, neighbors, work colleagues).
- Secondary groups are those with which there is less contact and relations have a more formal character (religious, professional, trade unions).
- Aspiration groups are those that a person does not belong in, but aspires to do so.
- Rejection groups are those which the person rejects and has no intention of being a part of them. More specifically, the person does not approve of their values and behavioral characteristics.

When an individual is a part of several groups, such as family, associations, professional associations, their behavior can be defined in terms of roles and positions they acquire within these groups. Individuals confirm their roles in them by selecting specific products, among other things. The person's behavior varies from one social class to another, from one geographical area to another geographical area (Πασχαλουδης, 2003: 95).

Personal factors

Personal factors such as age, life cycle stage, occupation, economic state, way of living, personality and character influence consumer behavior. People buy different products and services during the course of their lives. Apart from the age factor, another significant factor is the family (marketers often target families as market targets).

People's professions also affect consumer habits and it is to the best interest of the business to identify the working groups which show more interest in the products and in the services than the average consumer.

A person might want to supply us with a product, but their age and manual labor factor may act as deterrents.

People belonging to a certain social class, culture and subculture, having a specific profession does not necessarily mean they have the same lifestyle. Peoples' lifestyles

are characterized by their habits, it is expressed through their actions, interests and opinions. Lifestyle is the position in which people place themselves in relation to their environment, and how they are active in this frame.

Consumer behavior is influenced by personality, the psychological characteristics that make a person respond rationally to the environment in which they live in. Such psychological traits include self-confidence, dominance, autonomy, respect, sociability, compliance, defensiveness, adaptability and so forth. These psychological characteristics reflect the image we, as individuals, have of ourselves. The entire marketing effort strives to match product image with the self-image of the consumer (Πασχαλουδης, 2003: 96).

Psychological factors

Individuals have many different needs. Motivation is a force that leads an individual to act in a particular way, in order to satisfy specific personal needs. This reduces the tension that an individual feels, brought about by the inability to satisfy such needs.

According to Maslow, human needs are prioritized, from the less pressing to the most pressing needs. Individuals try and satisfy the needs that are at the bottom of the triangle (Maslow's needs pyramid) and then moves to the ones above. Through this, marketing can better understand how different products satisfy different needs and goals of the consumer. On the other hand, Herzberg analyses the factors that cause satisfaction and those that cause dissatisfaction. Individuals try to avoid the factors that cause dissatisfaction and try to identify the factors that cause satisfaction. We can motivate an individuals but it is not certain that they will act in the direction that we want. This depends on how different individuals perceive different situations.

Perception is the process of selection, organization and information with a view to creating an image of the world.

Human behavior, and by extension consumer behavior, is not hereditary, it is acquired. As we act, we learn and this experience can bring changes in our behavior. The consumer can learn through interaction of motives, stimuli, innuendos, reactions and fantasies. Through the process of learning, the individual acquires beliefs and attitudes. It is good for a product if the beliefs and attitudes of consumers are positive about it, if not, then a need to alter these beliefs and an attitude arises.

These factors affect, not only the behavior of consumers, but also the behavior of the retailers, of our business. In this effect, negative attitudes must be identified and altered/corrected (Πασχαλουδης, 2003: 95).

3.3.2 Factors that influence the supply

Market supply refers to the quantities of scrap metal that each supplier needs to supply (Ken Ferguson, 2004:64). The amount of scrap on offer depends, among others, on the price of scrap metal, the prices of other raw materials, the prices and availability of production factors, the level of technology, the availability of appropriate storage spaces for keeping a large stock, as well as other variables depending on each case (Ken Ferguson, 2004:65).

Therefore, a reduction in the price of our product by the industry, or an increase in fuel prices would result in the reducing of the available raw materials we would have. This is due to the fact that the customer would not look for scrap metal due to the high costs of transport that would decrease profits. Even many suppliers (who can afford transport and do not need money imminently) would prefer to store the scrap metal, in order to sell them at a later date at higher prices, or sell them in higher quantities later on.

3.4 Competitor analysis

In area B there are four competitors, two Cypriots and two of Arab origin. Due to the small size of the area, competition between them is fierce. They cannot compete with us, because they are located 30 minutes away from the area our business will operate in. Our company has chosen to operate in area A, where there are two competitors of Arab origin. The first competitor's sales have already dropped dramatically and they have already reduced operating costs (reduced man power). The second competitor is still in the development stage, and will be located right next to us. Our business will be located just off the main competitor, due to the fact that in order to find customers, we need to go where there are customers.

The closed character of the society of Paphos is a major plus, since consumers, out of curiosity, will seek to learn the rates with which we buy scrap metal and what

accommodations we offer. Also, the fact that consumers would rather buy from someone they know, is also a major plus, since the competitors are foreign. Also, the competitors are not at all organized, leading to the customer having to wait 30 minutes to drop off the materials, get paid and leave. The fact that the plot is of rectangular shape, with only one entrance/exit, leads to problems arising in the moving of products. The customer is not willing to wait, especially when they have large quantities of scrap metal to move. In some cases, customers prefer to go to competitor A and sell their products at lower prices. At this point, our business will have the same rates as competitor B and higher rates than competitor A. Why would customers choose to go to competitor A when we are right next to competitor B, and have the same prices. Furthermore, why would someone not choose a business that operates in a more organized manner than the rest, in a plot that offers a first weighing of their vehicle, easier unloading, a second weighing and finally faster payment (the second scale will be provided by our customer).

3.5 The Economics of the Business

3.5.1 Purchases & Sales – Workings

Our predictions for purchase and sale for the first year formulated as shown in Table 3.2.

Table 3.2: Purchases & Sales for the first year

Type	YEAR 1		Profit Margin
	Purchase value	Sales	
Iron	€ 453.600	€ 583.200	22%
Copper	€ 28.800	€ 43.200	33%
Aluminum	€ 4.320	€ 10.800	60%
Batteries	€ 2.880	€ 7.200	60%
Wires	€ 4.800	€ 12.000	60%
Mrazen	€ 5.400	€ 10.800	50%
Cars	€ 100.800	€ 155.520	35%
Stainless Steel	€ 8.640	€ 16.200	47%
lead	€ 4.320	€ 6.480	33%
Refrigerators	€ 3.456	€ 6.480	47%
Pneumatic drill	€ 9.000	€ 12.600	29%
<u>Αλλα από αυτοκινητα</u>			
Exhausts	0χι	€ 21.600	
Car refrigerators	0χι	€ 10.080	
Springs (Lead)	0χι	€ 8.640	
Glass	0χι	€ 4.320	
Plastic	0χι	€ 2.880	
Tires	0χι	€ 4.104	
Batteries	0χι	€ 3.600	
Motor oil	0χι	€ 1.200	
Wires	0χι	€ 14.400	
Σύνολο	€ 626.016	€ 935.304	
<i>Cost of sales margin 67%</i>			

Our predictions for purchase and sale for the second year formulated as shown in Table 3.3.

Table 3.3: Purchases & Sales for the second year

Type	YEAR 2		
	Increase	Purchase value	Sales
Iron	5%	€ 476.280	€ 612.360
Copper	10%	€ 31.680	€ 47.520
Aluminum	15%	€ 4.968	€ 12.420
Batteries	5%	€ 3.024	€ 7.560
Wires	10%	€ 5.280	€ 13.200
Mrazen	15%	€ 6.210	€ 12.420
Cars	15%	€ 115.920	€ 178.848
Stainless Steel	10%	€ 9.504	€ 17.820
lead	10%	€ 4.752	€ 7.128
Refrigerators	10%	€ 3.802	€ 7.128
Pneumatic drill	10%	€ 9.900	€ 13.860
<u>Άλλα από αυτοκίνητα</u>			
Exhausts	15%	0χι	€ 24.840
Car refrigerators	15%	0χι	€ 11.592
Springs (Lead)	15%	0χι	€ 9.936
Glass	15%	0χι	€ 4.968
Plastic	15%	0χι	€ 3.312
Tires	15%	0χι	€ 4.720
Batteries	15%	0χι	€ 4.140
Motor oil	15%	0χι	€ 1.380
Wires	15%	0χι	€ 16.560
Σύνολο	13%	€ 671.320	€ 1.011.712
<i>Cost of sales margin 66%</i>			

Our predictions for purchase and sale for the third year formulated as shown in Table 3.4.

Table 3.4: Purchases & Sales for the third year

Type	YEAR 3		
	Increase	Purchase value	Sales
Iron	5%	€ 500.094	€ 642.978
Copper	10%	€ 34.848	€ 52.272
Aluminum	15%	€ 5.713	€ 14.283
Batteries	5%	€ 3.175	€ 7.938
Wires	10%	€ 5.808	€ 14.520
Mrazen	15%	€ 7.142	€ 14.283
Cars	15%	€ 133.308	€ 205.675
Stainless Steel	10%	€ 10.454	€ 19.602
lead	10%	€ 5.227	€ 7.841
Refrigerators	10%	€ 4.182	€ 7.841
Pneumatic drill	10%	€ 10.890	€ 15.246
<u>Άλλα από αυτοκίνητα</u>			
Exhausts	15%	0χι	€ 28.566
Car refrigerators	15%	0χι	€ 13.331
Springs (Lead)	15%	0χι	€ 11.426
Glass	15%	0χι	€ 5.713
Plastic	15%	0χι	€ 3.809
Tires	15%	0χι	€ 5.428
Batteries	15%	0χι	€ 4.761
Motor oil	15%	0χι	€ 1.587
Wires	15%	0χι	€ 19.044
Σύνολο	13%	€ 720.841	€ 1.096.144
<i>Cost of sales margin 66%</i>			

The sales and cost of sales are based on logical assumptions, these figures cannot be guaranteed. It was considered the area, the potential customers, the increasing reputation and similar information from competitors, to arrive at the final figures. It is assumed that from Year 1 and onwards the business will constantly grow. Purchases will increase each year at a preset percentage based on logical assumptions.

Purchases and Sales prices are based on market research and competitor's data. Are not guarantee and are vulnerable to market fluctuations. For this business plan are considered as fix throughout the years based on the assumption of average.

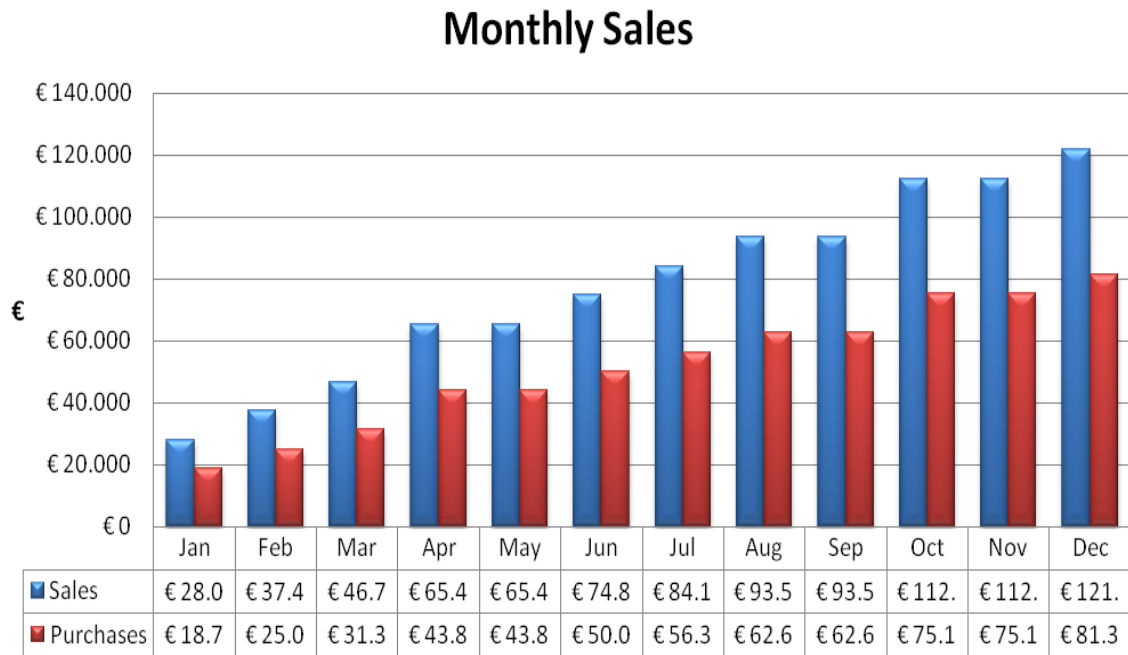


Figure 3.3: Purchases and Sales

Of the non-current assets, the press carries the greatest risk of our investment because its purchase costs 30,000 euro that is approximately 30% of the non-current asset and 20% of total investment, therefore, if something does not go well and we decide to sell; we will not easily find buyer or bank to mortgage it. For the purchase of the equipment of our company we have fixed costs amounted to 103.000 thousand euro as shown in Table 3.5.

Table 3.5: Start-up Cost

Start-up Costs	€
Truck caliper	40.000
Platform	15.000
Press	30.000
Scale (large)	10.000
Scale (small)	1.000
Flexed	2.000
Oxyacetylene welding	1.000
Generator	2.000
Cash for Refrigerators	2.000

Managers' salary will be €1,500 per month for the first year and will be increased by €600 each year as shown in Table 3.6.

Table 3.6: Managers' salary

	<u>Month</u>	<u>Year</u>	<u>Managers</u>	<u>Total</u>
Year 1	1.500	18.000	1	18.000
Year 2	1.550	18.600	1	18.600
Year 3	1.600	19.200	1	19.200

Employees are paid on a 12 month basis with a yearly increase of their salary as assumed in this calculation as shown in Table 3.7.

Table 3.7: Employee's salary

	<u>Year 1</u>			<u>Increase</u>	<u>Year 2</u>			<u>Increase</u>	<u>Year 3</u>	
	<u>Month</u>	<u>Year</u>			<u>Month</u>	<u>Year</u>			<u>Month</u>	<u>Year</u>
Handle the press	1040	12.480		5%	1.092	13.104		5%	1.147	13.759
Cut with flexed	1040	12.480		5%	1.092	13.104		5%	1.147	13.759
To download from cars	1040	12.480		5%	1.092	13.104		5%	1.147	13.759
Truck drivers and platform	1500	18.000		5%	1.575	18.900		5%	1.654	19.845
Checkout and weigh other metals	1040	12.480		5%	1.092	13.104		5%	1.147	13.759
Total	5.660	67.920		Total	5.943	71.316		Total	6.240	74.882

The variable costs of our business will be shaped according to the values that buys scrap metal in the market. In Table 3.8 based the estimates we have for our purchases, the amounted to 626.016 thousands euro.

Table 3.8: Purchases for Scrap Metal

Purchases							
	Quantity - Kg	Quantity - Ton	Days	Monthly - Kg	Monthly - Ton	€/ Kg	Monthly Exp.
Iron	6.000	6	30	180.000	180,0	€ 0,21	€ 37.800
Copper	20	0	30	600	0,6	€ 4,00	€ 2.400
Aluminum	20	0	30	600	0,6	€ 0,60	€ 360
Batteries	20	0	30	600	0,6	€ 0,40	€ 240
Wires				500	0,5	€ 0,80	€ 400
Mrazen	10	0	30	300	0,3	€ 1,50	€ 450
Cars	2.000	2	30	60.000	60,0	€ 0,14	€ 8.400
Stainless Steel	30	0,03	30	900	0,90	€ 0,80	€ 720
lead	30	0,03	30	900	0,90	€ 0,40	€ 360
Refrigerators	120	0,12	30	3.600	3,60	€ 0,08	€ 288
Pneumatic drill	100	0,10	30	3.000	3,00	€ 0,25	€ 750
<u>Other from cars</u>							
Exhausts				60 Units			0χι
Car refrigerators				420	0,42		0χι
Springs (Lead)				1.440	1,44		0χι
Glass				1.200	1,2		0χι
Plastic				1.200	1,2		0χι
Tires				1.800	1,8		0χι
Batteries				300	0,3		0χι
Motor oil				200	0,2		0χι
Wires				600	0,6		0χι
						Total purchases	€ 52.168
						Total purchases	€ 626.016

We have Yearly costs amount to 63.000 as shown in Table 3.9.

Table 3.9: Yearly Cost

Yearly Costs	
Rent	6.000
Electricity	2.400
Water	600
Insurance	6.000
Oils for truck, platform, etc.	36.000
Service Machines	6.000
Other	6.000
Total	63.000

Note: Costs are assumed to increase at an average rate annually
Average Rate 5%

Depreciation will be charged straight line for 10 years. Depreciation is assumed to be the same as capital allowances. Furthermore, the assumption is made that in the next years no other depreciable assets will be introduced and any other capital expenditure will be directly allowable and recognized in Income Statement. The amortization for the first three years is shown in Table 3.10.

Table 3.10: Depreciation for the first three years

	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	
Op. Net	€ 103.000	€ 103.000	€ 92.700	€ 83.430	
<i>Depreciation</i>	€ 0	€ 10.300	€ 9.270	€ 8.343	Depreciation: 10%
Cl. Net	103.000	€ 92.700	€ 83.430	€ 75.087	

3.5.2 Costs Requirements - Draft Calculations

Our company will have startup costs 103.000 thousand euro for equipment and 50.000 thousand euro for working capital. Of the non-current assets, the press carries the greatest risk of our investment because its purchase costs 30,000 euro that is approximately 30% of the non-current asset and 20% of total investment, therefore, if something does not go well and we decide to sell; we will not easily find buyer nor bank to mortgage it. The table 3.11 and 3.12 shows us the start-up costs and the Capital needs.

Table 3.11: Start- up Costs

Start-up Costs	€
Truck caliper	40.000
Platform	15.000
Press	30.000
Scale (large)	10.000
Scale (small)	1.000
Flexed	2.000
Oxyacetylene welding	1.000
Generator	2.000
Cash for Refrigerators	2.000
Total Start-up Capital & Costs Needs	103.000

Table 3.12: Capital Needs

<u>Final Assets</u>	
Non-Current Assets	
Truck caliper	40.000
Platform	15.000
Press	30.000
Scale (large)	10.000
Scale (small)	1.000
Flexed	2.000
Oxyacetylene welding	1.000
Generator	2.000
Cash for Refrigerators	2.000
<i>Total Non- current Assets</i>	103.000
Current Assets	
Starting Cash	50.000
<i>Total Current Assets</i>	50.000
Capital Needs	153.000

The loan from the bank with an interest rate of 8% will be repaid in 10 years based on our forecasts. The table 3.13 shows us the repayment of loan.

Table 3.13: Repayment of loan

Local Banks				
Loan	€ 33.000			
Interest	8%			
Term	10 Years			
Year	Installment	Principal	Interest	Balance
1	4804,57	2245,73	2558,84	€ 30.754
2	4804,57	2432,13	2372,45	€ 28.322
3	4804,57	2633,99	2170,58	€ 25.688
4	4804,57	2852,61	1951,96	€ 22.836
5	4804,57	3089,38	1715,20	€ 19.746
6	4804,57	3345,79	1458,78	€ 16.400
7	4804,57	3623,49	1181,08	€ 12.777
8	4804,57	3924,24	880,33	€ 8.853
9	4804,57	4249,95	554,62	€ 4.603
10	4801,92	4600,04	201,88	€ 0
Total	€ 48.043	€ 32.997	€ 15.046	

3.5.3 Projected Income Statement Analysis

In the analysis provided results have average sales for the first three years 1.014.386 thousand euro. Of this amount, the 672.726 is the cost of goods sold. We have gross profits amounting to 341.661 and net profit 148.483 thousands of euro. The table 3.14 shows us the average of the results for the first three years.

Table 3.14 Average results for the first three years

	Year 1	Year 2	Year 3	<u>3 Years Average</u>
Sales	935.304	1.011.712	1.096.144	<i>1.014.386</i>
Less: Cost of sales	(626.016)	(671.320)	(720.841)	<i>(672.726)</i>
Gross Profit	309.288	340.392	375.302	<i>341.661</i>
Less: Expenses				
Operational Exp. (2%)	(6.186)	(6.808)	(7.506)	<i>(6.833)</i>
Salaries	(67.920)	(71.316)	(74.882)	<i>(71.373)</i>
Managers' Salaries	(18.000)	(18.600)	(19.200)	<i>(18.600)</i>
Rent	(6.000)	(6.300)	(6.615)	<i>(6.305)</i>
Electricity	(2.400)	(2.520)	(2.646)	<i>(2.522)</i>
Water	(600)	(630)	(662)	<i>(631)</i>
Insurance	(6.000)	(6.300)	(6.615)	<i>(6.305)</i>
Oils for truck, platform, etc.	(36.000)	(37.800)	(39.690)	<i>(37.830)</i>
Service Machines	(6.000)	(6.300)	(6.615)	<i>(6.305)</i>
Other	(6.000)	(6.300)	(6.615)	<i>(6.305)</i>
Depreciation	(10.300)	(9.270)	(8.343)	<i>(9.304)</i>
Allowable Capital Exp.	(2.000)	(2.000)	(2.000)	<i>(2.000)</i>
Total Operating Expenses	<u>(167.406)</u>	<u>(174.144)</u>	<u>(181.388)</u>	<i>(174.313)</i>
Operating Profit	141.882	166.248	193.914	<i>167.348</i>
Interest*	(2.559)	(2.372)	(2.171)	<i>(2.367)</i>
Profit Before Tax	139.323	163.876	191.743	<i>164.981</i>
Tax Payable	<u>(13.932)</u>	<u>(16.388)</u>	<u>(19.174)</u>	<i>(16.498)</i>
Net Profit	<u>125.391</u>	<u>147.488</u>	<u>172.569</u>	<i>148.483</i>

3.5.4 Break Even Income Statement

Of our total expenses which are 1,014,386 we have break even sales at 525,043 and based on our estimate we have a safety margin of 489,344 and in 48.2% of our expected net sales respectively. The table 3.15 shows the break even sales point.

Table 3.15: Break even Position

Sales	
Average Expected Sales	1.014.386
Break Even Sales	525.043
Drop in Sales to arrive at BEP	489.344
Safety Margin Percentage	48,2%
Variable Costs	
Cost of sales	672.726
Margin of safety	489.344
Safety Margin Percentage	73%

BEP: Break Even Position

3.6 Marketing Plan

3.6.1 Overall marketing strategy

Marketing resourcing will be executed in the most profitable part of the market, the centre of Paphos, where competition is less intense and where most of the population resides.

The market which we will target is people that use our product on an everyday basis, especially male suppliers.

Customers (suppliers) will come to our business and bring various scrap metal, have them weighed and depending on what metals they are, will be paid accordingly.

As a business, we shall invest half our marketing resources into buying old iron, the main products with which we will be dealing with. Iron needs more processing than other metals, such as cutting, pressing and transportation. For these steps, special equipment is needed and high maintenance costs arise.

On the other hand, we must make funds available for the purchase of other metals, such as copper, bronze, aluminium, and others. This is due to the fact that, even though it binds a large chunk of our capital, it will provide us with a large profit upon sale, without requiring and prior processing. The products we produce will be for people in the iron industry who are willing to purchase our product and use it as raw material for the production of new products.

3.6.1.1 Products

Products with which our business will be dealing with are ferrous (iron scrap, iron from building demolitions, etc.) and non-ferrous (copper, brass, aluminium). Our business will be located right next to the main competitor, due to the fact that they keep most scrap metal suppliers waiting for several hours to be served.

In terms of quality, our company will be more efficient regarding waiting time on behalf of the supplier, on transportation of products (when the supplier cannot transport it by themselves), and payment arrangements and delivery agreements will always be on time.

Our company will be vigilant for new products and innovative methods of collecting, processing and transportation of our products.

3.6.1.2 Prices

The price the consumer is willing to pay may significantly affect the amount of product available on the market. If prices are high and are expected to remain as such, or continue to rise, suppliers will want to offer large quantities of such goods to have increased revenues, resulting from these high prices. If market prices are low, or are declining the suppliers will not want to supply the market with the product (e.g. scrap, aluminium, etc.), but instead deal with alternative products (e.g. old copper) that can be sold at lower prices and bring in more income for them.

Suppliers want to generate revenue from the sale of their products. They are already burdened with the costs of collection and transportation and will prefer the higher prices that generate higher revenues. They will not prefer the lower prices, which carry the risk of not regaining their invested amounts.

Few products are produced from pure natural first matter. Steel is probably one of the few exceptions in this case. With most products, a range of semi-processed or unfinished products is required to produce the final product. It is clear that the availability of such products is a significant restriction for any supplier. The prices of such products can take a large chunk of the cost of the final product.

One such example is the automotive industry. The major car manufacturers buy hundreds of components. These include the chassis, engines, wheels, tires, seats, windows, electrical parts, bumpers, mirrors, and many other parts. Any problems in the availability of one of these parts will have negative effects on the end product's supply in the market. Similarly, if the prices of these components increase, it will put pressure on car manufacturers to seek price increases in the retail market.

3.6.1.3 Promotions

Our company will try and influence the Paphos market by sending the right messages to the right people (who wish to sell scrap metal). Namely, it will use all communication elements that marketing has, such as:

- The advertising of our product in local newspapers and magazines, mailings to people who deal with various metals, tagging outdoor spaces, using the internet (e.g. Facebook) to attract young people who are seeking employment.
- Personal selling is the single personalized form of promotion and should focus on our major customers (car engineers and electricians, foremen and civil engineers in the private and public sector) to achieve better results through personal communication. Personal sales will not include the face to face element, but also be supported through telephone communication, and when necessary, further personal contact will be made.
- Sales promotion will try to motivate potential customers (suppliers) to sell their product to our company. There will be collaborations with other businesses (supermarkets, gas stations, etc.) which will grant us with various discount, or redeemable coupons to give to our customers as gifts, something that will increase both the clients' benefits from doing business with us, but also the collaborators. What is more, three times a year, at Christmas, at Easter and in August, we shall draw raffles with prizes. All our customers will have the right to participate in this draw and will be allocated raffles according to the business they had with us. Prizes will be sponsored by various stores supplying mechanical equipment (saws, cutters, welding equipment, and many others). This would increase the sales of a store as well as ours, since this way our customers will receive equipment that will help them bring more business to us.
- As in advertising and personal sales, in sales promotion our goal is to make potential buyers (suppliers) bring their products to our business, to make our business a more attractive proposition than the competition and make the ties between suppliers and buyers of the product stronger.
- Public relations are a comprehensive attempt to manage the company's image in the market where it is operating. Public relations use publicity as a tool to spread the message of the company. Publicity differs from advertising in that the media are not paid for registering. Publicity can be used for promoting a product, while public relations can promote the company as a whole. The most common forms of public relations/publicity are the press release, positive news reports, speeches, use in films and so forth (Πασχαλουδης, 2003: 32).

3.6.1.4 Distribution

The distribution channels will be four:

1. Our suppliers.
2. The wholesaler (us).
3. The importer-exporter.
4. The producer, with whom we shall have no relations.

The factors influencing our product distribution are:

1. Market characteristics such as size, place of facility, size of orders.
2. Product characteristics such as price, technical complexity, size, etc.
3. Proper cooperation with the importer-exporter.

The transportation of our products to our partner will be in large quantities, every 5 days based on predictions, in order to lower transportation costs.

3.6.2 Sales process (or cycle)

The sales process includes five stages. The first stage begins with the customers of our business (suppliers) who transport their products to our business, with their own costs. The second stage begins when we, as a wholesaler, provide some services before selling the product, such as fragmentation of large quantities, variety, storage and transportation of products and other services. The third stage is taking these products to the largest wholesaler in Cyprus. The fourth stage is when they, in turn, supply the metals industry with the product and in return receive payment in the form of discount on the final price of the product (various new metals which they will sell in the market). The fifth, and final, stage is the consumers buying these products and creating waste, starting the process again from the beginning.

3.6.3 Sales tactics

The sales tactics our business will apply are in regards to the product price. Our prices are on par with the competition, with some small differences. For example, we offer higher prices than the competition on the main product, which is iron, in order to attract a large part of the market that will supply us with metals, the price of certain ones (such as copper and bronze) will differentiate, in order to balance costs.

3.7 Operations Plan

General approach to operations

For our business to operate it needs suppliers, that is customers who will bring us the raw materials we need to start, and we need a budget, to be able to pay for the materials they brought us.

The process is quite simple and easy. The customers will come, with their vehicles loaded with scrap metal (iron), enter through the main entrance, weigh the vehicle on the designated scales provided in our facilities, the raw materials they brought, registration signs, etc. Then, with the help of an employee they will unload the materials, weigh the vehicle again, this time without the load. The customers will then receive their payment and exit the facility. As long as they keep bringing their scrap metal, the production process will continue to run smoothly.

With the first purchase of necessary raw materials, the company will start the production process. The employees operating the press will transfer the smaller pieces for pressing, and another employee will start the cutting of other, larger objects, to continue the feeding of pieces to the press. The press will produce a metal cube of iron, about 100kg in weight. This cube will be moved forwards by the second cube, and this process will continue throughout the day.

A truck equipped with a special calliper will be parked about 20metres from the press, will then start loading the metals cubes. Once collection is completed, the truck will then be parked in the designated area until the next day when the process starts again from the beginning.

The process will be repeated on a daily basis until we have reached the pre-defined quantity of product that is needed to be sent to our customer. The process is not as simple as it seems, and it is in regards with the days of the week where there is little supply of raw materials we can process the same day, about 6 tonnes per day, according to our estimates.

A problem that could arise is that in some days there will be less supply of raw materials, less than 2 tonnes, and in others supply may reach 20 tonnes, which we cannot afford, or process, due to the limited budget and limited staff we have. So,

during the days that supply will be limited, our employees should prepare raw materials purchased during large supply days. If we cannot achieve the goal of the business in the days of low supply rates, employees will be employed overtime, and if needed, on a part-time basis (Δημητριάδης-Μιχιώτης,2007:126).

3.7.1 Business location

Our business will be located in the Mesoyi industrial zone. The choice of location was based on population figures, namely:

- It is located near most populated area of Paphos.
- It is located near the city centre, thus giving us the opportunity to have customers from the whole of the Paphos district.
- The cost of transporting raw materials will be lower for our suppliers.

The sale of our products will be conducted in Limassol, and specifically at Ipsonas industrial area, and transportation will take place every 5 days to limit transportation costs.

3.7.2 Facilities and equipment

The location of the facility was based on economic, legal and social conditions in the market. It could not be somewhere else because during the transportation and processing of raw materials, nuisance, noise and exhaust fumes issues would arise, something that would affect nearby houses, if the facility operated in a residential zone.

Our equipment will be installed in a large industrial plot of 2000 square meters, will be surrounded by barbed wire and will have an entrance and an exit. The equipment used will consist of machinery and tools such as:

- ✓ The scale (used for scrap) and precision scale (used for copper, aluminium, etc.).
- ✓ The oil saws, used for cutting large metal objects.
- ✓ The welding, used for burning metallic objects which are covered by other materials, such as plastic, cloth, etc.

- ✓ The press, used to compress the various metal objects to reduce their volume during transfer (lower transportation costs).
- ✓ The power generator, used as backup in case of electricity failures.
- ✓ The special storage space, used for refrigerators.
- ✓ The transport vehicle, which is used to carry cars.
- ✓ The truck equipped with a special caliper, which is used to carry our product to its destination.

Much of the equipment could be provided by the customer we will supply with scrap metal, in order to facilitate supply, something that would have long-term financial benefits for the company in the purchase of machinery, but would have a short-term negative financial impact, with our products selling at lower prices for a specific amount of time, set by the customer (for the duration of our cooperation).

3.8 Management team and company structure

The project management team will consist of:

1. Myself, the general manager and shareholder.
2. A lawyer, who will be an outside partner and will give us assistance in establishing the business with the necessary documents and procedure (permits, infrastructure, etc.) and will be present when he is needed, or when there are changes to the existing legislation.
3. An accountant, who will be responsible for accounting and taxes.

3.8.1 Board of directors

The governing body will consist of the administrator, the accountant and the lawyer. These individuals will informally take part in the business where needed to ensure its smooth operation.

The lawyer will be present when labour issues must be settled regarding our employees, when we purchase new machinery and in the cases where in the event of problems arising with the machinery, the provider refuses, or delays repairs. What is

more, in the events of contract breaches with the customers and in environmental issues that may arise with the operation of our business.

The accountant will act as the 'physician' of our business and will know everything about its operation. Their advice will be needed with every new purchase, or replacement of old equipment, bank loan procedures and in the taxation of our business. Also, they will be responsible for the installation and correct use of computer software that will be useful for purchases and sales of various raw materials. Such software will show the type, price, quantity of materials purchased by our business, and the price they will be sold, on an everyday basis.

This type of software will be used to know the income of the company on sales and the expenses, so that we have a clear idea of the remaining budget for purchases and operations. Also, the software will be useful in tracking any changes in the product pricing, coming from the industry. This would enable us to make better decisions regarding timing of purchases and sales, something that would help increase revenues for us and our customers. Incoming and outgoing payments and available balance checking will be the main function of this software.

3.8.2 The structure of the company

The company structure will be vertical and all important decisions will be taken by the administrator. Next on the hierarchy is the truck driver, who will be in a position to use a crane and whose knowledge will be of great importance to our business. The other four employees' duties will be limited to handling raw materials and various other similar tasks, such as loading and unloading of products, using the press, and other tasks.

3.9 Overall Schedule

3.9.1 Incorporating the venture

Our business will be integrated into the market by preparing our future customers about competition, it will make contacts and agreements with local businessmen, it will look for employees from the local market, and try to obtain higher prices than the competition, in order to attract a share of the market quickly and efficiently.

3.9.2 Rental of facilities

Facilities are in place and ready to be rent. In the Mesoyi industrial zone there used to be a similar business of transporting and processing scrap metals, but they have now moved in another location, for various reasons. The industrial plot is now empty and is ready for use, since it fulfils all required standards for our business.

3.9.3 Obtaining critical financing

Seventy-five percent of our business' financing will be from my own funds and the remaining twenty-five percent will come from bank loans, meaning I, as a businessman and owner will have three times the risk than the bank does.

There could be alternative sources of funding, such as various investors showing interest, but in such eventuality, I, the owner, would not have sole management of the business. Also, such an investor would probably be interested in short-term success for financial benefits, rather than have the long-term success and future growth of the business in mind.

What is more, the business is forecasted to be profitable in the next few years and will be in a position to repay all loans. This is another fact that deters me from seeking an investor, since in the event of them wanting out of the business, would lead in a situation in which I would have to pay them ten-fold the amount forecasted.

For these reasons I prefer bank lending to realize my plans, since this would mean I will be able to make all administrative decisions. I will be in a good financial position

once the business repays its loans, since expected profits will not be shared with another party.

3.9.4 Starting production

To start production, our business must set up the production process. The scale should be placed at a spot near the entrance, so once a customer comes in they can easily weigh their vehicle and product. Next they can unload their products at a corner in the plot, about 20 metres from the scale.

After this, the two employees responsible will place in our business vehicle all the metals that do not require processing, and move them to the press, where they reduce the volume of scrap metal. Two other employees will then process the large metal objects (cutting, separating different metals that do not require pressing and are more valuable than iron), so that once the two employees operating the press finish, they can be fed with the objects that have been processed.

It would be wise to place the press in the corner of the plot opposite to the entrance, so that there is enough space. Also, opposite the main entrance and adjacent to the press there should be an exit, so that any delays are avoided and facilitate the process of vehicles carrying objects from Limassol backing into the plot and going to the press directly.

Precious metals such as copper and aluminium do not need a great deal of processing and are stored separately from the iron scrap. An employee will check the types of metals brought to us through the use of a magnet (if the magnet is attracted to the metal then it is not precious, but rather a combination of 2, or more metals, and we shall purchase it as iron). Weighing and pricing of these materials is important, making the use of a precision scale necessary, since the larger scale in our business will probably have a 5kg deviation. If a customer brings in 100kg of scrap and the large scale shows 95kg or 105kg, losses will be minimal, both on our part and the clients, about 1 euro per 5kg. However, if someone brings in 100kg of copper and the scale shows 95kg or 105kg, losses would be more substantial, about 20 euro's per 5kg.

With the proper set up of space, time and personnel, our business will be able to produce optimal results in terms of production and revenue.

3.9.5 Obtaining the first sale

Our business' first sale will be the beginning of a long-term partnership between us and our customers.

The sale of iron in our business will take place once a week and will be made in large quantities. About once a week we will be able to send our partners about 50 tonnes of scrap metals (iron). Our expenses will be about 10000 euro for purchase, and the revenue generated will be 13500 from sales. Once the first sale is made, some operational and processing costs will be deducted, along with a percentage going to bank loan payments. Then we are left with the profit, plus the 10000 that will be used again for the purchase of raw materials.

Sales of precious metals will be conducted once a month for each metal separately. These sales will be net sales, since our business' needs and expenses are covered by the buying and selling of iron.

3.10 Financial Projections

3.10.1 Sources and uses of funds statement

Of the 153,000 needed when establishing our company, 80% of the funding will be done with equity and 20% with a bank loan. The table 3.16 shows the sources and uses of funds statement.

Table 3.16: Sources and uses of funds statement

Loan & Own Capital	
Own Capital	120.000
Loan From Bank	33.000
<i>Interest</i>	<i>8%</i>
<i>Term (Years)</i>	<i>10</i>
Total	153.000

The loan from the bank with an interest rate of 8% will be repaid in 10 years based on our forecasts (See table 3.13).

3.10.2 Pro forma income statements

Based on the forecasts in the income statement for the first year we have 935,304 from sales, 626.016 costs of sales, and gross profit 301.288 or 33.1% and net profit 125.391. For the next years see table 3.17.

Table 3.17: Pro forma income statement for the first three years

Income Statement			
	Year 1	Year 2	Year 3
Sales	935.304	1.011.712	1.096.144
Less: Cost of sales	(626.016)	(671.320)	(720.841)
Gross Profit	309.288	340.392	375.302
<i>Gross Profit - Increase</i>	<i>0,0%</i>	<i>10,1%</i>	<i>10,3%</i>
<i>Gross Profit - Margin</i>	<i>33,1%</i>	<i>33,6%</i>	<i>34,2%</i>
Less: Expenses			
Operational Exp. (2%)	(6.186)	(6.808)	(7.506)
Salaries	(67.920)	(71.316)	(74.882)
Managers' Salaries	(18.000)	(18.600)	(19.200)
Rent	(6.000)	(6.300)	(6.615)
Electricity	(2.400)	(2.520)	(2.646)
Water	(600)	(630)	(662)
Insurance	(6.000)	(6.300)	(6.615)
Oils for truck, platform, etc.	(36.000)	(37.800)	(39.690)
Service Machines	(6.000)	(6.300)	(6.615)
Other	(6.000)	(6.300)	(6.615)
Depreciation	(10.300)	(9.270)	(8.343)
Allowable Capital Exp.	(2.000)	(2.000)	(2.000)
Total Operating Expenses	(167.406)	(174.144)	(181.388)
Operating Profit	141.882	166.248	193.914
Interest*	(2.559)	(2.372)	(2.171)
Profit Before Tax	139.323	163.876	191.743
Tax Payable	(13.932)	(16.388)	(19.174)
Net Profit	125.391	147.488	172.569
<i>Net Profit - Increase</i>		<i>17,6%</i>	<i>17,0%</i>

3.10.3 Pro forma balance sheets

Based on the forecasts we have the balance sheet total equity for the first time 245,391 thousand, for the second year and 392,879 for the third year 565,498 thousand. More details are given in the table 3.18.

Table 3.18: Pro forma balance for the first three years

Statement of Financial Position - Balance Sheet				
	Year 0	Year 1	Year 2	Year 3
Non-current Assets				
Book Value	103.000	103.000	103.000	103.000
Less: Accum. Depreciation*	0	(10.300)	(19.570)	(27.913)
Total Non-current Assets	103.000	92.700	83.430	75.087
Current Assets				
Receivable	0	93.530	101.171	109.614
Cash & Bank (overdraft)	50.000	103.847	252.988	425.609
Total Current Assets	50.000	197.378	354.159	535.224
Total Assets	153.000	290.078	437.589	610.311
Current Liabilities				
Tax payable	0	(13.932)	(16.388)	(19.174)
Total Current Liabilities	0	(13.932)	(16.388)	(19.174)
Non-current Liabilities				
Loan From Bank	(33.000)	(30.754)	(28.322)	(25.688)
Total Non-current Liabilities	(33.000)	(30.754)	(28.322)	(25.688)
Total Liabilities	(33.000)	(44.687)	(44.710)	(44.862)
Net assets	120.000	245.391	392.879	565.448
Owner's Equity				
Share Capital	120.000	120.000	120.000	120.000
Retained Earnings	0	125.391	272.879	445.448
Total Equity	120.000	245.391	392.879	565.448

3.10.4 Pro forma cash flows

Based on the estimated cash flows, for the first year we have net cash flows 103,847 thousand, for the second year and 252 988 for the third year 425,609. In table 3.19 we have the Statement of cash flows.

Table 3.19: Pro forma cash flows

Statement of Cash Flow				
	Year 0	Year 1	Year 2	Year 3
<u>Cash Flow from Operating Activities</u>				
Operating Cash Flow	0	154.182	177.518	204.257
Less: Tax paid	0	0	(13.932)	(16.388)
Change in Receivables	0	(93.530)	(7.641)	(8.443)
Cash inflow from operating activities	0	60.652	155.945	179.426
<u>Cash Flow from Investing Activities</u>				
Capital Expenditure	(103.000)	(2.000)	(2.000)	(2.000)
Cash outflow from investing activities	(103.000)	(2.000)	(2.000)	(2.000)
<u>Cash Flow from Financing Activities</u>				
Issue of share	120.000	-	-	-
Loan From Banks	33.000	-	-	-
Loan Payments	0	(4.805)	(4.805)	(4.805)
Cash flow from financing activities	153.000	(4.805)	(4.805)	(4.805)
<u>Net Cash Flow from Activities</u>				
Opening Net Cash -	50.000	53.847	149.140	172.622
Closing Net Cash	50.000	103.847	252.988	425.609

CHAPTER FOUR: DISCUSSION

4.1 Scrap metal industry

The exporting metallurgy, with which we deal, is the science of production (export) of pure metals or alloys of metals or other raw materials (eg scrap metal from recycled materials). Since the demand cannot be met by the production of mines (natural metallurgy), a large percentage of them are produced from recycled scrap metal (export metallurgy). For example, 55% of lead is produced from recycling (mainly from old car batteries). Also 40% copper, 32% steel, 30% aluminum, 25% nickel and 1% zinc are produced from recycling.

The scrap metal industry with which we deal is capital intensive, which means that it requires more equipment than labors during the production process. The demand for scrap metal is driven by the steel, automotive and construction industry.

Recycling is a key concept of modern waste management. Recyclable materials can derive from many sources, including houses, public services and various industries. These recycled metals are used to make new steel products, such as cars, structural steel, cables, aluminum siding and toys.

4.2 Company description

Our company is Scrap metal and will deal with collecting, processing and export of scrap metal. The operations of our company will aim to recover the old and scrap metals. Metallic waste is divided into two main categories, which are ferrous metal such as old cars and scrap iron and non-ferrous metals (non-magnetic metal) such as copper brass, aluminum, batteries etc.

4.3 Buyer behavior

Firstly, our company will have to make some contacts so as to determine who is interested in the products we offer and make some agreements with potential buyers who will be the biggest industrial metals dealers in Cyprus. The agreements made will

determine among others the prices of various products, the services we provide to our clients and the services provided by our clients to us, such as the transportation of the product at their own expense and allocation of various machines such as the press, the lorry etc. If the equipment is purchased from our company, the product (ferrous metals) will sell at higher prices; if the machines are assigned by our client, the product (ferrous metals) will sell at lower prices as long as our collaboration exists.

4.4 Factors that influence the supply

As long as there are buyers of our product, we will need to find the raw materials we need for the production of secondary materials, and give a significant financial incentive to our suppliers (customers) to convince them to provide their raw materials to our business. To recover old and scrap metals our company will have to make some collaborations related to the financial reward of our suppliers (our customers) and the services that will provide them pro bono, such as the machinery for cutting and transporting raw materials when and where it is necessary. Our suppliers can be any individual, those whose work creates metallic waste, government agencies, environmental and non-profit organizations.

We call purchase of scrap metal the physical space in which buyers and sellers meet to buy scraps metal. There are two main markets for metals, the domestic and professional market. Our company will focus on the professional market for the reason that the people involved in this category will be the major customers.

4.5 Market analysis

The market of Paphos in which the company will operate can be divided into two industrial zones (divisions), A and B. Our company has chosen to operate in the industrial zone A located in the center of Paphos where more population resides. Usually our suppliers (customers) are men between 18 and 50 years old, unemployed, with low-income and our major customers in most cases are men whose work creates metal scrap.

Since these people know that metal scrap can provide them with an additional income, will store and we sell them with the greatest financial benefit that could be gained. We can safely say that all people will be encouraged to bring their scrap metal to our business because shopping behavior is strongly influenced by cultural, social, psychological and personal factors that prevail in the market and create a different behavior for each individual.

For the most part in our business, our customers will behave as sellers (suppliers) and will behave identically. This means that depending on the quantities that each supplier will bring, he will be able to negotiate a higher selling price, either by saving it to bring it later in larger quantities (when he does not need the money immediately) or by saving it to bring when prices in the scrap metal market are higher.

4.6 Competitor analysis

In area A, in which we will operate there are two competitors of Arab origin; the one is in the first phase of maturity and the other – on whose side we will work - is in the development phase. The choice of the site has been based on two factors. First because this site functioned as a scrap metal yard and is suitable for the establishment of our company and second because it is close to our main competitor where the largest amount of trading of ferrous and non-ferrous metals takes place.

4.7 Economic of the Business

Our company will have startup costs 103.000 thousand euro for equipment and 50.000 thousand euro for working capital. Of the non-current assets, the press carries the greatest risk of our investment because its purchase costs 30,000 euro that is approximately 30% of the non-current asset and 20% of total investment, therefore, if something does not go well and we decide to sell; we will not easily find buyer nor bank to mortgage it.

Of our total expenses which are 1,014,386 we have break even sales at 525,043 and based on our estimate we have a safety margin of 489,344 and in 48.2% of our expected net sales respectively.

Depreciation (10%) will be charged straight line for 10 years. Depreciation is assumed to be the same as capital allowances. Furthermore, the assumption is made that in the next years no other depreciable assets will be introduced and any other capital expenditure will be directly allowable and recognized in Income Statement.

The loan from the bank with an interest rate of 8% will be repaid in 10 years based on our forecasts.

4.8 Marketing Plan

The allocation of marketing resources will take place in the most profitable segment of Paphos where the majority of population lives (around 50% of the population). This area of Paphos is situated in the industrial area Mesogi that connects the center of Paphos with Chrysochoou area, where 25% of the population of Paphos resides.

As a company, we will have half the marketing resources for the purchase of ferrous metals (cars and other metal objects) that are the main product with which we deal, and exist abundantly in the market. The rest of the marketing resources will be allocated for the purchase of various other non-ferrous metals (copper and other non-magnetic metals).

In order to attract customers, the business should use the full marketing mix in its disposition such as:

- The product. In matters related to its processing and transportation.
- The price. The price will be the same or slightly higher compared to the main competitor on the basic product, which is ferrous metals and lower in two non-core products (non-ferrous metals) such as copper and bronze.
- The promotion will be made through advertising, through personal sales, through sales promotion and public relations.
- The location. Products intended for our business (or other competing businesses) located in the industrial area Mesogi near the center of Paphos, will be collected from all sites in Paphos in exchange for a fee. We in turn will transfer them in bulk from

our location to the location of our client (Epifaniou Scrap metals) located in the industrial area in Limassol Ypsonas for a fee. Epiphaneiou will send them in very large quantities to industrial metal producers abroad where they will be used as raw materials in the manufacture of new industrial metals to be reused in the market.

The reuse of these new products will be made via Epiphaneiou and other industrial products wholesalers who supply the producers with secondary raw materials in exchange for a discount on the final price of the product. Since traders of industrial metal products have gotten the goods at a lower price when they sell it on the market in its real value, they will have the expected financial results.

4.9 Operation Plan

The objective of our business is the collection, processing and transportation of raw materials for export to one of the leading importers-exporters of industrial products in Cyprus. The collection and processing will be carried out by our suppliers and the final processing and transportation of the product by our company to our client's business.

The process starts from the purchase of scrap metal from a supplier. The supplier will come with the vehicle loaded with raw materials, will go up onto the scale after entering the facilities, the weight of the vehicle will be written down, along with other data such as delivery time, the plate number of the car and the type of raw materials transferred to our facilities.

With the guidance and assistance of a staff member the vehicle will go to a specific area and will download the raw materials brought. After it will return to the scale where we will re-weigh the empty vehicle to find the difference (weight), the driver will be paid and will be leaving to go to continue his work, which means to bring us more scrap metals.

The business will consist of the Director who will be responsible for the organizing and transactions of the business; the driver, who is responsible for the maintenance of

the truck, the handling of the crane for loading the truck during the production process and the transportation of the product to our customer. In the company four more workers will be employed, of whom one will be the foreman and will have the required knowledge of handling all the machinery. Their work will have to do with the storage of the product when suppliers come, cutting the product, transporting it near the press to reduce its volume.

There will also be some external partners such as the accountant and a lawyer and our company will cooperate with them when and if their knowledge is needed.

4.10 Obtaining critical financial

Of the 153,000 needed when establishing our company, 80% of the funding will be done with equity and 20% with a bank loan. There could certainly be other alternative financing sources such as e.g. an investor looking for easy money but not interested in the development of our business as well as being unaware of the products of our company. Still, there could be some agreements with our client for the concession of machines that involve great expense and risk, so as to avoid having bank loan.

Based on the forecasts in the income statement for the first year we have 935,304 from sales, 626.016 cost of sales, and gross profit 301.288 or 33.1% (see Table 2 income statement section 3.10 for the next year) and net profit 125.391.

Still, based on the forecasts we have the balance sheet total equity for the first time 245,391 thousand, for the second year and 392,879 for the third year 565,498 thousand.

Also, based on the estimated cash flows, for the first year we have 103,847 thousand, for the second year and 252 988 for the third year 425,609.

CHAPTER FIVE:

CONCLUSIONS/RECOMMENDATIONS

5.1 CONCLUSIONS

Our company will be active in the field of export metallurgical namely the recycling of scrap metal. The company's operations aim at recovering old and useless metals, ie at the collection, processing and transportation of scrap metal (ferrous and non ferrous) for export.

Collection of scrap metal will be done by our suppliers, as well as the partial treatment to increase the benefits they will have from the sale of scrap metal (ferrous separation of non-ferrous metals).

We as a company will perform the finish of the product (usually for ferrous metals), storage of product and we will supply the client with large quantities of various ferrous and non-ferrous scrap metal.

Competition in the area in which we will operate becomes increasingly more intense for the reason that stocks in old metal decline due to the economic crisis that will adversely affect growth in the major industries of the market (steel, automotive and construction sectors) with subsequent reduced waste in old and scrap metals.

Our company has large startup costs amounting (together with the capital needed for purchases) to 153.000 thousand euros. The equipment required for the use of the press in order to reduce the volume of ferrous metals during transfer (reduced transport costs) carries the greatest risk in our investment, because of high cost market and because of the difficulty in selling or mortgaging it.

Based on our estimates our company has a large safety margin that reaches 48.2% of our expected sales and a margin of safety for variable costs that amounts to 73%.

The allocation of half marketing resources, will be made for the purchase of ferrous metals that is our main product, and the other half of marketing resources for the purchase of various non-ferrous metals. During the foundation of our business we

need 153.000 thousand euros of which 75% of the investment will be made with own funds, while the remaining 25% will be provided by loan and other alternative sources.

Based on our estimates, the net profits of the company are too optimistic and will amount for the first year to 125 391 euro, the second year to 147 488 euro and the third year to 172 569 euro respectively.

5.2 RECOMMENDATIONS

The company will operate in a sector of the economy that faces negative growth this season because of the economic crisis. The demand for scrap metal is driven by the steel, automotive and construction fields which are in a great depression. Since the above sectors of the economy are experiencing negative growth rates, our business is expected to deal with the same rates in an environment of intense competition and recession.

The high cost of starting a business is due to the fact that it is capital intensive and requires more equipment for the production process. There could be a postponement (for the future) in buying some equipment (such as the press and the truck) due to the negative growth rate prevailing in the market and the lack of abundance of scrap metal for processing and transportation. For example, we could come to an agreement with our client to grant us the press, in order to avoid the bank loan and reduce the risk of our business, as well as an agreement for the transfer, ie to do the transfer with his truck once a week, thus reducing startup costs for our business, transport costs and payroll (driver) until the market recovers

Many competing companies are facing operational problems such as difficulties in repairing machinery and layoffs due to lack of liquidity because of the reduction in the purchase of scrap metal.

In these sectors of the Cypriot market (trade and construction) a positive growth is expected, especially in the province of Paphos where we operate our business, for the following reasons:

- Finding hydrocarbons in the sea area of Cyprus between Limassol and Paphos, which will result in the creation of a storage terminal in Paphos and the attraction of investors.
- Mandatory implementation of all major planned projects (renovation of all government and listed buildings in the center of Paphos, implementation of the road Paphos Polis Chrysochoous, implementation of the road from Paphos airport to Coral Bay, implementation of the marina in the coastal area of Kissonerga and other large projects) until 2017 where Paphos will be honored as the cultural capital of the European Union..

With these big projects, whose duration will be at least until 2017, it is expected to have a rise in trade and construction. Since these industries affect the demand and supply of scrap metal and are expected to have positive growth in the coming years, there will also be the expected positive outlook for our business and the entire industry of ferrous and non-ferrous metals.

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APPENDICES

1) Legal status for scrap metal company

In this Act, 'Old metals dealer' refers to any person who trades, buys and sells old metals, used metals, scrap metal, broken metal, fabricated metal goods, deformed or old metals goods. This person can either sell these items alone, or practice another work also. The term 'old metals' refers to the aforementioned items.

Since the 1st of June 1952 onwards, no person can operate a business as an old metals dealer, unless they have previously acquired a permit from the responsible Police officer in the province in which they intend on conducting their business (hereinafter will be called 'Chief of Police'), according to the provisions of this Law (cylaw.org).

To acquire the Old Metals Dealer permit, the following are needed:

- 1) A person who wishes to operate an old metals business must submit an application to the Chief of Police, in the form set by the latter.
- 2) The Old Metals Dealer permit is valid for a period of five years and is issued in the form prescribed by the Chief of Police, after checking the provisions of this Act, and under the terms and conditions as set on the permit, including conditions on the amenities of the affected area.
- 3) The Old Metals Dealer permit is issued, or renewed, as appropriate, for a fee of ten pounds (17 euro).
- 4) The license is personal to the holder and must be displayed.
- 5) Each license issued under the provisions of this Act are personal to the holder and placed in a conspicuous place on the main premises in the province in which the licensee operates the business as Old Metals Dealer.

Books that should be kept:

- 6) Every person who operates a business as an Old Metals Dealer, must keep a book, as described in 'A' of the First Table of this Act, that states the details of all old metals purchased or received, and a book, as described in 'B' of the First Table of this Act, in which the details of all old metals sold or otherwise were disposed of, and this books must be available for inspection at all times, by any officer of the Law.

Restrictions on purchases of old metals:

- 7) No old metal dealer can buy, or otherwise take, any old metal:
 - a. Except between the hours of sunrise and sunset times.
 - b. Any person under the age of sixteen.

Restrictions on the quantity of metals for purchase:

- 8) a. Except with the written permission of the Chief of Police, no old metals dealer can buy, or otherwise take, any metal on which this article applies to, either of a new condition, or of a quantity less than thirty kilos.
 - b. The metals on which this article applies to is lead, copper, brass, tin, and aluminium, or any compound the main component of which is lead, copper, brass, pewter, or a mixture of the above, depending on the case.

Old metals are not to be altered for a period of 48 hours

- 9) Any old metals dealer is obliged to save all metals purchased or received, without altering the form in which the items were purchased, or obtained, for a period of 48 hours after the item was purchased, or obtained.

Police authority

- 10) Police officers may, without warrant, enter and search the premises where the old metals dealer conducts their business to find, or prevent, the violation of any provision of this Act.

Penalties and liability of old metals dealers in regards to their employees, or representatives

- 11) Any person who:
 - a. Runs a business as an old metals dealer without license obtained under the provisions of this Act, or conducts said business in premises other than the premises specified in the license.
 - b. Fails to keep any records as required by this Act, or knowingly makes any entry which is false, regarding any essential detail.

- c. Gives false details in regards to his name, surname, business address to other old metals dealers when selling, or providing, old metals to them, or when they purchase, or receive such metals from them.
- d. Contravenes or fails to comply with any of the provisions of articles 7, 8, or 9.
- e. Prevents, attacks, or resists a police officer during the exercise of their duties, or powers under this Act is guilty of offence and is liable to imprisonment not exceeding six months, or to a fine not exceeding four hundred and fifty pounds, or to both these penalties, of fine and imprisonment. The Court may order the confiscation of any old metals related to the offense.
- f. When an offense has been committed in violation of this Act by any employee or representative of an old metals dealer, the dealer is regarded as part of the offense and may be charged and tried as if they actually committed the offense and may be punished accordingly, except if they prove, to the satisfaction of the Court, that the offense was committed without their knowledge and was not due to any act, or omission, on their behalf. (http://www.cylaw.org/nomoi/enop/non-ind/0_75/full.html)

2) RECORDS FOR OLD METALS PURCHASED, OR OTHERWISE ACQUIRED

TYPE 'A'

Date of purchase or receiving	Time of day	Description and weight of old metal	Name and surname of individual purchasing or receiving	Name and surname of individual selling or giving	Profession and address of individual from which purchased or received

TYPE 'B'

RECORDS OF SALES, OR OTHER DISPOSALS OF OLD METALS

Date of sale	Description and weigh of old metal sold or disposed	Name and surname of individual to which it was sold to	Profession and address of individual to which it was sold
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3) Break even Sales

Break Even Sales		525.043
Less: Cost of sales	66%	(348.363)
		176.680
Gross Profit		176.680
Less: Expenses		
Operational Exp. (2%)		(6.833)
Salaries		(71.373)
Managers' Salaries		(18.600)
Rent		(6.305)
Electricity		(2.522)
Water		(631)
Insurance		(6.305)
Oils for truck, platform, etc.		(37.830)
Service Machines		(6.305)
Other		(6.305)
Depreciation		(9.304)
Allowable Capital Exp.		(2.000)
Total Operating Expenses		<u>(174.313)</u>
Operating Profit		2.367
Interest*		(2.367)
Profit Before Tax		0
Tax Payable		0
Net Profit		0

4) Start up cost

Machinery			
Kind	Price	Quantity	Total
Truck caliper	40.000	1	40.000
Platform	15.000	1	15.000
Press	30.000	1	30.000
Scale (large)	10.000	1	10.000
Scale (small)	1.000	1	1.000
Flexed	1.000	2	2.000
Oxyacetylene welding	1.000	1	1.000
Cash for Refrigerators	2.000	1	2.000
Generator	2.000	1	2.000
		Total	103.000

5) Employees Salaries

Employees			
Kind	Amount	No. of Empl.	
Administrator (me)	1500	1	1500
Handle the press	1040	2	2080
Cut with flexed	1040	1	1040
To download from cars	1040	1	1040
Truck drivers and platform	1500	1	1500
Checkout and weigh other metals	1040	1	1040
		Total	8.200

6) Other cost and Working Capital

Other Cost			
Kind	Expense	Months	Monthly
Rent	500	1	500
Electricity	400	2	200
Water	150	3	50
Insurance	500	1	500
Oils for truck, platform, etc.	3000	1	3000
Service Machines	500	1	500
Other	500	1	500
		Total	5.250
Working Capital		50.000	

7) Purchases Forecast for the first year

Purchases							
	Quantity - Kg	Quantity - Ton	Days	Monthly - Kg	Monthly - Ton	€/ Kg	Monthly Exp.
Iron	6.000	6	30	180.000	180,0	€ 0,21	€ 37.800
Copper	20	0	30	600	0,6	€ 4,00	€ 2.400
Aluminum	20	0	30	600	0,6	€ 0,60	€ 360
Batteries	20	0	30	600	0,6	€ 0,40	€ 240
Wires				500	0,5	€ 0,80	€ 400
Mrazen	10	0	30	300	0,3	€ 1,50	€ 450
Cars	2.000	2	30	60.000	60,0	€ 0,14	€ 8.400
Stainless Steel	30	0,03	30	900	0,90	€ 0,80	€ 720
lead	30	0,03	30	900	0,90	€ 0,40	€ 360
Refrigerators	120	0,12	30	3.600	3,60	€ 0,08	€ 288
Pneumatic drill	100	0,10	30	3.000	3,00	€ 0,25	€ 750
<u>Other from cars</u>							
Exhausts				60	Units		0χι
Car refrigerators				420	0,42		0χι
Springs (Lead)				1.440	1,44		0χι
Glass				1.200	1,2		0χι
Plastic				1.200	1,2		0χι
Tires				1.800	1,8		0χι
Batteries				300	0,3		0χι
Motor oil				200	0,2		0χι
Wires				600	0,6		0χι
						Total purchases	€ 52.168
						Total purchases	€ 626.016

8) Sales Forecast for the first year

Income							
	Quantity - Kg	Quantity - Ton	Days	Monthly - Kg	Monthly - Ton	€/ Kg	Monthly Incc
Iron	6.000	6,00	30	180.000	180,0	€ 0,27	€ 48.600
Copper	20	0,02	30	600	0,6	€ 6,00	€ 3.600
Aluminum	20	0,02	30	600	0,6	€ 1,50	€ 900
Batteries	20	0,02	30	600	0,6	€ 1,00	€ 600
Wires				500	0,5	€ 2,00	€ 1.000
Mrazen	10	0,01	30	300	0,3	€ 3,00	€ 900
Cars	1.600	1,60	30	48.000	48,0	€ 0,27	€ 12.960
Stainless Steel	30	0,03	30	900	0,9	€ 1,50	€ 1.350
lead	30	0,03	30	900	0,9	€ 0,60	€ 540
Refrigerators	120	0,12	30	3.600	3,6	€ 0,15	€ 540
Pneumatic drill	100	0,10	30	3.000	3,0	€ 0,35	€ 1.050
<i>Other from cars</i>							
Exhausts				60	Units	€ 30,00	€ 1.800
Car refrigerators				420	0,4	€ 2,00	€ 840
Springs (Lead)				1.440	1,4	€ 0,50	€ 720
Glass				1.200	1,2	€ 0,30	€ 360
Plastic				1.200	1,2	€ 0,20	€ 240
Tires				1.800	1,8	€ 0,19	€ 342
Batteries				300	0,3	€ 1,00	€ 300
Motor oil				200	0,2	€ 0,50	€ 100
Wires				600	0,6	€ 2,00	€ 1.200
						Total purchases	€ 77.942
						Total purchases	€ 935.304