LAPPEENRANTA UNIVERSITY OF TECHNOLOGY
Department of Business Administration
International Marketing

INDUSTRY CHANGE IN TRANSPORT PACKAGING SECTOR

The topic of this Master's thesis has been accepted at the meeting of the Department of Business Administration on 19 August 2004.

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Lappeenranta, 30 August 2004

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ABSTRACT

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Title: Industry Change in Transport Packaging Sector
Case: Eltete TPM Ltd
Department: Department of Business Administration
Year: 2004

Master's Thesis, Lappeenranta University of technology.
133 pages, 20 figures, 6 tables, and 3 appendices.

Supervisors: Professor Sanna Sundqvist
Professor Kaisu Puumalainen

Keywords: buyer behavior, cardboard, framepack, household appliance companies, industry change, innovation, packaging, recycling, transport packaging, wood

The aim of this Master's Thesis is to find out the future prospects of Eltete TPM Ltd, the Finnish cardboard transport packaging company, by examining if wooden transport packaging material can be replaced with cardboard materials. The research is carried out examining the factors of industry change through buyer behavior, innovation characteristics, regulatory issues, competition environment and finally researching what the customers of transport packaging want and need. The subject customers of this research were chosen to be the biggest household appliance companies in Europe and the research methodology a postal questionnaire. The results of the marketing research of household appliance companies' packaging solutions and the competitor analysis showed that there really is a growing demand for recyclable cardboard transport packaging solutions as the Eltete TPS – Framepack solution is, and Eltete TPM Ltd has the resources to be the market leader in the changing transport packaging industry in the future.

TIIVISTELMÄ

Tekijä: Samira Weissman
Tutkielman nimi: Toimialanmuutos Kuljetuspakkaussektorilla
Case: Eltete TPM Ltd
Osasto: Kauppatieteiden osasto
Vuosi: 2004

Pro Gradu – tutkielma, Lappeenrannan teknillinen yliopisto.
133 sivua, 20 kuvaa, 6 taulukkoa ja 3 liitettä.

Tarkastajat: Professori Sanna Sundqvist
Professori Kaisu Puumalainen

Hakusanat: innovaatio, kartonki, kehyspakkaus, kierrätys, kodinkoneyritykset, kuljetuspakkaus, ostokäyttäytyminen, pakkaus, puu, toimialanmuutos

Tämän tutkielman tarkoituksena on selvittää suomalaisen kartonkikuljetuspakkausfirman, Eltete TPM Oy:n, tulevaisuudennäkymät selvittämällä voiko puisen kuljetuspakkausmateriaalin korvata kartonkisilla materiaaleilla. Kyseinen tutkimus suoritetaan selvittämällä toimialanmuutokseen vaikuttavia tekijöitä kuten ostokäyttäytymistä, innovaation ominaisuuksia, säädöksiä, kilpailuympäristöä sekä lopuksi tutkimalla mitä kuljetuspakkauksien asiakkaat haluavat ja tarvitsevat. Kyseisen tutkimuksen kohdeasiakkaiksi valittiin suurimmat kodinkoneyritykset Euroopassa ja tutkimusmenetelmäksi postikysely. Suoritetun markkinointitutkimuksen tulokset kodinkoneyritysten pakkausratkaisuista sekä kilpailija-analyysi osoittivat, että todella on olemassa kasvava kysyntä kierrätettäville kartonkisille kuljetuspakkausratkaisuille, kuten Eltete TPS - Framepack solution on, sekä että Eltete TPM Oy:llä on voimavaroja tulevaisuudessa nousta markkinajohtajaksi muuttuvalla kuljetuspakkaussektorilla.

ACKNOWLEDGEMENTS

I would like to thank CEO Mr. Österman in Eltete TMP Ltd for providing the opportunity to work in this interesting cardboard transport packaging area. Especially I would like to thank him for the post as Export Sales Manager in Eltete TPM Ltd. I am also grateful for the guidance from supervisors Professor Sanna Sundqvist and Professor Kaisu Puumalainen though they were almost too requiring. Big thanks to all the people that helped me get this hard work done.

Finally, I would also like to thank Patrik and my family for their patience during this Thesis.

Loviisa, 30 August 2004

Samira Weissman

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1 INTRODUCTION

Packaging has become a particular focus of green concern. This is partly because the packaging of a product offers opportunities for improving the environmental performance of the tangible product without altering the core product. There can be listed several important green packaging issues like resource consumption, low recycling rates, information and labeling, waste and litter. It can honestly be said that few industries have felt the impact of the green challenge as profoundly as the packaging industry. For many years there were two 'E' factors that determined the success of any given form of packaging: consumers wanted packages that were *economical* to buy and *ergonomic* in use. The green challenge has added a third 'E' with consumers demanding that packaging is also *environmentally sensitive* in disposal. A survey by the US journal *Packaging* found that concern about waste is making recyclability as increasingly important package attribute in terms to its effect on consumers' purchase decisions. (Peattie 1995, 262-265)

Packaging waste has for a long time been one of the most focused problems also in environmental politics, both nationally and internationally. On the European arena, *the EU Packaging Directive* from 1994 (62/94) has been an important basis, both for promoting increased recycling and recovery rates of packaging materials, as well as waste reduction related to packaging. Nationally, several countries, like the Netherlands, United Kingdom, Sweden and Norway, have established agreements between environmental authorities and the packaging sector to follow up the requirements set in the Packaging Directive. (Hansen, Olsen, Møller & Rubach 2002, 2)

All these signs seem to lead to one direction which is to industry change in packaging and especially in transport packaging sector and this is required by both, individuals and society.

1.1 BACKGROUND

The packaging industry is very dynamic and has undergone a great deal of change because the universe in which it works is changing. Laws and regulations, new products, the globalization of technologies, and a general increase in competitiveness have accelerated in the last 10 years. With those pressures in the packaging industry starting to take effect, it is important to examine how packaging is like to change in the future. Because the packaging industry is essentially a business-to-business activity, packagers may not be aware of the larger trends in society, particularly from a consumer point of view. Also, because the packaging industry in an enormous system involving everything from raw materials to waste disposal, each level may experience a relatively narrow view of the future. (Coates 2003, 20)

As the world is heading all the time more and more to the adaptation of sustainable development and companies are coming to considerable extent more concerned about the environment it is important to research what are the requirements of the surrounding environment. One of the most important attribute for the sustainable development and greener thinking is recycling. Recycling has a lot of benefits and on the packaging industry it gives a significant competitive advantage for the company that produces recyclable packaging materials. The governments and different organizations pass regulations at an increasingly rate that the companies have to take into consideration when acting on the markets and as the level of development is different in every country, so are the regulations. At the moment one of the hot issues in the transport packaging industry is the wooden packaging that has caused problems and not least of which is *the Asian Long-Horned Beetle.* The beetles live inside wood and may be spread in pallets or wooden frames used in packaging with the result that they spread to living trees destroying their water circulation and then killing them. It would be advantageous in lots of ways for all to get rid of the wooden packaging.

The disadvantages of the wooden transport packaging materials is one of the reasons why it is now important to research what the different companies think about their packaging materials and what will be the requirements for these materials in the future as now there already has come lot of regulations of packaging and recycling that will support the sustainable development and woodless transport packaging.

The case company of this Master's Thesis, Eltete TPM Ltd has already noticed the change of attitudes and developed an alternative way to pack products. The idea of *Eltete TPS - Framepack solution* with cardboard pallets, is that the wooden materials are replaced by cardboard materials and also reducing the materials getting now the product much easier to handle and afterwards dispose the packaging by recycling. The company now wants to sort out what the market potential of this woodless solution is. This new solution gives a great opportunity to find out if cardboard transport packaging material can replace wooden materials.

1.2 RESEARCH PROBLEM AND OBJECTIVES

One thing that is sure is that the marketing environment is constantly spinning new opportunities and threats and it is important to understand continuously monitor and adapt that environment. Successful companies recognize and respond profitably to unmet needs and trends (Kotler 1999, 136) which is exactly what Eltete TPM Ltd is trying to do. As wooden materials that some companies use in transport packaging have so much disadvantages and negative impacts for the surrounding environment Eltete TPM Ltd wants to clarify the market potential of recyclable cardboard transport packaging through the Eltete TPS – Framepack solution and cardboard pallets and by doing so get a vision of the future prospects of the company. The research objective of this Master's Thesis is to find out if the packaging industry is changing and how the markets of

recyclable cardboard transport packaging materials will look like in the future.

The research problem and sub-problems in this Master's Thesis are then:

HOW THE TRANSPORT PACKAGING INDUSTRY IS GOING TO CHANGE?

- *WHAT ARE THE FACTORS AFFECTING INDUSTRY CHANGE?*
- *HOW INDUSTRIAL BUYER BEHAVIOR AFFECTS TO THE INDUSTRY CHANGE?*
  - *Case: Household appliance companies*
- *WHAT ARE THE INNOVATION CHARACTERISTICS FOR INDUSTRIAL PRODUCTS?*
- *HOW REGULATORY ISSUES AFFECTS TO THE INDUSTRY CHANGE?*
- *HOW COMPETITION ENVIRONMENT AFFECTS TO THE INDUSTY CHANGE?*

This environmental analysis will clarify the possibilities of cardboard to succeed in the transport packaging material sector.

1.3 LIMITATIONS

Factors that affect the industry change is limited first to the factors that directly affect the packaging industry. These are buyer behavior, innovation characteristics, regulatory issues and competition environment. The buyer behavior is then limited to industrial buyer behavior and regulatory issues to environmental regulations. As the packaging industry is so wide and have so much different dimensions and branches the research is limited firstly to *the transport packaging* which is a very

important part of the whole product, protecting it on the delivery from one place to another. There are also a lot of different transport packaging materials and on this case these are limited to *cardboard* and *wooden materials* leaving out plastic, metal and expanded polystyrene (EPS) according to the research objectives. The next limitation comes to the researched companies and the area where the study is carried out. The companies that are researched are the biggest *household appliance companies and groups* in Europe because they already have noticed the importance of recyclability and they need protective transport packaging for their vulnerable products. The area that was chosen was Europe because there already the packaging can be seen giving some added value than only bringing costs. For the analysis of Eltete TPM Ltd's competitors only the biggest and international companies were chosen because the hardest competition is between these companies.

1.4 DEFINITIONS

Here are defined some of the central concepts of this Master's Thesis. Rests of the possible concepts are defined in the text.

Industrial buyer behavior or industrial buying. Is the decision making process by which formal organizations establish the need for purchased products and services and identify, evaluate, and choose among alternative brands and suppliers. (Kotler 1999,192)

Cardboard. Flat packaging material, largely consisting of fibers, the basic weight of which (150g/m² to 600g/m²) overlaps the basis weight range of both paper and paperboard. Cardboard is stiffer than paper and is generally produced from higher quality materials than is paperboard. Cardboard is produced as a continuo web. (GDV 2000)

Innovation. At the firm level, innovation is usually defined as the adoption of an idea, practice, object or behavior, pertaining to a product, service, system, policy, or programme, that is new to the adopting organization. It matters little whether or not an idea is objectively new as measured by the lapse of time since its first use or discovery. (Rogers 1995, 11)

Industry change. Some forces are in motion that create incentives or pressures for industry change. It can increase or decrease the basic attractiveness of an industry as an investment opportunity, and it often requires the firm make strategic adjustments. (Porter 1980, 156 & 162)

Recycling. The collection and separation of materials from waste and subsequent processing to produce marketable products (Groundwork Wales 2003). Other a more comprehensive definition from *European Recovered Paper Council* is that recycling is reprocessing of recovered paper in a production process for the original purpose or for other purposes, including composting, but excluding energy recovery. (European Recovered Paper Council 2001, 13)

Transport packaging. Transport packaging protects the product, from the time it leaves the manufacturer till it reaches the shop - for instance pallets, cardboard boxes, plastic foil, corrugated cardboard, expanded polystyrene (EPS) etc. Transport packaging most often ends up at the manufacturers and shops, and makes up more than half of overall packaging waste generated. (Factuelt 1997)

1.5 PRELIMINARY THEORETICAL FRAMEWORK

On the next page is presented the preliminary theoretical framework of this Master's Thesis and a picture of it to clarify what issues are going to be dealt.

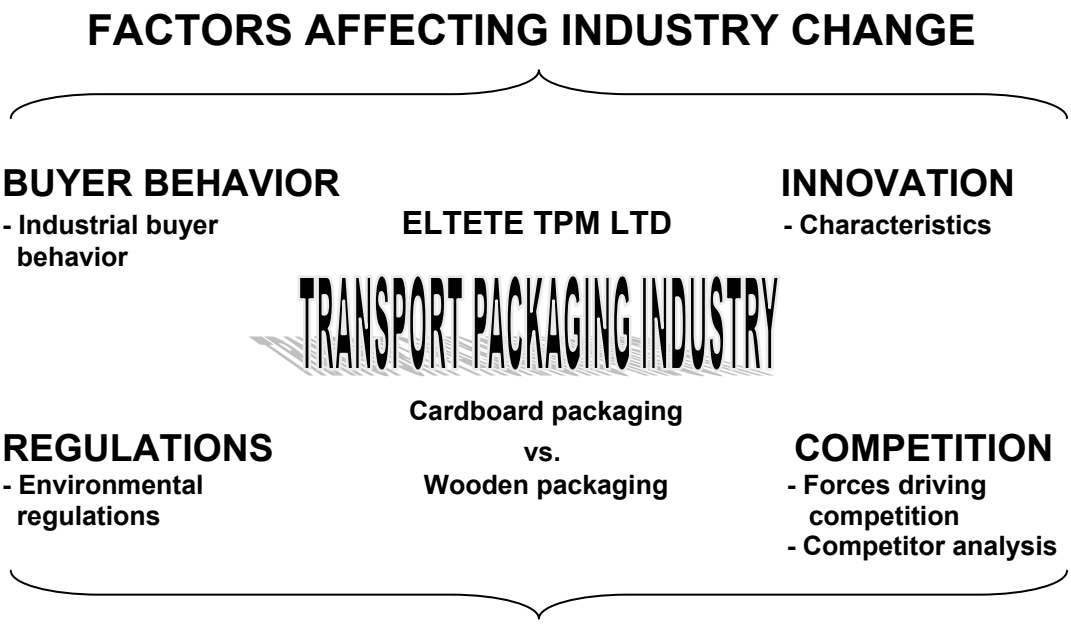


Figure 1. Preliminary theoretical framework of this Master's Thesis

The starting point to the whole research is the transport packaging and the factors affecting an industry change. The four main factors that are going to be dealt more precise are buyer behavior and especially industrial buyer behavior, innovation and its characteristics, regulations and especially environmental regulations and finally competition environment handling the forces driving competition and analysis of competition. These factors are examined more closely in the marketing research of the household appliance companies' transport packaging solutions trying to find out how these companies adopt cardboard solutions. These all lead and give the direction of the future prospects of Eltete TPM Ltd, its products and solutions.

1.6 REVIEW OF LITERATURE

Concerning the factors affecting industry change the book of **Porter** *Competitive Strategy* (1980) presents a comprehensive framework of analytical techniques to help a firm analyze its industry as a whole and predict the industry's future evolution, to understand its competitors and its own position and to translate this analysis into a competitive strategy for a particular business. Competition and regulatory issues are very generally dealt subjects and chapters of these can be found from every marketing publication. Porter is also famous for writing the book C*ompetitive advantage* (1985). Other publications dealing competition and regulatory issues are **Albaum's**, **Strandskov's** and **Duerr's** *International marketing and export management* (1998), **Aaker's** *Developing Business Strategies* (1995), **Bradley's** *International Marketing Strategy* (2002) and of course **Kotler's** *Marketing Management* (1999).

According to **Bennett**, **Sheth** and **Woodside** (1977, 17-33) organizational buying behavior has a rich tradition of empirical and practice-oriented research. They have located more than a thousand references in the form of books, articles, commentaries, and trade publications. Their book *Consumer and Industrial Buying Behavior* review e.g. the theory and research in buying behavior, defines the buyer characteristics and behavior, review multiattribute attitude models and focus on social marketing, consumerism and public policy issues. Another more empirical publication is **Moriarty's** book *Industrial Buying Behavior* (1983) which reviews the basic concept, theories, models, and issues in the field of organizational buying behavior. It also shows how empirical data on how and why organizations buy can be used to bridge the gap between the theories of organizational buying behavior and the practice of industrial marketing.

Concerning the topic of another popular area of research is innovations and/or diffusion of innovations and today the total number of diffusion

publications approaches 4000. The name of **Everett Rogers** is virtually synonymous with the study of the diffusion of innovations. His book, *Diffusion of Innovations* (1995), range from the elements of diffusion and the history of diffusion research to generators of innovation, change agents, and the consequences of innovations. The publication of **Webster**, *New Product Adoption in Industrial Markets: A Framework for Analysis* (1969), develops a framework within which characteristics of the innovating firm, the nature of the innovation, and sources of information can be analyzed as an aid to that understanding. There is little empirical work on the effects of public policy intervention on the diffusion of new technologies. One publication is however the publication of **Gruber** and **Verboven**, *The evolution of markets under entry and standards regulation – the case of global mobile telecommunications.* It assesses empirically the effects of entry regulation and standard-setting on the evolution of specific industry and in this case the world wide cellular mobile telecommunication services industry.

Concerning the environmental issues green thinking, recycling and packaging themselves are not new issues nowadays and that is why there is lot of different literature available but when combining green thinking, recycling and transport packaging there are practically no literature available. Of course, there has been literature written about packaging and recycling but not about transport packaging and recycling which are not the same things. Although already **Peattie** mentions in his book *Environmental Marketing Management Meeting the Green Challenge* (1995) very shortly the shipping packaging but he does it in the chapter *Distribution strategies* and not in the *Packaging* chapter which he also has. There are some publications that glance at the topic but these are often some case studies that concentrate to some other point of view e.g. **Halme** in her book *Environmental issues in product development process: Paradigm Shift in a Packaging Company* (1993) researches how the environmental thinking affects to the product development process. The study of *The Minnesota Office of Environmental Assistance's* and *the*

American Plastic Council's of *Transport Packaging: Cost-Effective Strategies for Reducing, Reusing, and Recycling in the Grocery Industry* (1998) concentrates to reduce transport packaging in the grocery industry as dividing transport packaging as old corrugated containers, plastic film, and wooden pallets. Another publication from Minnesota Office of Environmental Assistance is *Reusable transport packaging directory* (1994) that describes the different transport packages and lists the companies that manufacture or supply the packages. *Packforsk*, the Swedish institute for packaging and logistic has published a quite informative collection of *Packaging and the environment* that contains various articles about different packaging materials and the packaging industry.

There have also been more articles about the subject as the business press (both academic and practitioner) validates the importance of environmentally sound practices to business by publishing more books and articles on the topic every year (Handfield 1996, 293). These concentrate to some specific topics though like **Witt** writes in his article *Transport packaging finds its place* (Material Handling Engineering 1997, Vol. 52) about issues concerning benefits of online packaging systems, selection of transport packaging material, use of plastics protective packaging etc. **Handfield**, **Walton**, **Seegers** and **Melnyk** draw on the results of interviews with five environmental managers in the furniture industry to develop a taxonomy of environmentally-friendly best practices within the operations management value chain in their article *'Green' value chain practices in the furniture industry* (Journal of Operations Management 15, 1997). **Yuva** writes in his article *Trends in Environmental Packaging* (Inside Supply Management 2003, No. 2) about what environmental and regulatory issues affect packaging, what issues organizations need to consider with overseas packaging and what future trends in the packaging arena may affect the manufacturing sector. **Hanssen**, **Olsen**, **Møller** and **Rubach** concentrates to Norwegian packaging sector in their article *National indicators for material efficiency*

and waste minimization for the Norwegian packaging sector 1995-2001 (Resources, Conservation and Recycling 2002).

On the last decade transport packaging has got increasingly more attention when e.g. *European Commission* launched *the EU Packaging Directive* in 1994 (62/94). *The European Union* (EU) has also other informative publications and collections like *EC Directive on Packaging and Packaging Waste* consisting of *The Essential Requirements* and *the CEN Standards* (updated 6 July 2001).

Another important literature source to the topic is the different organizations that have all kinds of information on their home pages and company publications. *RESY GmbH* (Organisation für wertsoffentsorgung) acts to ensure that the recycling system functions smoothly in practice (RESY 2003). On their home pages are information about recycling, statistics, licenses and fees*. Minnesota Office of Environmental Assistance* (OEA) is a non-regulatory agency that works to improve environment through partnership, technology transfer, technical assistance, education, research, and matching grants (OEA 2003). On their home pages are lot of information e.g. about business assistance, awards, environment, recycling and education etc. *The Confederation of European Paper Industries* (CEPI) is a non-profit-making organization, representing 19 member countries and through its member countries, some 1,000 pulp, paper and board producing companies across Europe. CEPI monitors and analyses EU legislation and initiatives taken at EU level in the fields of industrial, environmental, energy, forestry, recycling, and fiscal policies (CEPI 2003). *FEFCO* represents the interests of *the European Corrugated Board Manufacturers* and the objectives of the Federation are to investigate economic, financial, technical and marketing issues of interest to the corrugated packaging industry, analyze all factors which may influence the industry and promote and develop its image (FEFCO 2003).

2 FACTORS AFFECTING INDUSTRY CHANGE

Successful companies take an outside-inside view of their business. They recognize that the marketing environment is constantly spinning new opportunities and threats and understand the importance of continuously monitoring and adapting to that environment. Many companies fail to see change as opportunity. They ignore or resist changes until it is too late. Their strategies, structures, systems, and organizational culture grow increasingly obsolete and dysfunctional. The major responsibility for identifying significant marketplace changes falls to the company's marketers. More than any other group in the company, they must be the trend trackers and opportunity seekers. Although every manager in an organization needs to observe the outside environment, marketers have two advantages: They have disciplined methods – marketing intelligence and marketing research – for collecting information about the marketing environment. They also spend more time with the customers and more time watching competitors. (Kotler 1999, 136)

The marketplace is changing radically as a result of major societal forces such as technological advances, globalization, and deregulation (Kotler 1999, 26). Technological discontinuities are perhaps the most significant of the external threats because they can neutralize many advantages simultaneously. A shift of buyers' needs, creating a divergence between local needs and needs elsewhere, constitutes another threat. (Porter 1998, 85.) These major forces have created new behaviors and challenges (Kotler 1999, 26-27):

Customers increasingly expect higher quality and service and some customization. They perceive fewer real product differences and show less brand loyalty. They can obtain extensive product information from the Internet and other sources, permitting them to shop more intelligently. They are showing greater price sensitivity in their search for value.

Brand manufactures are facing intense competition from domestic and foreign brands, which is resulting in rising promotion costs and shrinking profit margins. They are being further buffered by powerful retailers who command limited shelf space and are putting out their own store brands in competition with national brands.

Store-based retailers are suffering from an over-saturation of retailing. Small retailers are succumbing to the growing power of giant retailers and "category killers." Store-based retailers are facing growing competition from catalog houses; direct-mail firms; newspapers; magazines, and TV direct-to-customer ads; home shopping TV; and Internet. As a result, they are experiencing shrinking margins. In response, entrepreneurial retailers are building entertainment into stores with coffee bars, lectures, demonstrations, and performances. They are marketing an "experience" rather than a product assortment.

Thus executives must extend their thinking beyond what goes on inside their own organizations and within their own industries. Strategy must also address what goes on outside. (Porter 1998, 86-87.) The interest is in environmental trends and events with the potential to affect to the company and its strategy, either directly or indirectly. Environmental analysis is the process of identifying and understanding emerging opportunities and threats created by outside forces. Environmental analysis can be divided usefully into five areas: technological, governmental, economic, cultural, and demographic. (Aaker 1995, 110.)

One dimension of environmental analysis is technological trends or technological events occurring outside the market or industry that have the potential to impact to the company and its strategies. They can represent opportunities to those in a position to capitalize. A new alternate technology could also pose a significant threat. The addition or removal of legislative or regulatory constraints can pose major strategic threats and opportunities. Favorable political attention can mean protection, reduced

tax rates, exemption from quotas, control of competition and other concessions. In the chapter ***4*** *Regulatory Issues* is more about governmental restrictions. Economic forces affect the international marketer by the impact that they have on market potential and, at any point in time, market actualization. In addition, economic forces in a country may be influenced strongly by the infrastructure that exists, including the communications, energy, and transportation facilities. Some strategies will be affected by inflation and general economic health as measured by unemployment and economic growth. Understanding the economic environment facing a country or an industry helps in projecting that industry's sales over time and in identifying special risks or threats. Cultural trends can present both threats and opportunities for a wide variety of firms. Cultural factors exert the major influence on consumer behavior as it is the most fundamental determinant of a person's wants and behavior. In the chapter ***3*** *Buying Behavior and Innovation Characteristics* can be found more about buying behavior. The diversity of languages, religions, education systems, and numerous other cultural factors contributes to different ways of life, habits, and customs. Demographic trends can be a powerful underlying force in a market. Among the influential demographic variables are age, income, education, and geographic location. (Aaker 1995, 27-28 & 110-116; Albaum, Strandskov & Duerr 1998, 64-74; Bradley 2002, 134)

2.1 INDUSTRY EVOLUTION

It is clear that industries' structures change, often in fundamental ways. Industries evolve because some forces are in motion that creates incentives or pressures for change. Understanding the process of industry evolution and being able to predict change are important because the cost of reacting strategically usually increases as the need for change becomes more obvious and the benefit from the best strategy is the highest for the

first to select it. It is important to realize that instrumental in much industry evolution are the investment decisions by both existing firms in the industry and new entrants. In response to pressures or incentives created by evolution process, firms invest to take advantages of possibilities for new marketing approaches, new manufacturing facilities, and the like, which shift entry barriers, alter relative power against suppliers and buyers, and so on. There are some predictable dynamic processes that occur in every industry in one form or another, though their speed and direction will differ from industry to industry. These driving forces that are at the root of industry change are (Porter 1980, 156-164):

- long-run changes in growth
- changes in buyer segments served
- buyers' learning
- reduction of uncertainty
- diffusion of proprietary knowledge
- accumulation of experience
- expansion in scale
- changes in input and currency costs
- product innovation
- marketing innovation
- process innovation
- structural change in adjacent industries
- government policy change
- entries and exits

On the next pages are described shortly each evolutionary process.

2.1.1 Long-run changes in growth

Perhaps the most ubiquitous force leading to structural change is change in the long-run industry growth rate. Industry growth is key variable in determining the intensity of rivalry in the industry, and it sets the pace of expansion required to maintain share, thereby influencing the supply and demand balance and the inducement the industry offers to new entrants. There are five important external reasons why long-run industry growth changes (Porter 1980, 164-168):

Demographic. For industrial products, the effect of demographic chances on demand is based on the life cycle of customer industries. Demographics affect consumers' demand for end products, which filters back to affect the industries supplying inputs toward those end products. Firms can attempt to cope with adverse demographics by widening the buyer group for their product through product innovations, new marketing approaches, additional service offerings, and so on. These approaches can in turn affect industry structure by raising economies of scale, exposing the industry to fundamentally different buyer groups with different bargaining power, and so forth.

Trends in needs. Demand for an industry's product is affected by changes in the lifestyle, tastes, philosophies, and social conditions of the buyer population which any society tends to experience over time. Trends in needs not only directly affect demand but also affect the demand for industrial products indirectly through intervening industries. Trends in needs affect the demand in particular industry segments as well as total industry demand. Needs may be newly created or just made more intense by social trends. Finally, changes in government regulation can increase or decrease needs for products.

Change in the relative position of substitutes. Demand for a product is affected by the cost and quality, broadly defined, of substitute products. If

the cost of a substitute falls in relative terms, or if its ability improves to satisfy the buyer's needs, industry growth will be adversely affected (and vice versa).

Change in the position of complementary products. The effective cost and quality of many products to the buyer depends in the cost, quality, and availability of complementary products, or products used jointly with them. Complementary products should be viewed broadly. Charting trends in cost, availability, and quality of complementary products will yield predictions about long-run growth for an industry's product.

Penetration of the customer group. Most very high industry growth rates are the result of increasing penetration, or sales to new customers rather than to repeat customers. Once penetration is reached the industry is selling primarily to repeat buyers. There may well be major differences between selling to repeat and first-time buyers that have important consequences for industry structure. The key to achieving industry growth when selling to repeat buyers is either stimulating rapid replacement of the product or increasing per capita consumption. Since replacement is determinant by physical, technological, or design obsolescence as perceived by the buyer, strategies to maintain growth after penetration will hinge on affecting these factors.

The five external causes of industry growth have presupposed no change in the products offered by the industry. Product innovation by the industry, however, can allow it to serve new needs, can improve the industry's position vis-à-vis substitutes, and can eliminate or reduce the necessity of scarce or costly complementary products. Thus product innovation can improve an industry's circumstances relative to the five external causes of growth, and thereby increase the industry's growth rate. (Porter 1980, 168-169)

2.1.2 Changes in buyer segment served and learning by buyers

The second important evolutionary process is change in the buyer segments served by the industry. Related to this is the possibility that additional segmentation of existing buyer segments can take place by creating different product and marketing techniques for them. A final possibility is that certain buyer segments are no longer served. The significance of new buyer segments for industry evolution is that the requirements for serving these new buyers can have a fundamental impact on industry structure. For example, although early buyers of the product may not have required credit and field servicing, later buyers might. If the provision of credit and in-house service creates potential economies of scale and raises capital requirements, then entry barriers will rise significantly. (Porter 1980, 169)

Through repeat purchasing, buyers accumulate knowledge about a product, its use, and the characteristics of competing brands. Products have a tendency to become more like commodities over time as buyers become more sophisticated and purchasing tens to be based on better information. Thus there is a natural force reducing product differentiation over time in the industry. Learning about the product may lead to increasing demands by buyers for warranty protection, service, improved performance characteristics, and so forth. A buyer's learning tends to progress at different rates for different products, depending on how important the purchase is and the buyer's technical expertise. Smart or interested buyers tend to learn faster. Offsetting buyer's experience is change in the product or in the way it is sold or used, such as new features, new additives, style changes, new advertising appeals, and the like. This development nullifies some of the buyer's accumulated knowledge and hence enhances the possibilities for continued product differentiation. Such possibilities are also enhanced by expanding the customer base to new buyers inexperienced with the product, particularly

those whose purchasing characteristics tend to make them learn slowly. (Porter 1980, 170-171)

2.1.3 Reduction of uncertainty

Another type of learning that affects industry structure is reduction of uncertainty. Most new industries are initially characterized by a great deal of uncertainty about such things as the potential size of the market, optimal product configuration, nature of potential buyers and how they can best be reached, and whether technological problems can be overcome. This uncertainty often leads firms to a high degree of experimentation, with many different strategies adopted representing different bets about the future. Over time there is a continual process by which uncertainties are resolved. Technologies are proven or disproved, buyers are identified, and indications are gleaned from the industry's growth about its potential size. Reduction of uncertainty may also attract new types of entrants into the industry. Reduced risk may attract larger, established firms with lower-risk profiles than the newly created companies so common in emerging industries. (Porter 1980, 171)

2.1.4 Diffusion of proprietary knowledge and accumulation of experience

Product and process technologies developed by particular firms (or suppliers or other parties) tend to become less proprietary. Over time, a technology becomes more established and knowledge about it more widespread. Diffusion occurs through a variety of mechanisms. First, firms can learn from physical inspection of competitors' proprietary products and from information gleaned from a variety of sources about the size, location, organization, and other characteristics of competitors' operations. Suppliers, distributors, and customers are all conduits for such information and often have strong interest in promoting diffusion for their own

purposes. Second, proprietary information is also diffused as it becomes embodied in capital goods produced by outside suppliers. Third, personnel turnover increases the number of people who have the proprietary information and may provide a direct conduit for the information to other firms. Finally, specialized personnel who are expert in the technology invariably become more numerous from sources such as consulting firms, suppliers, customers, response of university technical schools, and so on. The rate of diffusion of proprietary technology will depend on the particular industry. The more complex the technology, the more specialized the required personnel, the greater the critical mass of research personnel required, or the greater the economies of scale in the research function, the slower proprietary technology will tend to diffuse. One key offsetting force to diffusion of proprietary technology is patent protection, which legally inhibits diffusion. The other offsetting force to diffusion is the continual creation of new proprietary technology through research and development. (Porter 1980, 172-173)

In some industries, unit costs decline with experience in manufacturing, distributing, and marketing the product. The significance of the learning curve for industry competition is dependent upon whether firms with more experience can establish significant and sustainable leads over others. When experience can be kept proprietary, it can be a potent force in industry change. If the firm is not gaining experience the fastest, it must prepare strategically to either practice rapid imitation or build strategic advantage in other areas besides cost. Doing the latter requires the firm to adopt generic strategies of differentiation of focus. (Porter 1980, 174-175)

2.1.5 Expansion (or contraction) in scale

A growing industry is, by definition, increasing its total scale. This growing is usually accompanied by increases in the absolute size of the leading firms in the industry, and firms gaining market share must be increasing in

the size even more rapidly. Increasing scale in industry and firm has a number of implications for industry structure. First, it tends to widen the set of available strategies in ways that often lead to increased economies of scale and capital requirements in the industry. Increasing scale also can make it feasible for an outsider to enter the industry with substantial competitive advantages by being the first to adopt such changes. Another consequence of industry growth is that strategies of vertical integration tend to become more feasible, and increased vertical integration tends to elevate barriers. Increasing industry scale also means that suppliers to the industry are selling it larger volumes of goods, and the industry's customers as a group are purchasing larger quantities. To the extent that individual suppliers or buyers are increasing their sales or purchases as well, there may be temptations for them to begin forward or backward integration into the industry. Whether or not integration actually occurs, the bargaining power of suppliers or buyers will go up. There may also be a tendency for large industry scale to attract new entrants, who can make it tougher for existing leaders, particularly if the entrants are large, establisher firms. (Porter 1980, 175-176)

2.1.6 Changes in input costs and exchange rates

Every industry uses a variety of inputs to its manufacturing, distribution, and marketing process. Changes in the cost or quality of the inputs can affect industry structure. The important classes of input costs subject to change are: wage rates, material costs, cost of capital, communication costs and transportation cost. The most straightforward effect is increasing or decreasing the cost of product, thereby affecting the demand. Changes in wage rates or capital costs may change the shape of the industry's cost curve, altering economies of scale or promoting substitute of capital for labor. Escalating labor costs in service calls and deliveries are fundamentally affecting strategy in many industries. Changes in the cost of communication or transportation can promote reorganization of

production, which affects entry barriers. Exchange rate fluctuations can also have a profound effect on industry competition. (Porter 1980, 176-177)

2.1.7 Product, marketing and process innovation

A major source of industry structural change is technological innovations of various types and origins. Product innovation can widen the market and hence promote industry growth and/or it can enhance product differentiation. Product innovation also can have indirect effects. The process of rapid product introduction, and associated needs for high marketing costs, may itself create mobility barriers. Innovations may require new marketing, distribution, or manufacturing methods that change economies of scale or other mobility barriers. Significant product change can also nullify buyer experience and hence impact purchasing behavior. (Porter 1980, 177)

Like innovations in product, those in marketing can influence industry structure directly through increasing demand. Breakthroughs in the use of advertising media, new marketing themes or channels, and so forth can allow reaching new consumers or reducing price sensitivity. The discovery of new channels of distribution can similarly widen demand or raise product differentiation: innovations in marketing that make it more efficient can lower the cost of the product. Innovations in marketing and distribution also have effects on other elements of industry structure. New forms of marketing can be subject to increased or decreased economies of scale and hence affect mobility barriers. Marketing innovations can also shift power relative to buyers, and effect the balance of fixed and variable costs and hence the volatility of rivalry. (Porter 1980, 178)

The final class of innovation that can change industry structure is that in the manufacturing process or methods. Innovations can make the process

more or less capital intensive, increase or decrease economies of scale, change the proportion of fixed cost, increase or decrease vertical integration, affect the process of accumulating experience, and so on – all of which affect industry structure. Innovation that increases scale economies or extend the experience curve beyond the size of national markets can lead to industry globalization. (Porter 1980, 178-179.) In the chapter ***3*** *Buyer Behavior and innovation characteristics* can be found more about innovations.

2.1.8 Structural change in adjacent industries

Since the structure of suppliers' and customers' industries affects their bargaining power with an industry, changes in their structure have potentially important consequences for industry evolution. Whereas changes in the concentration or vertical integration of adjacent industries attract the most attention, more subtle changes in the methods of competition in the adjacent industries can often be just as import in affecting evolution. The importance of changes in the industry structure of adjacent industries points to the need to diagnose and prepare for structural evolution in supplying and buying industries, just as in the industry itself. (Porter 1980, 180-181)

2.1.9 Government policy change

Government influences can have a significant and tangible impact on industry structural change, the most direct through full-blown regulations of such key variables as entry into the industry, competitive practices, or profitability. Requirements for licensing, an intermediate form of government regulation, tend to restrict entry and thereby provide an entry barrier protecting existing firms. Changes in government pricing regulation also can have a fundamental impact on industry structure. Mobility barriers

in the new environment are dramatically increased. Government actions can also dramatically increase or decrease the likelihood of international competition. Less direct forms of government influence on industry structure occur through the regulation of product quality and safety, environmental quality, and tariffs or foreign investments. The effect of many new product quality and environmental regulations, through they surely achieve some desirable social objectives, is to raise capital requirements, elevate economies of scale through the imposition of research and testing requirements and otherwise worsen the position of smaller firms in an industry and raise barriers facing new firms. (Porter 1980, 181.) In the chapter ***4*** *Regulator Issues* is more about government influences.

2.1.10 Entry and exit

Entry clearly affects industry structure, particularly entry by established firms from other industries. Firms enter an industry because they perceive opportunities for growth and profits that exceed the costs of entry. Entry also follows particularly visible indications of future growth, such as regulatory changes, product innovations, and so on. The entry into an industry of an established firm is often a major driving force for industry change. Established firms from other markets generally have skills or resources that can be applied to change competition in the new industry. Also, firms in other markets may be able to perceive opportunities to change industry structure better than existing firms because they have no ties to historical strategies and may be in a position to be more aware of technological changes occurring outside the industry that can be applied to competing in it. Exit changes industry structure by reducing the number of firms and possibly increasing the dominance of the leading ones. Firms exit because they no longer perceive the possibility of earning returns on their investment that exceed the opportunity cost of capital. The exit process is impeded by exit barriers, which worsen the position of

remaining, healthier firms and may lead to price warfare and other competitive outbreaks. Increases in concentration and the ability of an industry's profitability to climb in response to industry structural shifts also will be impeded by the presence of exit barriers. (Porter 1980, 182-183)

2.2 PACKAGING INDUSTRY

This chapter concentrates on packaging industry and its characteristics. The next chapter presents packaging and especially cardboard and wooden transport packaging materials according to the research objectives. The last chapter presents one of the leading cardboard transport packaging producers named Eltete TPM Ltd.

Packaging is a very important trade in the industrialized part of the world. It is normally one of the ten largest lines of industry in each country, but nevertheless, surprisingly anonymous. One reason for this is its great breadth. Here can be found everything from sweet papers to load pallets and steel drums. The markets are large but highly fragmented. Therefore, there are no official statistics covering this trade. The value of total packaging market in the world is estimated to roughly USD 500 billion (*) (EUR 429 billion), the transport packaging market in Europe is estimated at about EUR 22 billion and the European corrugated board market is valued at approximately EUR 18 billion. (International Paper Company 2002; Packforsk 2001; SCA 2002.) *The Paper Packaging Co-Ordination Group* (The PPCG, 2002) states that packaging materials represent some 40 percent of the total paper and board production in Europe. Total production of paper and board-packaging materials in 2000 was 33,6 million tons in CEPI countries (included Austria, Belgium, the Czech

(*) The exchange rates used in this Masters Thesis is from June 2003 which were 1 EUR = 1,1652 USD and 1 EUR = 9,1495 SEK.

Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, the Netherlands, Norway, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, and the United Kingdom).

There are numerous competitors on the packaging industry and the products are in competition with similar products produced by others, and in some instances, with products produced by other industries from other material. There are around 100 000 packaging manufacturing companies employing more than 5 million people. The main competitors of Eltete TPM Ltd are presented later in the chapter ***5*** C*ompetitive Environment*. As a rule, the packaging industry is responsible for 1 - 2 percent of the GNP and the transport packaging is projected to grow 3 – 4 percent annually during the years immediately ahead. The major customers are the companies who pack their own products. (International Paper Company 2002; Packforsk 2001; SCA 2002.) Below and on the next pages can be found five figures or tables describing the packaging industry.

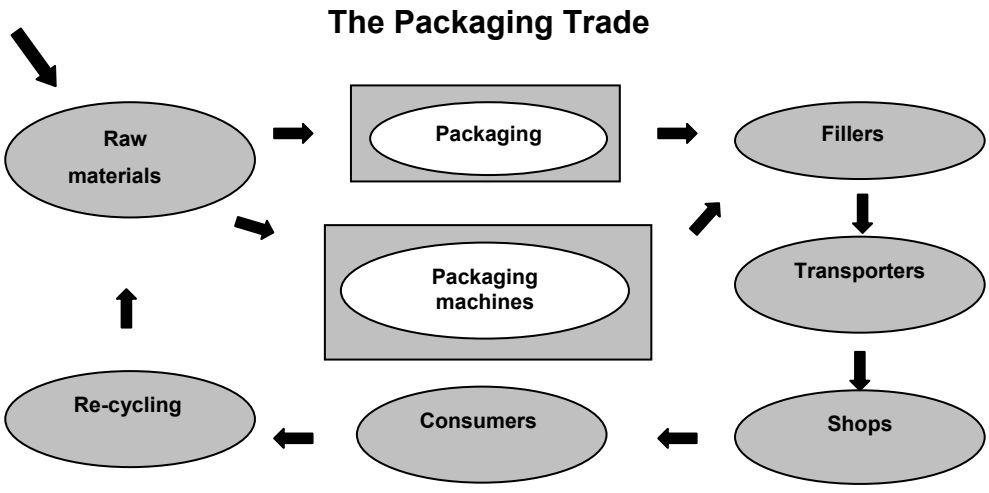
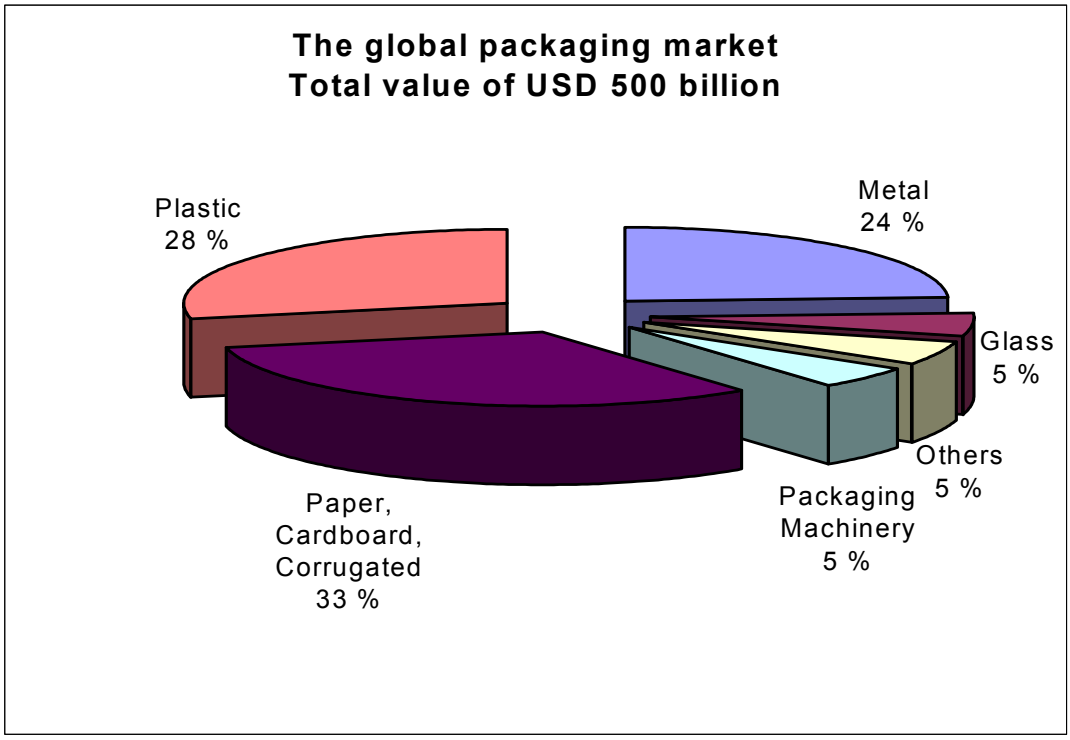
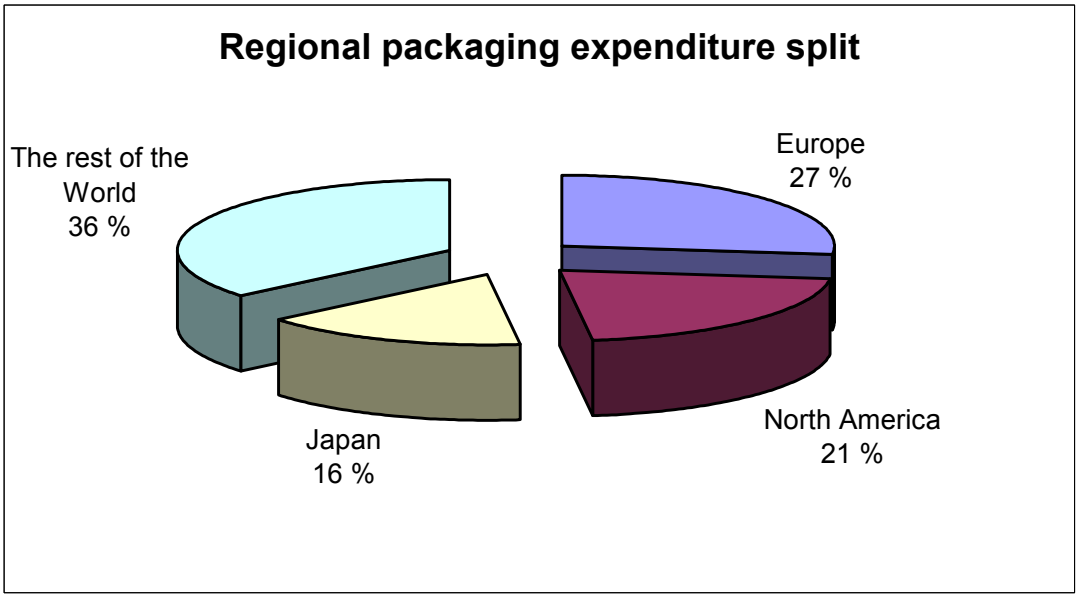


Figure 2. The packaging trade (adopted from Packforsk 2001, 50)

Table 1. The global packaging market total value and regional packaging expenditure split (adopted from Packforsk 2001, 52)



Source: WPO, 1996



Source: PIRA International 1998

Table 2. The European packaging market (adopted from SCA 2002)

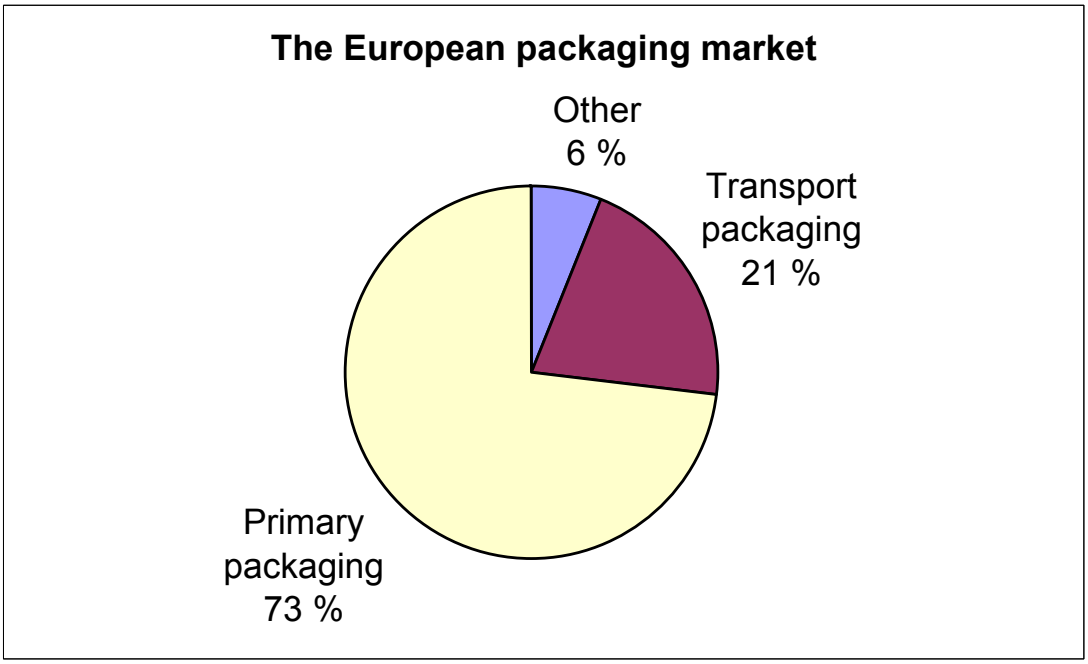
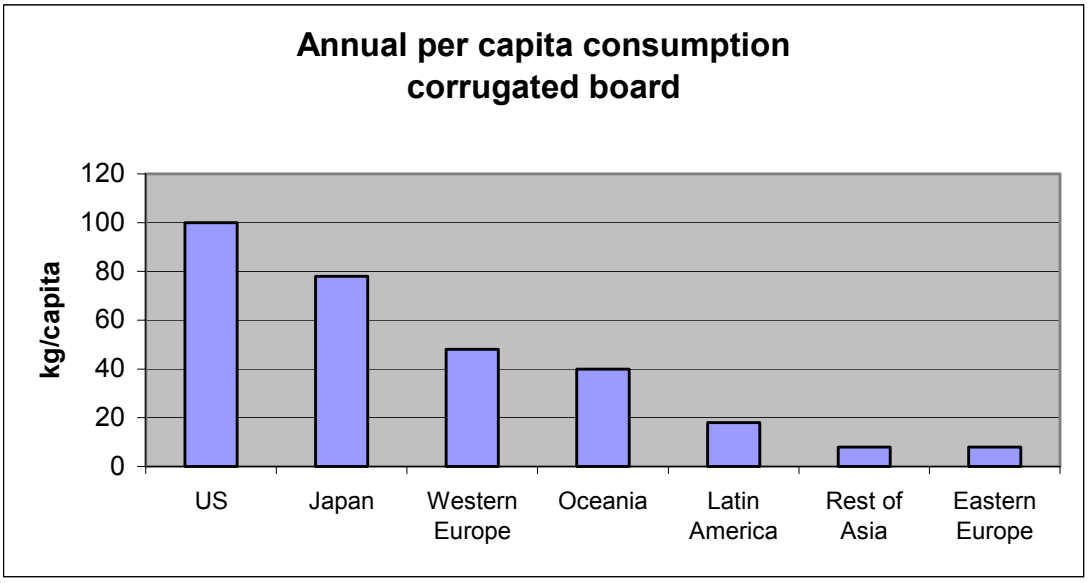


Table 3. Annual per capita consumption of corrugated board on the world (adopted from SCA 2002)



The Packaging industry is a rapidly developing field that parallels the changes taking place in society and on the global markets. The environmental aspects of packaging cannot be ignored, as they form an increasingly important part of the packaging development process. The future assets of the packaging industry will be a solid understanding of the markets and new implemented materials and techniques that take into account the environmental issues related to product development processes. (Ikonen 2001, 64)

Analyzing the societal forces, the behavior of transport packaging industry's customers has an influence to the industry change. Nowadays e.g. just an edgeboard does not offer any special differences from company to company if the purpose is to protect only the corners of the product. Customers are very price conscious and are not ready to pay more even if offered stronger qualities. Transport packaging companies have to offer something more and Eltete TPS - FramePack is one good example of that. It is an innovation where better prices can be asked because here also the quality is very crucial as here is required compression strength from edgeboards when storing especially one on top of the other. Also technological, governmental and economic forces have an influence to the industry change of transport packaging sector. New technology can change the production method and save costs to the first adopter of it, which will affect to the prices offered from transport packaging. Economical forces have a clear influence to every industry and especially the infrastructure and transportation costs affects to the competitiveness of the companies. At the moment governmental forces have the strongest influence on the industry change of transport packaging sector. Many new restrictions, which will be presented later, have been set and these should be applied in the near future. Especially the restrictions for wooden packaging will totally change the current competitive situation as firms have to treat or replace their wooden export transport packaging to other packaging materials like cardboard.

The dynamic forces that have a direct and the fastest influence on the transport packaging industry are long-run changes in growth especially trends in needs and change in the relative position of substitutes, changes in buyer segment served and again government policy change. Nowadays the trend is to be environmentally friendly and companies have to offer recyclable products. Customers of transport packaging and the final users are more conscious and concerned about the environmental factors and want to contribute to sustainability. As governments are restricting the use of untreated wooden materials substitutes as cardboard will be more in demand. The buyer segments served is also changing as before the biggest customer segment of transport packaging were the fruit and vegetable packagers and today the industrial sector as household appliance, steel and automotive manufactures. This is due to the fact that prices in fruit and vegetable sector are so low that transport packaging manufacturers have to seek new segments where also the quality is crucial.

2.2.1 Packaging

Packaging can be broken down into five main types: cardboard, plastic, glass and metal as well as wood, which is used mainly for transport packaged products. This diversity of types of packaging did not develop by chance. They all meet different consumer, producer, product and usage needs. Packaging protects the goods during transport, saves costs, informs about the product, and extends its durability. Packaging is generally associated with the material, which contains and presents the product on the retailer's shelf. However, a good deal of packaging material will be used to get the product from the manufacturer to the retailer, so here the distinction is made between the transport and the sales packaging. (Europen 2003; Factuelt 1997)

Transport packaging (or shipping packaging) includes wooden pallets, shrink wrap and large cartons or crates which contain the individual products together with labeling instructions concerning the handling and storage of the products (Peattie 1995, 254). Transport packaging most often ends up as waste at the manufacturers and shops, and makes up more than half of overall packaging waste generated (Factuelt 1997).

The sales packaging is wrapping around the individual product - for instance the mineral water bottle, the toothpaste tube, the plastic film of the CD cassette, and the pickled cucumber jar. The sales packaging must therefore satisfy other requirements than transport packaging like prevent bacteria in the food, help crisp-bread stay crisp, protect electronic goods against humidity, prevent paint from drying etc. By far the major part of sales packaging ends up in private households. (Factuelt 1997)

Packaging makes up about one-third of the municipal solid waste. Approximately half of this waste comes from transport packaging. Since 1960, the total amount of packaging waste Americans generate has increased by 85 percent. In contrast, both Japan and the European Community appear to generate at least one-fourth less packaging waste than Americans do. Recent legislative initiatives in Europe place the burden of packaging collection and disposal costs on manufacturers, wholesalers and retailers. These initiatives have brought on an array of new packaging designs and services to meet what is viewed as an emerging world market for cost-effective, source-reduced, recyclable and reusable packaging. (Brown & Van Hattum 1994, 6)

As packaging is an important area for improvements of eco-performance many companies are seeking to reduce, reuse or recycle as much of their packaging material as possible. This has moved shipping packaging away from its usual technical and tactical role to become an area for innovation and generation of competitive advantage. Design skills once only applied to products and product packaging are now being applied to shipping

packaging. (Peattie 1995, 254.) Getting an idea of the new trends next is presented two different transport packaging possibilities, *the traditional pallet* and a new packaging design *Slip sheet*:

Pallets act as a base for the stacking of packages, which is known as a unit load. It enables the stocking, handling and transport of the unit load. The pallets facilitate handling by a variety of materials handling equipment. Pallets are constructed from number of materials, primarily: wood, metal, plastic and cardboard. The approximately weight for one wooden pallet is 15 - 20 kg – compare that with a cardboard pallet weight of 1.6 – 7 kg. Pallets can be either multi-trip (returnable) or single-trip (expendable). In general, it can be said that for export purposes, an expendable pallet should be used. There are several standards concerning pallets, both national and international. Especially in the export trade, it is very important to know which standard sizes of pallets are accepted in the recipient country. (Eltete PallRun brochure; Europal 2002; Ramsland & Selin 1993, 139.) Below can be found a picture of traditional wooden pallet and a becoming future trend cardboard pallet.

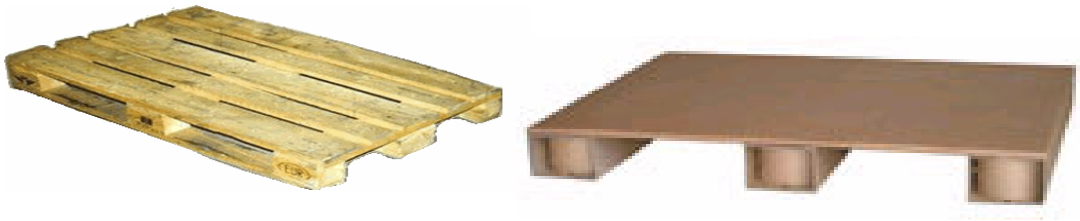


Figure 3. Traditional wooden pallet and a future trend cardboard pallet (A & I Pallet; Eltete TPM Ltd)

Slip sheets have been increasingly used as an alternative to pallets. Slip sheets are five-foot square corrugated sheets onto which products are loaded. They are lighter, cheaper and more compact than pallets. By using Slip sheets instead of wooden pallets, it can be saved as much as 15 000

kg for each 100 pallets. Several large US companies, including *Xerox* and *Apple Computer*, have implemented use of Slip sheets to reduce weight and waste. Slip sheets have a short panel or tab that can be grabbed by a special push-pull attachment on a forklift. (Brown & Van Hattum 1994, 31; Eltete Slip sheets brochure; OEA 2003.) Below can be found pictures of different Slip sheet models and a case study of the savings when using Slip sheets.

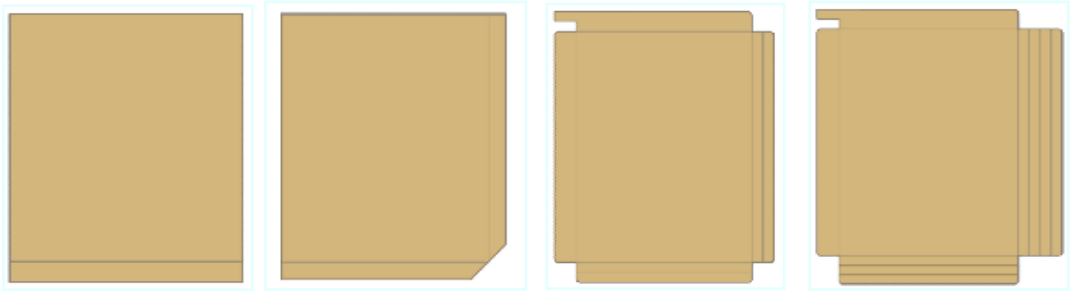


Figure 4. Slip sheets (Eltete TPM Ltd)

Case Study. Home Depot, a chain of home improvement stores, saved USD 2 million (EUR 1,7 million) in the first year of a program that asked suppliers to use Slip sheets rather than pallets. Use of Slip sheets lowered transportation costs and reduced disposal cost significantly. (OEA 2003)

2.2.1.1 Cardboard and corrugated transport packaging

Paper has been used as packaging material for many hundreds of years. It comes in many forms, as wrapping paper, bags and sacks, cardboard, corrugated board and so on. There are some turning points in the history of paper and cardboard as packaging material. In 1799, in France, **Nicholas Robert** invented a paper machine that was developed further in England during the following decade – the fourdrinier machine. Now paper

could be manufactured industrially on long rolls whereas before it was made manually sheet by sheet. During the 19th century, paper became an everyday commodity. In 1871, an American, **Albert Jones**, obtained a patent for a "new and advanced corrugated packaging paper". This gave rise to the corrugated board industry, which is one of the most important sectors of the packaging industry today. (Packforsk 2001, 4)

Corrugated is a natural, environmentally friendly medium that is recycled more than any other packaging material. Corrugated cardboard is easy to recognize. It is made of paper and has a ruffly layer, called "fluting", between smooth sheets, called "liner". It is produced by an industry deeply committed to its "cradle to grave" involvement in responsible use and reuse of its end products and raw materials. Corrugated is an extremely durable, versatile, innovative, environmentally friendly, high-tech, customizable, protective, cost-effective and lightweight material used for custom-manufactured shipping containers, packaging and point-of-purchase displays, in addition to numerous non-traditional applications ranging from low-cost, one-way recyclable pallets to children's toy to furniture. Corrugated board is unique when it comes to combining strength and rigidity with flexibility and shock absorption. The great advantage of cardboard is that the material is both rigid and strong. This means that it is possible to use thin cardboard qualities that function well in fast packaging machines to make packages that maintain their shape. (CPC 2003; Packforsk 2001, 6-8).

Corrugated cardboard is the only rigid shipping container and packaging medium that can be cut and folded into an infinite variety of shapes and sizes and direct-printed with high-resolution color graphics. One of the least expensive containers ever developed, the overall cost of corrugated shipping containers is usually between one percent and four percent of the value of the goods they carry. The cost of labor and tools required to produce, fill and move the container is low. The costs of shipping are low, due to lower weights and higher fill densities than alternative packaging.

The trend toward light weighting will continue to drive down shipping costs. Low material costs and mass production of corrugated containers makes them particularly cost-efficient. (CPC 2003)

Transport packaging accounts for 20 percent of total packaging volume. The most important material here is paper and cardboard: 80 percent of all transport packaging is made of this raw material. It is expected that this percentage will continue to rise. This is due to its easy recyclability – 80 to 85 percent of all transport packaging made of paper and cardboard was already being recycled prior to the entry of *the Packaging Regulation* into force (The Packaging Regulation became effective in June 1991). (RESY, 2003.) Below is a figure of the distribution of the different transport packaging raw materials.

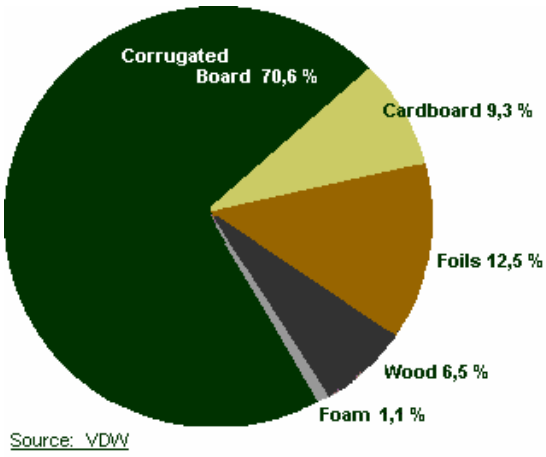


Figure 5. Distribution of transport packaging raw materials (RESY 2003)

There are a number of benefits to using paper-based material. Paper and cardboard packaging is cheap, lightweight, easy to use and store, and can be easily compressed. (Europen 2003.) The benefits for protection are (Witt 1997):

- The cushioning provided does an excellent job

- Most systems use recycled material
- Material is easily disposed or in recycling bins
- Typically, these systems require less material that other protective packaging methods
- Machines are relatively simple and inexpensive
- Storage required for packaging material is minimal
- Systems can be designed for fixed applications or to be mobile

The growing awareness of the need to maintain environmental and ecological balance has further enhanced the importance of corrugated packaging in the modern world. Corrugated packaging consumes only 25 percent of wood if made out of wood pulp kraft paper, and no wood, if made out of kraft paper using agricultural residues and other non-conventional raw materials. Increased use of corrugated packaging will thus reduce the need for felling trees and so will help maintain the ecological balance, which is vital for the health and wellbeing of future generations. (Indianpurchase.com 2000)

2.2.1.2 Wooden transport packaging

Wood and plywood are the materials mainly used for transport packaging, the most important wooden product of all being the pallet. With constantly growing volumes of goods to be transported and stored, there is always a demand for pallets. Another important wooden creation was the plywood box – used for transport of heavy goods and wherever necessary to stack goods in high piles. For other extremely heavy products, wooden boxes and crates are used. (Packforsk 2001, 3)

New hardwood pallets sell for about USD 9 - 10 (EUR 7,7 – 8,6) and roughly 50 percent of all wooden pallets are designed to make just one “trip” (On average, wooden pallets are used for just 1.7 trips). The costs

associated with pallets go beyond their purchase price. Companies also bear the costs of shipping, storing and handling pallets. (OEA 2003.) According to the Production Report of *the National wooden Pallet and Container Association* (NWPCA), in 1994, 600 million new wooden pallets were built, an estimated 290 million of which were considered "expandable" or used only once. Another study from 1994, *the Use of substitute Material Pallets for Grocery Distribution*, by **Eagle, West,** and **Bush** indicated that by 1997, six percent of the responding companies plan to discontinue use of wooden pallets. Correspondingly, the use of alternative materials is projected to increase. The study found that 22 percent of the reporting companies were already using plastic pallets and another 15 percent said they planned to switch to plastic pallets by 1997 although several factors have hindered the widespread use of plastic pallets. Along with an inordinate cost differentiation has been the excessive weight factor. Material other than plastic, such as corrugated and wood composites, makes up less than one percent of the pallets in use. (Witt 1997.)

Wooden packaging material is frequently made of raw wood that may not have undergone sufficient processing or treatment to remove or kill pests and therefore becomes a pathway for the introduction and spread of pests. Furthermore, wood packaging material is very often re-used, recycled or re-manufactured (IPPC 2002, 8). Due to internationalization, packages and pallets travel from country to country. This brings many problems, not least of which is *the Long-Horned beetle*. It lives inside wood and may be spread in pallets or wooden frames used in packaging. The beetle spreads to living trees destroying their water circulation and so killing them. Clearly they are unwelcome quests, which have lead to a total ban of wooden packaging materials in some countries. (Eltete TPM Ltd 2003.) United States on the verge of implementing EU *Emergency Measures* pest outbreaks have been traced back to transport packaging, which has led governments around the world to crack down on non-manufactured wood packaging including pallets, dunnage and crates. Numerous countries

have established restrictions to stop the introduction of foreign pests, creating a complicated maze of regulations. *The United Nations* has stepped in to create one global standard. It applies only to packaging made with solid lumber not engineered wood products (plywood, OSB etc.) or corrugated. A global standard governing all non-manufactured wood packaging (both coniferous and non-coniferous) was approved on March 2002 by *the International Plant Protection Convention*. That will be implemented over a 1-2 year timeframe. (Pallet enterprise 2002.) More information about packaging regulations is found from the chapter ***4*** *Regulatory Issues*. Below is a picture of the Asian Long-Horned beetle.

Figure 6. Asian Long-Horned beetle (Eltete TPM Ltd 2003)

In most cases, solid wood pallets remain viable if not the best option for international transit. Even after being treated, marked wood pallets will remain cost competitive compared to most alternatives. Corrugated pallets may be a sound option for some shipments (especially airfreight) where water and moisture damage is not a significant concern. Most plastic pallets will remain too expensive for one-way use. Pallets made from engineered lumber products may work for some applications but these engineered products can be expensive and have drawbacks as well. (Pallet enterprise 2002)

2.2.2 Eltete TPM Ltd

The Conglomerate *Eltete Ltd* is founded in 1987 and owned 100 percent by CEO **Bo Österman**. The company's head office and the first production plant are located in Loviisa, Finland. The sub-conglomerate Eltete TPM Ltd is the world's biggest producer of cardboard edgeboards producing also a wide variety of other transport packaging solutions. The transport packaging material business of Mother Company Eltete Ltd gained more clarity and efficiency, when it became a separate entity in the summer of 2001. Eltete TPM Ltd is owned now 70 percent by Eltete Ltd and 30 percent by outsider investor. The company has for the present nine production plants all over the world and the biggest unit is in Finland. The globalization has happened quite fast as the first production plant was established in Poland in 1992 and after that has followed China, United States, Russia, Brazil, Sweden, India and Spain. From the company's production 90 percent goes to the export. The company has at the moment 32 daughters, joint ventures, sales offices and agents. The operations can be said global but the company acts local with prerequisites of the local people (Wahlström 2002, 20). This has created a new word *glocal* that the firm likes to use of their strategies (Ketonen 2.12.2002). Compared with the size of the company they might be a pioneer as CEO Bo Österman compress the company's operations concept, which is copied all over the world. **Figure 7.** on the next page summarizes the different locations.

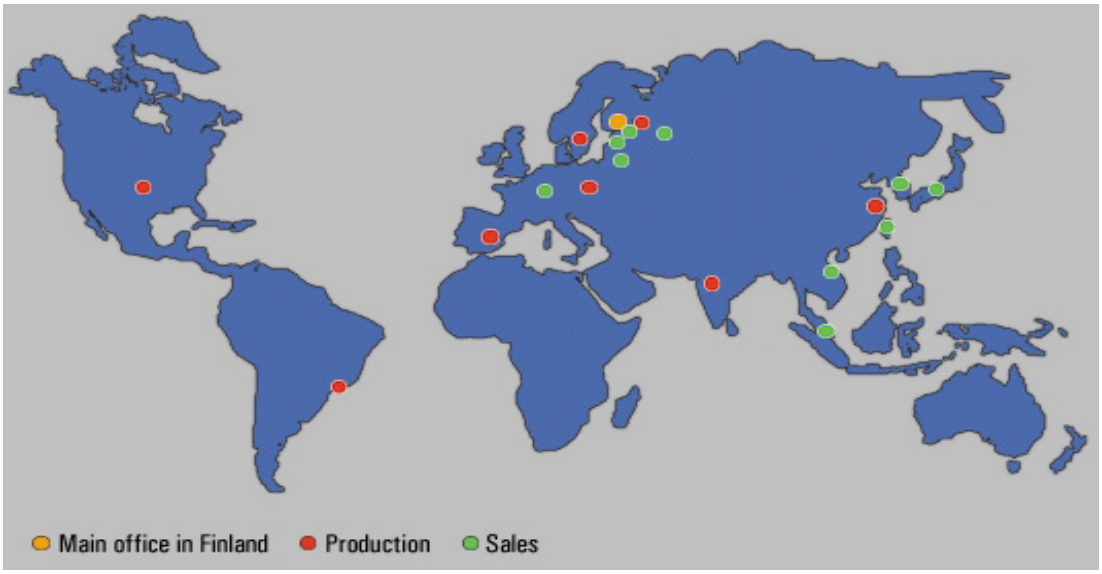


Figure 7. Eltete TPM Ltd worldwide (Eltete Sales and Marketing CD-Rom 2003)

The conglomerate's turnover in 2002 was EUR 35 million. The growth rate has been in Europe around 10 percent and in Spain the sales have increased even 30 percent. In China the growth rate is its own class. In 2002 the years turn over was EUR 2,5 million and next year it will rise up to 4 million Euro. The company employs about 400 people, in which 170 are in Loviisa. (Hakkarainen 9.1.2004)

Eltete TPM Ltd has a strong market position especially in European edgeboard market and in Asia. The transport packaging solutions of Eltete TPM Ltd are being used by a wide range of different industries from steel and aluminum to food, agriculture, computer, construction firms, furniture stores and electronics. The customers include such notable companies as *Alcan, Hoesch-Krupp, Procter & Gamble, Unilever, Nestlé, Chiquita, Dole, Nokia, Matsushita, Canon, Bosch* and *Electrolux*. (Brochure of Eltete TPM Ltd 2003, 6; Eltete Business plan 2002, 3)

2.2.2.1 Concentration and specialization

The idea of Eltete TPM Ltd is to produce, market, sell and develop high quality, environmental friendly and competitive cardboard transport packaging solutions according to the needs and requirements of the customers. The target of the company is to reach a global status being a group able to supply locally the same quality, service and product range to customers and co-operators all over the world. Important task for the company is to always increase the satisfaction of their customers by fulfilling their needs and requirements and also continuing develop the products and the quality on the conditions of the market and customers. Eltete TPM Ltd carries a great concern over the environment. Their development and actions aim to minimum load on nature and 100 percent recycling of the waste produced by their manufacturing process. (Eltete TPM Ltd 2003)

By concentrating and specializing Eltete TPM Ltd has created strategical synergy, which is an advantage not only to Eltete TPM Ltd but to their customers as well. Their target is to concentrate on what they do the best – the production and development of ecological transport packaging materials in a global scale. By co-operation and partnership Eltete TPM Ltd creates entities, whose main strengths are know-how and specialization. This way they can offer better service to their customers locally. Eltete TPM Ltd aims to continue their recent dynamic global growth and to deliver a standardized level of quality, service and product range on a local basis to customers and business partners, wherever they are located. The aim of Eltete TPM Ltd is to *be a global supplier with excellent local understanding*. (Brochure of Eltete TPM Ltd 2003, 4; Eltete TPM Ltd 2003)

During the company's 15 years, Eltete Ltd has always successfully followed a strict internal quality management and last year Eltete TPM Ltd decided to enter the ISO 9001 quality system. Obtaining the certificate it

requires optimizing and standardizing of both internal and external procedures to secure a maximum customer satisfaction. The certification is planned to be ready during the year of 2004 and all the time till that the company is making necessary changes in its organization. (Eltete TPM Ltd 2003.) The ISO 9001 standard is the most comprehensive of the ISO 9000 standards. It is a quality assurance that requires the demonstrations of a supplier's capability to fulfill the requirements during all phases of operation: design, development, production, installation and servicing. (Hollensen 2001, 437-438.)

2.2.2.2 Products of the company

Eltete TPM Ltd offers a wide range of reliable insect-free and totally recyclable products for transport packaging and they all are made of cardboard. The base material itself is already waste material like side and quality change rolls of paperboard producers. The products of Eltete TPM Ltd are made for replacing all wooden packaging. Constantly developing new products and solutions on their own product developing unit and designing and manufacturing machinery for production guarantees the quality and enables to response to new capacity requirements. The machinery is mostly build for own purposes and for joint ventures but they can also be sold to non-competing market areas where Eltete TPM Ltd does not have any operations. Eltete TPM Ltd has also designed testing equipment in order to be able to show to the customers that the product meets their requirements. The tests that can be made for edgeboards are vertical compression strength, horizontal strapping strength, horizontal bending, tear resistance, puncture resistance and strength for Wrap Around edgeboards and moisture resistance tests. (Eltete Business plan 2002, 10-12.) On the next page can be seen a picture of edgeboard testing machine and on the following pages are shortly presented the different products of Eltete TPM Ltd except Eltete TPS – Framepack

solution and PallRun which are presented in the chapter ***3*** *Buyer behavior and innovation characteristics*.

Figure 8. Edgeboard testing machine (Eltete Sales and Marketing meeting CD-Rom 2003)

Edgeboards. The main product of Eltete TPM Ltd is the edgeboard (or edge protector or cornerboard) made of cardboard, which can be ordered in many sizes, shapes and colors. With edgeboards the product and package can be reinforced and protected. Eltete manufactures two types of edgeboards. The bio – quality is manufactured by cold lamination with water-soluble glue under high pressure. Bio - types are 100 percent made of paperboard. HS -product type is an edgeboard with a special surface. It offers protection against moisture and dampness. HS - quality is manufactured by hot lamination or heat sealing. The total production capacity of edgeboards is 50 000 tons/year (in Finland 15 000 tons/year). (Eltete Business plan 2002, 8; Eltete TPM Ltd 2003; Eltete TPM Ltd Sales and Marketing CD-Rom 2003.) **Figure 9.** paints a picture of edgeboards protecting products on a pallet.

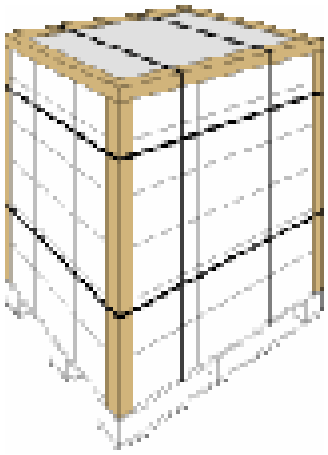


Figure 9. Protection frame (Eltete TPM Ltd 2003)

Slip sheets. The Slip sheets are made of high-quality kraft liner with good wet strength. The multi-laminated material makes the Slip sheets extremely tear and moisture resistant. The Slip sheets are made to replace wooden pallets and this transport and storing system without pallets is suitable such applications as overseas shipments and intra-corporate deliveries. Slip sheets are already being used by many different businesses for a wide range of products. All that is needed to use Slip sheets is a push/pull –device and a forklift truck. The Eltete TPM Ltd Slip sheet production capacity is 26 000 ton/year (in Finland 1000 tons/year). (Brochure of Eltete TPM Ltd 2003, 7; Eltete TPM Ltd 2003.) **Figure 10.** below shows a push/pull –device.

Figure 10. A push/pull –device (Eltete TPM Ltd 2003)

Case example. *Wasa Bröd* reduced their transport costs by 20 percent when they switched from wooden pallets to Slip sheets. The savings were equivalent to every fifth container going for free. (Brochure of Eltete TPM Ltd 2003, 7)

Other products. Other products from Eltete TPM Ltd are *C- and U-Profiles.* With C-Profiles the pallets containing bottles can be easily protected and strengthened. The name of U-Profile also comes from its shape. U-Profiles can be used for example on door openings, stairs or fragile equipment to afford protection during renovation or repair work. *Flatboards* are designed to replace materials like hardboard, MDF and chipboard, which are hard to recycle. *WrapAround edgeboards* for round or irregularly shaped objects and the cardboard sheets for inner- and outer protecting of the rolls and discs are to protect the ends of the roll. *Dunnage bags* can be used in containers, trailers, trains and ships. The concept of dunnage bags is to be a cushion, protect loads against impact brace the load and prevent movement. (Eltete TPM Ltd 2003.) **Figure 11.** paints a picture of C- and U-Profiles, flatboards, WrapAround edgeboards and dunnage bags.

Figure 11. C- and U-Profiles, dunnage bags, WrapAround edgeboards and flatboards (Eltete TPM Ltd 2003)

3 BUYER BEHAVIOR AND INNOVATION CHARACTERISTICS

For marketing managers in firms whose customers are other firms, and for researchers interested in industrial buying behavior, it would be helpful to understand the process by which firms decide to adopt new products, processes, or practices. Nowhere can the need for a more complete understanding of industrial buying be better than in the decision to introduce a new product or service. New product and new markets pose a real test for the depth of the marketer's understanding of those buying processes he is trying to influence. Consumer behavior theory, drawn mostly from psychology and sociology (and less from economies), permits reasonable explanations of some aspects of consumer behavior, some predictions about the outcomes of marketing actions, and the identification of needs for particular kinds of information to be gathered through marketing research. The above observations regarding consumer behavior do not apply equally well to industrial buying behavior. This reflects, in part, the fact that industrial buying decisions are more complex, involve more people, take longer, require the evaluation of more factors, and are less easily observable. Influences on industrial buying decisions appear to be more varied, and a richer variety of information sources may be involved. (Webster 1969, 35-36)

According to **Moriarty** (1983, 1-2) there are four major differences between organizational and consumer behavior. First, an organizational purchase typically is made by a group of people. Second, an organizational decision to purchase a product must satisfy the differing needs and objectives of a variety of participants from different operating functions and organizational level. Third, certain types of organizational buying information, such as proposals, requests for quotations, or purchase contracts, add to the organizational purchase a formal dimension not normally found in consumer buying. Finally, the personal and organizational risks of a company's decision generally are much greater than those faced by the typical consumer.

3.1 INDUSTRIAL BUYING BAHAVIOR

Industrial marketing firms should be able to identify the type of decision and the decision stage and hence the key people to influence at a particular time. Before this can be done it is necessary to consider the make-up of the buying centre. One method of determining the make-up of a buying centre is to consider the levels of management, the functional areas, the roles that members fill and their interactions. (Bradley 2002, 211) **Figure 12.** paints a picture of influences on industrial behavior.

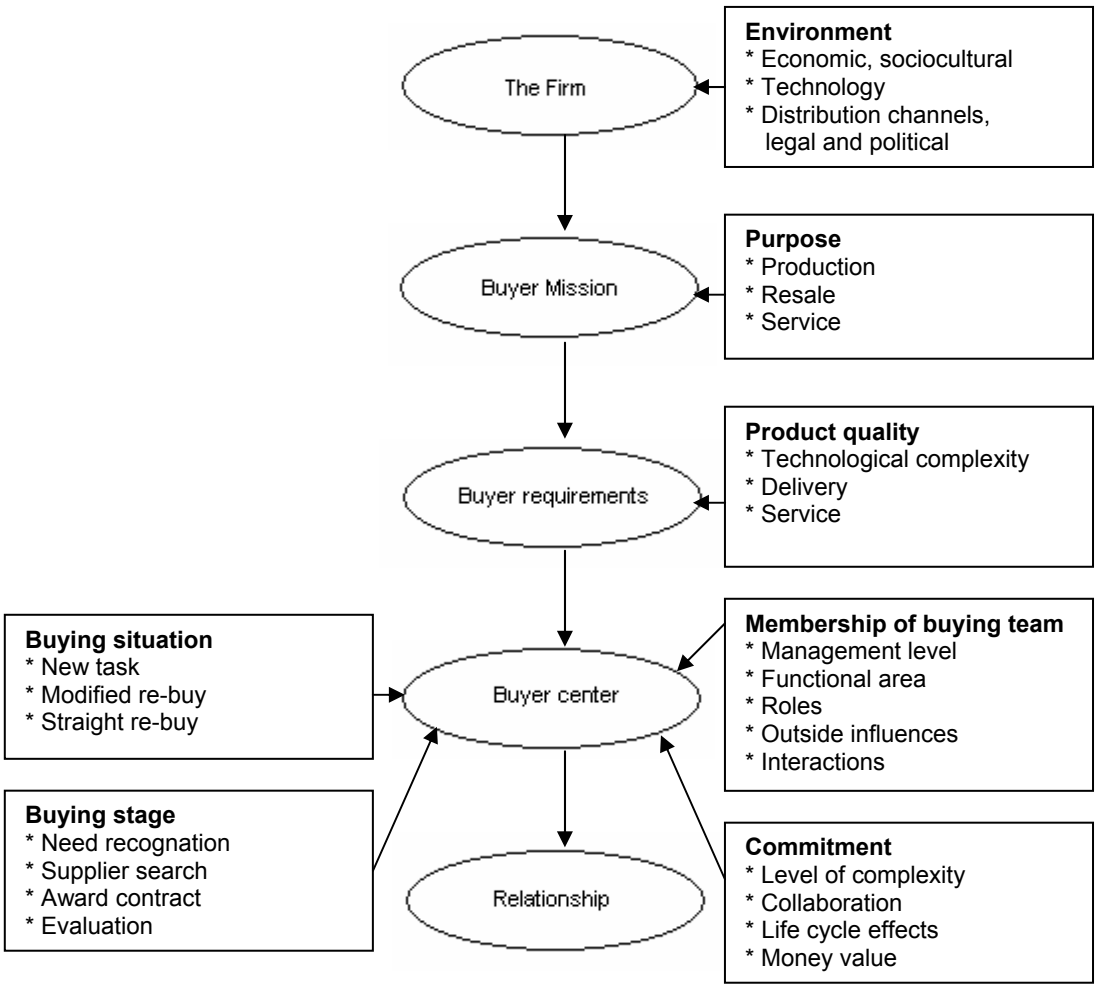


Figure 12. Influences on industrial buying behavior (adopted from Bradley 2002, 212)

The buying centre includes all members of the buying firm that are actively and significantly involved in the purchase process. Membership is fluid, depending on product and buyphases. The management level is determined by the purchase-specific circumstances. The issues that relate specifically to purchasing are how the product will be used, how the product benefits the buyer, the stage of the purchase decision, the buying process, the size of the purchase and the duration of any contractual commitments. The functional area composition of the buying centre varies with the product being purchased and the buyphase. The importance of different organizational roles varies with the phase of the buying process. The make-up of a buying centre and the roles fulfilled change, depending on organizational factors, the organization size and the buying situation. (Bradley 2002, 211-213.) It is easy to identify the buyer for many products. Here can be distinguished five roles people might play in a buying decision which are (Kotler 1999, 176):

- *Initiator:* A person who first suggests the idea of buying the product or service
- *Influencer:* A person whose view or advice influences the decision
- *Decider:* A person who decides on any component of a buying decision: whether to buy, what to buy, how to buy, or where to buy
- *Buyer:* The person who makes the actual purchase
- *User:* A person who consumer or uses the product or service.

The buyclass and buyphase variables are used to determine the relative influence of purchasing managers in the buying process. The buyclass variable suggests that the level of management involvement should decrease as products progress from a new task purchase class to a straight rebuy. The numerous stages involved in industrial buying mean that a cascading hierarchical dependency exists among the choice criteria. Numerous stages in the industrial buying process are more in evidence for high-value and complex buying situations where competitive offers are available. (Bradley 2002, 212-214)

The five stages, that the customer or buyer passes in a typical buying process are problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior. The buying process starts when the buyer recognizes a problem or need. The need can be triggered by internal or external stimuli. An aroused consumer will be inclined to search for more information and consumer information sources fall into four groups: *personal sources, commercial sources, public sources and experiential sources*. There is no single evaluation process used by all consumers or by one consumer in all buying situations. There are several decision evaluation processes, the most current models of which see the process as cognitively oriented. That is, they see the customers as forming judgments largely on a conscious and rational basis. In the evaluation stage, the customer forms preferences among the brands in the choice set. The consumer may also form an intention to buy the most preferred brand. However, two factors can intervene between the purchase intention and the purchase decision: The first factor is the *attitudes of others*. The influence of others becomes complex when several people close to the buyer hold contradictory opinions and the buyer would like to please them all. The second factor is *unanticipated situational factors* that may erupt to change the purchase intention. Preferences and even purchase intentions are not completely reliable predictors of purchase behavior. (Kotler 1999,178-182)

A consumer's decision to modify, postpone, or avoid a purchase decision is heavily influenced by perceived risk. The amount of perceived risk varies with the amount of money at the stake, the amount of attribute uncertainty, and the amount of consumer self-confidence. (Kotler 1999, 182.) What is important for industrial marketers is to understand how individuals arrive at their choice of behavior. According to **Tanner's** *Behavior Choise Model* the individual will choose between alternative sets of behavior, which represent an offensive strategy and a defensive strategy. A defensive strategy in an approach that is expected to minimize threats to a person which appear to result from perceived risk, which may

be defined as the exposure to possible loss. Decision risk is the potential for a negative evaluation of the individual because of a decision made by that individual. An offensive strategy is expected to maximize gain. Offensive strategies are concerned with the results of the decision process, not the process itself. An offensive strategy may be chosen if the buyer has a high need for achievement, that is, a need to achieve success and its positive consequences. (Tanner 1990, 57-59.) After purchasing the product, the consumer will experience some level of satisfaction of dissatisfaction. The buying satisfaction is a function of the closeness between the buyer's expectations and the product's perceived performance. The larger the gap is between expectations and performance, the greater is the consumer's dissatisfaction. (Kotler 1999, 182-183)

The industrial marketing firm must also determine the commitment level of buyers. This may be measured by examining the degree of complexity involved, the collaboration required, the life cycle effects and the money value of the business. (Bradley 2002, 215.) Complex and expensive purchases are likely to involve more buyer deliberation and more participants. Here can be distinguished four types of consumer buying behavior based on the degree of buyer involvement and the degree of differences among brands (Kotler 1999, 177):

- *Complex Buying Behavior* involves a three-step process. First, the buyer develops beliefs about the product. Second, he or she develops attitudes about the product. Third, he or she makes a thoughtful choice. Consumers engage in complex buying behavior when they are highly involved in a purchase and aware of significant differences among brands. This is usually the case when the product is expensive, bought infrequently, risky, and highly self-expressive.

- *Dissonance-Reducing Buying Behavior.* Sometimes the consumer is highly involved in a purchase but sees little difference in brands. The high involvement is based on the fact that the purchase is expensive, infrequent, and risky. In this case, the buyer will shop around to learn what is available but will buy fairly quickly, perhaps responding primarily to a good price or to purchase convenience. After the purchase, the consumer might experience dissonance that stems from noticing certain disquieting features or hearing favorable things about other brands.

- *Habitual Buying Behavior.* Many products are bought under conditions of low involvement and the absence of significant brand difference. There is good evidence that consumers have low involvement with most low-cost, frequently purchased products. After purchase, they may not even evaluate the choice because they are not highly involved with the product.

- *Variety-Seeking Buying Behavior.* Some buying situations are characterized by low involvement but significant brand difference. Here consumers often do a lot of brand switching. Brand switching occurs for the sake of variety rather than dissatisfaction.

Lastly, there is the question of interaction, which is mainly concerned with identifying who is involved in the decision process. (Bradley 2002, 215)

3.2 INNOVATION CHARACTERISTICS

An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little, so far as human behavior is concerned, whether or not an idea is objectively new as measured by the lapse of time since its first use or discovery. If the idea

seems new to the individual, it is an innovation. The *rate of adoption* can be defined as relative speed with which an innovation is adopted by members of a social system. The rate of adoption is usually measured by the length of time required for a certain percentage of the members of a system to adopt an innovation. Innovations that are perceived by individuals as possessing greater relative advantage, compatibility, and the like, have a more rapid rate of adoption. (Rogers 1995, 11-23.) A well-known result regarding the adoption of new technologies is that ex ante identical firms choose different adoption dates under certain circumstances. A firm's gain from adopting a new technology depends on whether or not its rival has already adopted the new technology. In particular, the increase in the flow of operating profits induced by adoption is assumed to be larger if the rival has not already adopted. (Götz 2000, 370.)

Innovations can be divided in product and process innovation. *Product innovation* is defined as new product or services introduced to meet an external user or market need, and *process innovation* can be defined as new elements introduced into an organization's production or service operations to produce a product or render a service. Product innovations have a market focus and are primarily customer driven, while process innovations have an internal focus and are primarily efficiency driven. The distinction between product and process innovations is important because their adoption requires different organizational skills: product innovations require that firms assimilate customer need patterns, design, and manufacture the product; process innovations require firms to apply technology to improve the efficiency of product development and commercialization. Different factors influence both the adoption of product and process innovations and the extent to which these innovations impact the adopting organizations. According to **Damanpour's** and **Gopalakrishnan's** study of examining the dynamics that govern the adoption of product and process innovations at the firm level over time they find that 1) product innovations are adopted at the greater rate and

speed than process innovations; 2) a product-process patters of adoption is more likely than a process-product pattern; 3) the adoption of product innovation is positively associated with the adoption of process innovations; and 4) high-performance firms adopt product and process innovations more evenly than low-performance firms. (Damanpour & Gopalakrishnan 2001, 45-48)

According to **Rogers** (1995, 11-23) below is presented the characteristics or/and attributes by which an innovation can be described:

1) *Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social prestige, convenience, and satisfaction are also important factors. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be.

2) *Compatibility* is the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible.

3) *Complexity* is the degree to which an innovation is perceived as difficult to understand and use. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.

4) *Trialability* is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan will generally be adopted more quickly than innovations that are not divisible. An innovation that is trialable represent less uncertainty to the individual who is considering it for adoption, as it is possible to learn by doing.

5) *Observability* is the degree to which the results of an innovation are visible to other. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter often request innovation-evaluation information about it.

Relative advantage, compatibility, trialability, and observability are positively associated with its rate of adoption, while another attribute, complexity, is negatively related to the rate of adoption. (Damanpour & Gopalakrishnan 2001, 47-48)

The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision. This process consists of a series of actions and choices over time through which an individual (or an organization) evaluates a new idea and decides whether or not to incorporate the innovation into ongoing practice. The perceived newness of an innovation, and the uncertainty associated with this newness, is distinctive aspect of innovation decision making, compared to other types of decision making. (Rogers 1995, 161)

The framework (or model) to be suggested for analyzing industrial markets as targets for new products considers 1) buying motivation, 2) amount of perceived risk, and 3) information handling by the buying firm. The model also examines the extent to which these processes are influenced by the characteristics of the firm and the innovation (Webster 1969, 37-39):

1) Motivation: Search for relative advantage

For industrial buyers the decision to adopt an innovation is motivated by a search for relative advantage. Relative advantage can be defined as the

incremental profit that will be realized from the innovation, compared to the available alternatives. Incremental profit can be realized from an increase in revenues or a decrease in costs. At least three events, or any combination of them, can lead to a positive incremental profit from the adoption of an innovation:

1) The innovation leads to a reduction in average total cost per unit
2) The innovation leads to an increase in total revenue, due to increased demand for the finished product because of improved product quality or differentiation
3) The innovation leads to an increase in average revenue per unit, because the innovation permits an increase in price

Of course, the reverse is also true. An innovation is “risky” because it may also increase costs and decrease revenues. The phrase “relative advantage” implies competition. A firm’s motivation to search for relative advantage may be related to its market share relative to its competitors, the recent trend of changes in its market share, its absolute size, and its profit trend. Firms with a more successful recent history are likely to be more aggressive and more innovative

2) Risk: The possibility of negative outcomes

The adoption of an innovation is risky, by definition, since it involves uncertainty about the outcome of the innovative act, and some of the outcomes may be negative. There may be opportunity losses compared with the other alternatives that were foregone (other products that could have been purchased) or with the status quo. The decision maker will act on the basis of perceived risk, his subjective estimate of the probability of a negative outcome, and of the loss attached to that outcome. The amount of new investment required is not only innovation decrease over time. As the other firms adopt the innovation, additional information becomes

available, reducing uncertainty about various outcomes. Risk is also a function of the net amount of new investment required for adoption. One of the possible outcomes of adoption is that the investment will prove to be valueless. Clearly, the larger the required investment, the larger the risk involved. The amount of new investment required is not only a function of the price of the innovation but is also influenced by the need for other investments to facilitate the use of the innovation and the amount of additional investment that may be required if the innovation is not adopted.

3) Information: Amount, quality, and use

Whether a firm adopts and when it adopts, are determined, in part, by its awareness of the innovation and its advantages, and by its attitudes towards that innovation. Adoption can be thought of as a five-step process: awareness, interest, evaluation, trial, and adoption. The probability that an individual firm will adopt an innovation during a given period of time is influenced by the amount, quality, and value of the information available. The amount of information available to a prospective adopter will increase over time as additional firms use the innovation and "word gets around". Amount of information is also directly related to what the selling firm is doing – how much effort it is putting into promotion, and how precisely that effort is directed at particular market targets.

Information quality is a subjective concept. It is the capacity of the information to reduce the uncertainty in the mind of the potential customer. It is measured by reduction in perceived risk. The capacity of the information to reduce perceived risk is related to its completeness and its accuracy, as well as to the credibility which the source of the information is perceived to have in the mind of the receiver. Credibility is a combination of competence, or expertise, and trustworthiness. For industrial marketers, credibility is a function of company reputation and the salesman's presentation. Both influence the extent to which a potential customer is willing to believe what he hears about a new product. A factor of special

significance in industrial market is the relative advantage to be gained from the information provided by potential vendors. Customer firms differ significantly in their ability and willingness to use information provided by potential vendors. Information may take the form of laboratory evaluation results, pilot test runs, technical assistance in the plant, training of personnel, and other services which result in an increase in the competence of the customer organization. Commercial sources of information such as advertising, salesmen, and direct mail, are likely to be most valuable for creating simple awareness of the product. Advertising especially is likely to be significant at the awareness stage because it can deliver a simple message to many receivers much more economically than personal selling. However, noncommercial sources of information are likely to be more convincing and thus assume greater significance as the prospective adopter moves closer to a final decision. It does appear that the seller can influence his prospective customer's decision about a new product by citing successful applications by other companies to somewhat similar problem. The ability to confirm the validity of these assertions probably contributes to the high credibility of such information.

Product development is at the heart of the global marketing process. New products should be developed, or old ones modified, to cater to new or changing customer needs on a global or regional basis. New-product development is most effective when there is teamwork among R&D, engineering, manufacturing, purchasing, marketing, and finance. The product idea must be researched from a marketing point of view, and a specific cross-functional team must guide the project throughout its development. The main goal of the product development process, therefore, is not to develop a standard product or product line but to build adaptability into products and product lines that are being developed to achieve worldwide appeal. (Czinkota & Ronkainen 2001, 510-511; Kotler 1999, 331.)

Companies that fail to develop new products are putting themselves at a great risk. Their existing products are vulnerable to changing customer needs and tastes, new technologies, shortened product life cycles, and increased domestic and foreign competition. At the same time, new-product development is risky. (Kotler 1999, 328.) Analysis of several new product introductions in industrial markets that failed to meet management's expectations reveals a set of conditions which tend to be characteristic. These conditions reflect a rather basic lack of understanding of buyer behavior in industrial markets. When sales revenues fail to meet expectations, the explanations often lies in one or more of the following areas (Webster 1969, 36):

1) Failure to define precisely that segment of the total market where the product is likely to have greatest value for users
2) Underestimation of the amount of marketing effort required to generate the expected revenue level
3) Underestimation of the amount of new investment required on the part of customers and the extent to which present production technology is made obsolete
4) Failure to anticipate the demands which the new products make on customers' technical and applications skills
5) Inadequate understanding of the buying process and influence patterns within customer organizations leading to underestimation of the amount of time required for evaluation and trial by each customer
6) Lack of awareness of existing relationships and influence patterns between prospective customers and their present vendors as well as relationships and influence patterns among members of the customer's industry

Consequences are the changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation.

Consequences are not unidimensional; they can take many forms and are expressed in various ways. Consequences are classified as desirable versus undesirable, direct versus indirect, and anticipated versus unanticipated. Desirable consequences are the functional effects of an innovation for an individual or for a social system and undesirable consequences are the dysfunctional effects of an innovation to an individual or to a social system. It is often difficult to avoid value judgments when evaluating consequences as desirable or undesirable. Many innovations cause both positive and negative consequences, and it is thus erroneous to assume that the desirable impacts can be achieved without also experimenting the undesirable effects. Direct consequences are the changes to an individual or a system that occur in immediate response to an innovation. Indirect consequences are the changes to an individual or a system that occur as a result of these direct consequences. They are consequences of consequences. Anticipated consequences are changes brought on by an innovation that are recognized and intended by the members of a system. Unanticipated consequences are changes that are neither intended not recognized by the members of a system. (Rogers 1995, 405-441)

3.3 BUYER BEHAVIOR IN TRANSPORT PACKAGING SECTOR

Considering the influences on industrial buyer behavior in transport packaging sector the environment has a quite significant role which was already indicated in the chapter ***2.2*** *Packaging Industry*. The purpose of Eltete's innovative products is to give mostly service which means that replacing wood or EPS by cardboard as a packaging material makes the packaging easier to recycle, increases the strength, reduce the material used in packaging and reduce the packaging time, optimize the use of space, makes the product more visible which offers softer handling, better control meaning quantities and damages and customer can directly see

what they buy without opening the packaging and this all also improves the image of the company. Considering the buyers requirements as product quality the technological complexity is not an issue. PallRuns and cardboard pallets are very easy to use. There is nothing more needed than a softer handling because cardboard is not as strong as wood when it comes to the handling matter. In the case of Eltete TPS – Framepack all that is needed is a staple gun for making the top and bottom frames. It is also possible to supply a jig-table for building the frames manually or automatically. The delivery of the PallRuns or edgeboards needed for building the frames is as easy as delivering what ever product. Afterwards these innovative products make the delivery of the packed products even easier as this is one of the purposes to use these products.

In the transport packaging sector the members including to the buyer center can be considered to be the purchasing manager, the sales manager, the technological engineer and/or the packaging manager. Identifying the roles which people might play in buying decisions the initiator who suggests the idea of buying the product can be in this case the purchasing manager or the packaging manager who has been contacted by the seller company or maybe the sales manager who have met the seller at the packaging exhibition. Influencers to the decision can be all members in the company but also people outside of the company meaning here the customers. In this case the customers are mostly retailer shops and wholesalers. The financial department can influence to the decision as the change from old packaging way to new will require some stage of financing though it probably buys back itself in the long run. Decider of the components of a buying decision as whether to buy is mostly made jointly including all of the members of the buying center. What, how and where to buy can be expected to be made by the purchasing manager or the packaging manager. The buyer is of course the purchasing manager but the users are first the packagers of the product, then transportation companies and retailer shops and wholesalers and finally the end-customers.

The stages of the buying process of transport packaging materials can follow the five stages introduced but it can also have less stages. The buying process can start by internal stimuli when the company recognizes a problem with their current packaging method or materials. This can be due to too expensive packaging, not protective packaging or not enough durable packaging. The stimuli can also be external like the society can restrict the use of some packaging materials or end users are unhappy with the current materials or packaging method. It is also possible that the company does not have any problems with the packaging or packaging method but they are contacted and introduced alternative materials and methods to pack. If the company is contacted outside they can get quite easily information and references of the new packaging. In the case that the company has a problem and they need more information they can find it from commercial sources which can be advertising, salespersons, dealer or exhibition, from public sources like mass media and consumer-rating organizations or from experimental sources which can be handling, examining and using the product. The evaluation of alternatives can be made quite easily as there is not too many possibilities. Evaluating the different packaging materials the possibilities are mostly wood, EPS, cardboard, plastic and metal or combinations and these all are not feasible for every applications. When it has been decided what material or combinations to use the qualities of these can be tested and asked offers from different suppliers. When the quality is more critical factor for the packaging of the product then the price is less important as it is in the case of Framepack solution. Other evaluation attributes can be location of the supplier and other kind of services possibly needed. Evaluating the different packaging methods here is crucial the tests that can be made for the product but also the price and easiness to pack matters. The purchase decision can be made after the evaluation of the alternatives but there can still be some risks. Possible problems can be caused by delayed deliveries or bad qualities, the raw material prices can increase suddenly or the material is not suitable though the tests were favorable. Mostly in the packaging industry the individuals will choose the offensive strategy. This

is based on the fact that buyer often negotiate cooperatively with the vendor in this case meaning that the test made to the products are made jointly. After purchasing the new solution the company can be satisfied or dissatisfied depending on the gap between expectations and performance.

The commitment level of buyers when changing to a new packaging material or solution can be typed as *dissonance-reducing buying behavior*. This is because the customer company is highly involved in a purchase but there is little difference in brands or this difference is so big that it is easy to evaluate. The high involvement is based on the fact that the purchase can be expensive and risky as was indicated in the previous paragraph. In this case however the buyer can learn about the different possibilities, test them and calculate the possible costs. After changing to a totally different solution it might be too costly to change it again but the supplier of the raw materials can be changed if needed.

3.4 INNOVATIONS FROM ELTETE TPM LTD AND THEIR CHARACTERISTICS

This chapter presents two new transport packaging innovations developed by Eltete TPM Ltd and their characteristics.

Damages caused during the transport and handling is a problem for manufacturers and distributors. For avoiding these Eltete TPM Ltd has developed a complete system to solve the packaging problems. Eltete TPS - Framepack is a robust and flexible packaging system, which offers a reliable, insect-free, non-fumigated and totally recyclable cardboard option. TPS - Framepack systems are designed by combining various packaging materials like edgeboards, Slip sheets and flatboards with common packaging equipment. The Framepack is 100 percent cardboard and all the systems are designed so that they minimize the material need

and that the packaging material is easy to recycle. Replacing a wooden pallet and frames, the difference in weight is considerable. These products result in huge savings when delivering by airfreight and the good visibility for fragile products means better care in handling and logistics. (Brochure of Eltete TPM Ltd 2003, 5-6; Eltete Business plan 2002, 9; Eltete TPM Ltd 2003)

PallRun is a 100 percent recyclable cardboard pallet foot for replacing wooden or other kind of pallets. PallRuns can be used wherever there is need of palletization in a modern way. They can be either fixed directly on to cardboard boxes or used together with cardboard boards to form pallets. The cartonboard pallets can have either two- or four-way fork-lift access and can be customized and assembled according to individual need on the premises of the customer. (Eltete TPM Ltd 2003; Borchure of Eltete TPM Ltd 2003, 5-6.) **Figure 13.** paints pictures of the PallRun and TPS – Framepack solution.

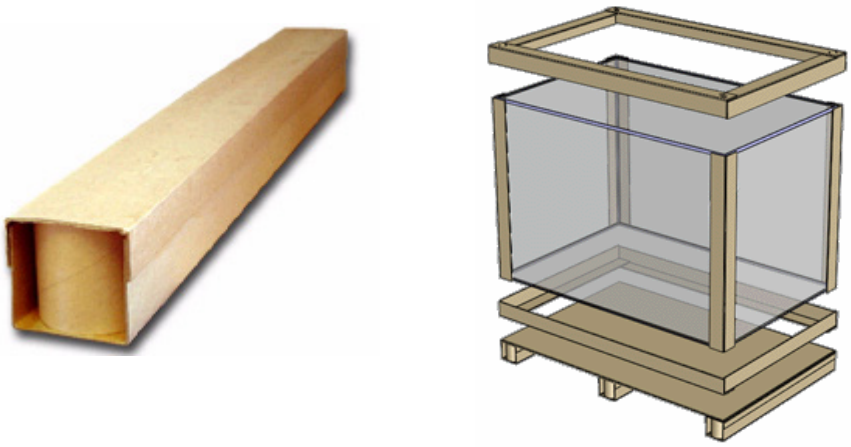


Figure 13. PallRun and TPS – Framepackaging (Eltete TPM Ltd 2003)

Eltete TPS – Framepack solution and PallRuns are not objectively new innovations. There have been same kind of solutions in the market

especially frames but also cardboard pallet feet. Also the Eltete PallRun is five years old but now the product has its final shape and there is developed an automatic line for producing it. The rate of adoption has been quite long for these solutions especially for PallRuns because it is quite difficult to change people's minds of the strength of cardboard products. The length of time can be said to be around five years but now people are asking for these products mainly because the restrictions of wooden materials. The next few years will show the adoption percentage of cardboard innovations among the members of a system.

Describing these innovations according to the Roger's innovation characteristics or attributes, the relative advantage of Eltete TPS – Framepack is good visibility, flexibility meaning the frames can easily be tailored to individual requirements, it is 100 percent recyclable, saves weight, eliminates transport damages and minimize material use. Comparing PallRuns and cardboard pallets to wooden pallets these are 100 percent recyclable, lighter, hygienic, and there is no need for fumigation. Defining the relative advantage as the incremental profit compared to the available alternatives it can be realized from a decrease in costs more than an increase in revenues. The decrease in costs can develop from savings in transportation and storing, elimination of damages, lower recycling fees and minimizing of material use. These innovations are very compatibility what it comes to the values and norms of a social system as society is driving companies to use recyclable and environmentally friendly products and methods. PallRuns are a little incompatible with the current handling method because cardboard pallets have to be handled softer as the cardboard material is not as strong as wood. Cardboard frames and PallRuns are not at all complex. These are very easy to use and there is even developed manual and automatic machines to facilitate the assembly. Both innovations can also be very easily tested to experiment the products. For frames all that is needed is a staple gun and few staples and PallRuns are like that ready for testing or

fasten to a top board to get a pallet. The observability is also high as the results can be seen directly after the testing.

The amount of information of frame-pack and cardboard feet is increasing all the time as additional firms use these. Also companies are putting more effort into promotion of cardboard products due the restrictions for wooden materials. Information quality of these products can be expected to be quite high because for promoting and marketing is mostly used case studies with photos of old packaging method or material and photos of the new way to do it. This kind of references can get the companies interested when they see that some of their competitors have changed their methods but this can also have its own risks. Innovations as frames and PallRuns can also be quite easily tested which is also requested from Eltete's side. Testing of these products enlarges the quality and amount of consciousness of these products very much which makes the evaluation easier.

PallRuns and cardboards frames have actually only positive consequences. Desirable consequences compared to wooden materials are of course the recyclability, no treatment is needed which keeps the environment and climate cleaner and reduced packaging materials saves raw materials. There are not much direct consequences that occur in immediate response to these innovations because the adoption rate of this kind of innovation is quite long. It will take time to get people to use cardboard instead of wood because wood has had so strong position as transport packaging. Anticipated consequences will be the new softer way to handle products.

4 REGULATORY ISSUES

Much as most managers would like to ignore them, political and legal factors often play a critical role in international marketing activities. In addition, the interpretation and application of regulations can sometimes lead to conflicting and even misleading results. (Czinkota & Ronkainen, 2001, 162.) Sometimes these laws also create new opportunities for business. For example, mandatory recycling laws have given the recycling industry a major boost and spurred the creation of dozens of new companies making new products from recycled materials. Legislation affecting business has steadily increased over the years. *The European Commission* has been active in establishing a new framework of laws covering competitive behavior, product standards, product liability, and commercial transactions for the member nations of *European Union*. The three main purposes of business legislation are to protect companies from unfair competition, to protect consumers from unfair business practices, and to protect the interest of society from unbridled business behavior. A major purpose of business legislation and enforcement is to charge businesses with the social costs created by their products or production processes. (Kotler 1999, 151)

In most emerging industries, governments intervene through various types of regulation, thereby affecting the diffusion of new technologies. Because of the drastic technological change, there is usually little consensus on optimal policies to be followed. A first issue is whether and how entry by new firms should be regulated, and what the timing of entry should be. A second issue is whether it is in the public interest that the policy maker sets a technological standard, or whether this decision should be left to the market through competition among systems. Another way of putting this question is whether standards create markets or markets create standards. However, with standards the market should grow faster. For instance, standards tend to benefit consumers as they reduce their search and switching costs. But there is also the risk that a selected standard is

not the most efficient one and that it becomes difficult to switch or develop a better one. Moreover, there are several industries where different incompatible systems coexist and other cases where market forces push one system to take the whole market establishing itself as the standard. (Gruber & Verboven 2001, 1190)

4.1 ENVIRONMENTALLY ORIENTED REGULATIONS

The role of packaging is widely debated today and environmental considerations are not the only ethical issues concerning packaging, although they are the most recent ones and highly visible particularly in Europe (Halme 1993, 40). It is nearly impossible to think of packaging without thinking of its effects on the environment. While some environmentalists would like to see packaging eliminated altogether, supply management organizations are taking a more aggressive approach to packaging materials and construction. (Yuva 2003.) When discussing the environmental problems involving packages, the industry, authorities and consumers in industrialized nations concentrate on topics such as source reduction, recycling, recovery, degradability, separation of plastics from other wastes, shortage of space at waste dumps, incineration, emissions, integrated waste management, sufficiency of natural resources, pollution of ground water, littering, and environmental labeling. (Halme 1993, 40.)

New environmental legislation, consumer demand for greener products or competitors seizing competitive advantage by improving their environmental performance can all force companies to confront the challenge of ‘going green’. The key question about the future of the green challenge relate to the rate at which it will grow, the issues that will become of greatest importance to the different parties in the marketing

environment, and which industries will be the next focus of green concern. (Peattie 1995, 1 & 75)

A major driver of corporate environmental awareness is the increasing role of government regulations. From 1776 to 1978, the United States government passed a total of 16 environmentally oriented laws. Since 1978, the federal government has published legislation concerning environmental issues at an increasing rate. In addition to the effect of government regulation on corporate environmental awareness, consumers have become much more socially conscious than in the past. As customers demand more environmentally friendly products, companies must decide if they will fill the growing niche for these products. Regardless of whether it is the government or its customers, which motivate a company to consider environmental issues, a wide array of organizational responses, exist. (Handfield, Walton, Seegers & Melnyk 1997, 295)

When considering overseas packaging, packaging companies must recognize the myriad of different packaging laws and regulations in each jurisdiction, and even if the product may be identical, the laws are not. There is currently no “generic“ solution to packaging law requirements for all countries, let alone within one country. Everything depends on the product concerned. (FLAPA 2002.) Even countries that are part of the European Union have few regional packaging regulations or laws. While the European Union has some standards in place, they are constantly changing. (Yuva 2003.)

Victor Bell, president of *Environmental Packaging International* in Jamestown, Rhode Island, says that depending on how supply management organizations design the packaging, there are different fees on it and those fees strongly dictate the cost of goods. As of today, there are 28 different countries that assess packaging fees. Bell adds that supply management organizations must also be aware of international

design and reduction requirements. In Europe, there is *Essential Requirements*, which requires packaging to meet a set of standards before it can be placed on the market. In Asia, there are empty space requirements and design requirements that must be met before products can be sold there. As Canada enters the packaging fee arena 2004, US organizations will need to have environmental data on everything they package. From an individual country perspective, Germany may have the most stringent packaging requirements. Its *Green Dot* program requires manufacturers to pay for the recycling of their packaging. (Yuva 2003)

4.1.1 Packaging Directive

Directive 94/62/EC on *Packaging and Packaging waste* (the 'Packaging Directive') approved by European Union in 1994 provides that all member States had to set up packaging recovery systems which had to achieve a minimum of 50 percent (by weight) of recovery (material recycling and energy recovery) of packaging waste, and, within this target, a minimum of 25 percent of recycling, 15 percent minimum per packaging material. Under the revised regime, packaging users would be obligated to establish an extensive database in order to prove compliance with the Packaging Directive's so-called Essential Requirements. Under the Packaging Directive's Essential Requirements rules, packaging have to be recycled, recoverable, packaging volume and weight has to be limited to the minimum adequate amount, and the amount of noxious and other hazardous substances and materials has to be minimized. (Oppenheimer Wolff & Donnelly LLP, 1999.) The target of the directive is to harmonize national measures concerning the management of packaging and packaging waste. In addition it has the dual aim to protect the environment while at the same time optimizing the functioning of the internal market. (Arwidson 2002.)

In order to achieve these targets, Member States had to ensure the establishment of recycling and recovery systems in their respective territories. Most Member States have transferred this task partially or entirely to industry. Consequently, 15 different packaging recovery systems have been created in EU Member States, making it an administrative nightmare to market products in Europe. Companies marketing packaged products in Europe have to decide for each individual EU Member State how they choose to comply with the local packaging recovery laws. Most systems allow for “discharge” of the packaging recovery obligations to an industry organization against payment of a membership fee like in Ireland, Netherlands, UK or license fee (e.g. Green Dot fees) in Belgium, France, Germany, Italy, Spain and Portugal, which varies greatly from Member State to Member State for similar packaging items. (Oppenheimer Wolff & Donnelly LLP 1999)

The current Packaging Directive defines packaging as “all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. ‘Non-returnable’ items used for the same purposes shall also be considered to constitute packaging (Article 3 (1)). This definition is further limited: ”Packaging consists only of: (a) sales packaging or primary packaging, e.g. packaging conceived so as to constitute a sales unit to the final user or consumer at the point of purchase; (b) grouped packaging or secondary packaging, e.g. packaging conceived so as to constitute at the point of purchase a grouping of a certain number of sales units whether the latter is sold as such to the final user or consumer or whether it serves only as a means to replenish the shelves at the point of sale; it can be removed from the product without affecting its characteristics; (c) transport packaging or tertiary packaging, e.g. packaging conceived so as to facilitate handling and transport of a number of sales unit or grouped packaging in order to prevent physical handling and transport damage. Transport packaging

does not include road, rail, ship and air containers." (Oppenheimer Wolff & Donnelly LLP 1999)

The commission proposes to set a higher overall recycling rate of 75 percent by June 30, 2006, and by material (45 percent), whereby it is not quite clear from the proposed wording whether this target would apply to sales packaging only (Oppenheimer Wolff & Donnelly LLP 1999). Alternative tools such as voluntary agreements should also be considered to achieve similar goals. They allow more flexibility and lead to a more efficient way of working. One example of such a voluntary agreement is *the European Declaration on Paper Recovery*, which is a self-commitment from the paper industry pledging that 56 percent of all kinds of paper and board consumer in Europe will be recycled in 2005. (Arwidson 2002)

The packaging Waste Directive has produced good results in the EU. All the Member States are going in same direction. Some member States have better results than others do, but all are performing better. The EU needs to modify this Directive and adapt it to the current circumstances. (González 2002)

Case example. In June 1991 Germany decided to reform its packaging legislation. It adopted an *Ordinance on the Avoidance of Waste*. According to the new regulations manufacturer and retailer are obliged to take back the packages of their products and take care of recycling them independently of the public waste system. This new law sets quotas to the collection rate of each packaging material. (Halme 1993, 53)

4.1.2 CEN standards

CEN is *European committee for standardization* and its mission is to promote voluntary technical harmonization in Europe in conjunction with worldwide bodies and its partners in Europe. Harmonization diminishes

trade barriers, promotes safety, allows interoperability of products, systems and services and promotes common technical understanding. (CEN 2003.) Below are presented the Packaging Directive's so called *Essential Requirements'* CEN standards and especially the CEN standard on material recycling (EN 13430).

The European Commission mandated CEN to prepare a set of standards to give effect to *the Essential Requirements* (more information about the Essential Requirements can be found from **Annex I**). The six principal standards have all been adopted by a large majority and they are now being published by CEN's 19 member (the national standards bodies) as harmonized standards. (Perchards 2001)

The six standards are:

- EN 13427, Packaging – Requirements for use of European Standards in the field of packaging and packaging waste
- EN 13428, Packaging - Requirements specific to manufacturing and composition – Prevention by source reduction
- EN 13429, Packaging – Requirements for relevant materials and types of reusable packaging
- EN 13430, Packaging – Requirements for packaging recoverable by material recycling
- EN 13431, Packaging – Requirements for packaging recoverable in the form of energy recovery, including specification of minimum interior calorific value
- EN 13432, Requirements for packaging recoverable through composting and biodegradation

CEN standard on material recycling (EN 13430) covers all forms of packaging and types of packaging material, and all collection and sorting arrangements and recycling facilities. It formalizes a procedure by which

design, production and use of packaging can be checked against the requirements of various materials recycling systems. For material recyclability to be claimed, they must (Perchards 2001):

- Ensure that packaging design takes accounts of the recyclability of the materials from which it is produced
- Control selection of raw materials used in production/packaging/filling operations and where practicable collection/sorting operations to ensure that they do not adversely affect recycling processes
- Ensure that the design of packaging makes use of materials or combinations of materials which are compatible with known and relevant recycling technologies whilst also recognizing the interrelationship of the various standards supporting Directive 94/62 (The Directive 94/62 is presented later)
- Establish a system to ensure that new developments in relevant recycling technologies are monitored and recorded and that such records are made available to the design function
- Take account of the potential change in releases to the environment that will result from introducing the used packaging to the recycling process

4.1.3 Regulations for wooden packaging

The governments are also regulating the entry of wooden pallets to their countries because there are a lot of nasty world travelers that ride around on wooden shipping pallet as bugs like the Asian Long Horned Beetle that travels from the Far East. Their in-flight meal is the wooden shipping pallet – until they get here, then the parks and forests become their favorite meal. (Pallet enterprise 2002)

It is important to note that United States does have regulations for goods shipped into the country. All goods shipped into the country in/on wooden

pallets, cases, or boxes have to be treated because the United States has experienced an infestation of Long-Horned beetles that have wiped out a number of species of trees in and around the country's international ports of entry. The beetle burrows in the wood of the pallets. When the pallets arrive in the United States by boat or plane and are then stacked outdoors, the beetle finds its way into nearby trees and repopulates. In response to this, *the US Department of Agriculture* has established some standards and requirements on goods shipped into United States for countries where the beetle is infesting. As a consequence, these countries see this as a restraint of trade. (Yuva 2003, 18-19)

Case example. On September 1998 US Agriculture Secretary **Dan Glickman** announced emergency restrictions that would ban or levy fines against Chinese exports packed in untreated wooden crates that can transport a tree-eating beetle. The restrictions are aimed at eradicating the Asian Long-Horned beetle, which can ravage hardwood trees and forests and has no known natural enemies. The beetle, believed to have arrived in the United States in wood packaging crates from its native China as long as seven years ago (now more than ten years), has been found in 26 sites in the United States, mostly around import warehouses and all traceable to larvae surviving in wooden packaging material from China. Two urban infestations of the beetle, one in the New York City area in 1996 and other in the Chicago area in 1998, have triggered quarantines and resulted in hundreds of hardwood trees being cut down and as much as USD 8 million (EUR 6,8 million) in damage. Between one-quarter and one-half of China's USD 62 billion (EUR 53 billion) in annual exports to the United States are packed in wooden crates and would be subjected to the US restrictions. "The only environmentally sound solution is to ban all imports of packing materials made from raw wood," said a statement issued by *Greenpeace*, *American Lands*, *the Wildlife Society* and other groups. Without such regulations, US officials estimate the beetle could cause as much as USD 138 billion (EUR 118 billion) in damage. (Packaging Network.com 1998)

The International Plant Protection Organization (IPPO), a division with *the United Nations*, has approves an *international standard for phytosanitary measures* that requires all solid wood packaging (both coniferous and non-coniferous) to be treated and marked to reduce the risk of introduction and/or spread of quarantine pests associated with wood packaging material. Treatment methods include heat treatment, chemical pressure impregnation and fumigation with methyl bromide. The international standard sets specific treatment requirements. For example, heat-treated lumber/packaging must be heated at the core to 56 degrees Celsius for a minimum of 30 minutes. Treating non-coniferous (hardwood) lumber is expected to add USD 1 (EUR 0,85) or more to the cost per pallet. The typical certification cost for heat treatment will vary depending on the agency that is used. Some agencies charge a flat rate per inspection. Others charge per 1 000 board feet of treated lumber per inspection. Wood packaging material that does not comply with the requirements of this standard should be disposed of in an approved manner. Implementation of the IPPO standard will be take place over the next couple of years as each member country develops its own procedures and the next review date for this standard is 2007. (IPPC 2002, 2; Pallet enterprise 2002.) On the next page can be found a picture of marked pallet and the mark shown also on the next page is to certify that the wood packaging material that bears the mark has been subjected to an approved measure.

Figure 14. Marked pallet (Eltete TPM Ltd 2003)

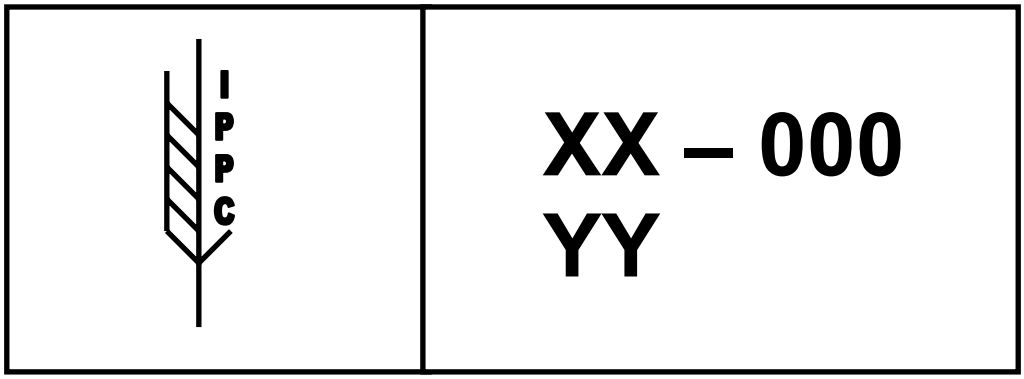


Figure 15. Mark for approved measures (IPPC 2002, 13)

The European Union has developed *Emergency Requirements* to prevent the spread of *the Pinewood Nematode* (PWN) to Europe (Commission Decision can be found as **Annex II**). The Pinewood Nematode has the potential to destroy the world forests and various countries (SCA Packaging 2003). The EU measures impact coniferous, non-manufactured wood packaging including pallets, crates and dunnage exported from the United States, Canada, Japan and China (Pallet enterprise 2002). The

Emergency Measures should be applied in two steps. In the first step, the Member States should immediately take any appropriate measures for official monitoring of the said wood in order to further reduce the risk of introduction into or spread within the Community of PWN. This would enable the countries where the Nematode is known to occur, to organize treatment of wood packaging comprised in whole or in part of non-manufactured coniferous wood in compliance with the requirements of the Decision as the second step. (Byrne 2001.) The EU started to implement these restrictions on October 1, 2001. However, the level of implementation and timing is left up to each member country. Affected packaging must be properly treated and marked. The EU has indicated that any coniferous solid wood packaging that does not comply with the requirements will be refused entry, destroyed or treated to eliminate the risk of the Pinewood Nematode prior to entry. This will necessitate the off-loading of any cargo from the packaging and may cause considerable delay. (Pallet enterprise 2002.)

The Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is responsible for compliance in the United States and has turned the certification process for heat treatment over to the American Lumber Standard Committee (ALSC), a quasi-government standards body for the lumber industry. (Pallet enterprise 2002)

In China a new regulation enforced from January 1st 2000 require that all imports from United States and Japan in wooden packaging is treated for *Steiner and Buhrer Nickle worm*. It was estimated that the restriction could negatively influence one-third of US exports to China, and threatens to trigger a trade row. Goods that arrive without a certificate saying they have been treated will be treated by Chinese customs at cost to the importer. (Business Asia, 1999)

4.2 RECYCLING

The logistician plays an increasingly important role in allowing the firm to operate in an environmentally conscious way. Environmental laws, expectations, and self-imposed goals set by firms are difficult to adhere to without a logistics orientation that systematically takes these concerns into account. Since laws and regulations differ across the world, the firm's efforts need to be responsive to a wide variety of requirements. One logistics orientation that has grown in importance due to environmental concerns is the development of *reverse distribution systems*. Such systems are instrumental in ensuring that the firm not only delivers the product to the market, but also can retrieve it from the market for subsequent use, recycling, or disposal. Recycling means that waste materials have to be separated and collected so that they can be converted into final products that can be marketed and reused (Halme 1993, 45). Recycling of packaging saves resources and reduces waste volumes. When packaging becomes waste, many materials can be recovered and used in new products. The rest can be incinerated, using energy for power and heat. (Factuelt 1997.) To a growing degree, the ability to develop such reverse logistics is a key determinant for market acceptance and profitability. In the packaging field, environmental concerns are also growing on the part of individuals and governments. Increasingly, it is expected that the amount of packaging materials used is minimized and that the materials used are more environmentally friendly. (Czinkota & Ronkainen 2001, 610-611)

Brown and **Van Hattum** (as cited in Halme 1993, 45) make an interesting prediction of what recycling and reuse mean for society. Society as a whole will have to think in terms of recycling and reuse of materials. The present society, which is rooted in the concept of convenience, will be seen as an aberration. Waste reduction and recycling industries will largely replace the garbage collection and disposal companies of today.

Society will become dramatically less energy intensive and less polluting if the throwaway mentality is replaced by recycling ethic.

The amount of suitable space in which waste can be buried in the majority of developed countries is relatively limited, but the volume of waste produced is growing rapidly. In Holland there is virtually no suitable landfill space left, and in some American states such as California and New York, the cost of landfill dumping have reached more than USD 100 (EUR 86) per ton. The result is increasing financial, consumer and legislative pressure to recycle waste. Recycling systems of packaging guarantee the reduction of used packaging disposal to landfill. This is because they constitute “closed loops” in which used packaging is collected, recycled and used again for the manufacture of new packaging. At the same time, recycling is essential for the corrugated packaging industry as the recycled packaging is the principal raw material source of e.g. corrugated board boxes. (FEFCO 2001; Peattie 1995, 207)

In many cases, recycling systems reduce environmental impact more effectively than reuse, as recycling requires less transport (reduced CO2 emissions) and no cleaning (saves water and detergents use and reduces effluents). Moreover, recycled packaging is always used for the first time, which guarantees optimum hygiene conditions, essential for food packaging. Reuse may be a good solution in certain cases (e.g. when packaging can be taken back for reuse over short distances) but recycling is often the best option from an environmental point of view. The *Packaging Directive* should encourage Member States to promote recycling and reuse systems of packaging. (FEFCO 2001.) Other benefits of recycling are conservation of natural resources, energy savings in production and transport, low raw material costs from recycled sources, reduced waste disposal costs and reduced reliance on imports. (Groundwork Wales 2003)

Case study. Research based on a study commissioned by the French fruit and vegetable industry demonstrates that the use of recyclable corrugated packaging, as compared to reusable packaging, reduces dramatically the number of lorry trips (carrying empty crates) required for transport and hence the release of polluting CO2 emissions into the air. For transport of tomatoes, apples and nectarines in France alone, the study shows that recyclable corrugated packaging would require 165 200 lorry trips less per year. (FEFCO 2001)

4.3 RECYCLING OF CARDBOARD

Cardboard is made from different types of pulp, entirely from renewable raw materials. There for, cardboard poses no special problem when packaging waste is incinerated or deposited and it has one of the best environmental records. The paper is made from annual growth of coniferous wood, hardwood and used corrugated board that has been returned to the paper mills. Also the glue that keeps the paper components together is environmentally safe. It is made mainly from cornstarch and is totally water soluble and non-toxic. Much of the corrugated board is recycled and over 99 percent of all packaging made of corrugated board is recoverable. To recycle cardboard it is first soaked in water and agitated to release the fibres, turning the back into pulp. Although the fibres get shorter each time they are pulped, cardboard can be recycled four or five times before they disintegrate. Recycled cardboard is primarily used to make boxes and other packaging, but has a range of other uses including stationary, animal bedding and coffins. (EIE 2003; Packforsk 2001, 6-10)

Case study. According the study made in UK indicates that every ton of cardboard recycled saves 17 trees, 7 000 gallons (26 530 litres) of water, 2 cubic yards of landfills and 4,100 KW/hours of electricity. (EIE 2003)

The paper-recycling rate has increased for EU and Norway from 36 percent in 1985 to 40 percent in 1990 and 49 percent in 1996. Despite the success of recycling the problem remains that waste paper generation has increased in the same period. In 1996 in fact 32,5 millions of tons of waste paper and cardboard were incinerated or land filled compared to 32,5 millions in 1990 and 28,3 million tons in 1985. Thus seen from 1985 to 1995 the total quantity of waste paper incinerated or land filled has increased, although the corrugated packaging industry has achieved the recovery and recycling objectives set by the 1994 Packaging Directive, making a significant contribution to overall efforts to reduce the amount of used packaging disposed of in landfills in Europe. (European Topic Centre on Waste and Material Flows 2003; FEFCO 2001)

The year 2001 was a very exceptional year for the paper and board industry, and for paper recycling in particular. Recovered paper collection increased by 0,8 million tons and was 44,7 million tons in 2001. This allowed the utilization of recovered paper to increase by 0,3 million tons, or 0,8 percent in 2001, and amount to 42,0 million tons. Consequently, the recycling rate for 2001 was 52,1 percent. The aim of *the European Declaration on Paper Recovery* is to increase the level of paper recycling in Europe to 56 percent by 2005, and further improve the environmental performance of the industry. As the recycling rate increases, further increments will become more difficult. The role of legislation in this context also gains importance. (European Recovered Paper Council 2001, 1)

When considering the whole of EU, projections suggest that paper and cardboard consumption will increase between 44 and 62 percent up to the year 2010, using the year 1995 as a base year (European Topic Centre on Waste report “Baseline projections of selected waste streams, 1998). The projections mean that in year 2010, the EU can expect to produce between 92 million and 105 million tons of waste paper and cardboard. If the generation of waste paper and cardboard is assumed to be about 100 million tons in year 2010, then about 68 million tons will have to be

recycled that year to keep disposal and incineration constant compared to 1996. Such a development will demand an increase in recycled amounts of more than 100 percent or an increase of more than 2 million tones per annum. To achieve this increase in recycling of waste paper a significant effort will be required. (European Topic Centre on Waste and Material Flows 2003)

More than 42 million tons of recovered paper was used in 2001, representing 42 percent of the total volume of raw materials used by European paper industry in 2001, and this across all paper and board grades. The Packaging sector remains the biggest consumer of recovered paper and board – almost two thirds of recovered paper is used to produce case materials, cardboard, wrapping and other packaging materials. (CEPI 2002, 2)

5 COMPETITIVE ENVIRONMENT

One of the most dynamic environmental forces affecting the marketing strategy of individual exporter is competition. The number, size, quality and origin of competitors affect the firm's ability to enter and compete profitably in a particular market (Bradley 2002, 71). Every firm must seek and find a function on order to maintain itself in the marketplace. (Albaum et al. 1998, 98)

Today, competition is not only rife but growing more intense every year. Many US, European, and Japanese companies are setting up production in lower-cost countries and bringing cheaper goods to market. Because markets have become so competitive, understanding customers is no longer enough. Companies must start paying keen attention to their competitors. Successful companies design and operate systems for gathering continuous intelligence about competitors. **Porter** has identified five forces that determine the intrinsic long long-run profit attractiveness of a market or market segment: industry competitors, potential entrants, substitutes, buyers, and suppliers. His model is shown in **Figure 16.** and the threats these forces pose are as follow (Kotler 1999, 218-219):

- *Threat of intense segment rivalry*: A segment is unattractive if it already contains numerous, strong, or aggressive competitors. It is even more unattractive if the segment is stable or declining, if plant capacity additions are done in large increments, if fixed costs are high, if exit barriers are high, or if competitors have high stakes in staying in the segment. These conditions will lead to frequent price wars, advertising battles, and new-product introductions and will make it expensive to compete.

- *Threat of new entrants*: A segment's attractiveness varies with the height of its entry and exit barriers. The most attractive segment is one in which entry barriers are high and exit barriers low. Few new

firms can enter the industry, and poor-performing firms can easily exit. When both entry and exit barriers are high, profit potential is high, but firms face more risk because poor-performing firms stay in and fight it out. When entry and exit barriers are both low, firms easily enter and leave the industry, and the returns are stable and low. The worst case is when entry barriers are low and exit barriers high: here firms enter during good times but find it hard to leave during bad times. The result is chronic overcapacity and depressed earnings for all.

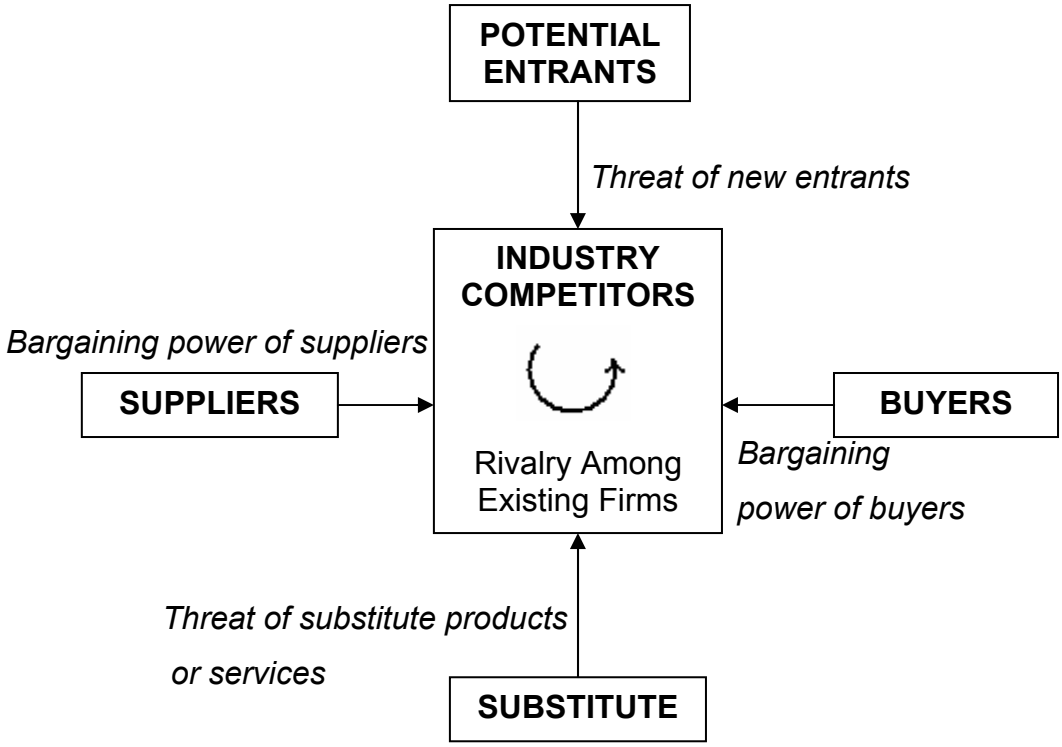


Figure 16. Forces driving industry competition (adapted from Porter 1980, 4)

- *Threat of substitute products*: A segment is unattractive when there are actual or potential substitutes for the product. Substitutes place a limit on prices and on the profit that a segment can earn. The company has to monitor the price trends in the substitutes closely. If technology advances or competition increases in these substitute industries, prices and profits in the segments are likely to fall.

- *Threat of buyers' growing bargaining power*: A segment is unattractive if the buyers possess strong or growing bargaining power. Buyers will try to force prices down, demand more quality or services and set competitors against each other, all at the expense of seller profitability. Buyers' bargaining power grows when they become more concentrated or organized, when the product represents a significant fraction of the buyers' costs, when the product is undifferentiated, when the buyers' switching costs are low, when buyers are price sensitive because if low profits, or when buyers can integrate upstream. To protect themselves, sellers might select buyers who have the least power to negotiate or switch suppliers. A better defense consists of developing superior offers that strong buyers cannot refuse.

- *Threat of suppliers' growing bargaining power:* A segment is unattractive if the company's suppliers are able to raise prices or reduce quantity supplied. Suppliers tend to be powerful when they are concentrated or organized, when there are few substitutes, when the supplied product is an important input, when the costs if switching suppliers are high, and when the suppliers can integrate down-stream. The best defenses are to build win-win relations with suppliers or use multiple supply sources.

In general, the presence of competitors benefits the firm in three ways: they contribute to increase the firm's competitive advantage, they improve the structure of the industry and they develop the market (Porter 1985, 202). The presence of competitors allows the firm to increase its competitive advantage e.g. first; fluctuations in market demand can be shared, thus avoiding the necessity of providing enough capacity for peak demand. Second, product and service differentiations are easier where there is a credible competitor to provide a benchmark for measuring relative performance. Third, a high-cost competitor may provide a cost umbrella, which allows a low-cost firm enter international markets or increase profits if already there. Lastly, a viable competitor may be an important motivator to reduce cost, to improve products and to keep abreast of technological and environmental change. (Bradley 2002, 77)

Since corporate performance depends upon both customer satisfaction and being able to create greater value than the competition, firms need to understand their competitors as well as their customers. By understanding competitors, a firm can predict their reaction to any marketing initiative that the firm might make, and exploit any weaknesses that they might possess. The analysis of how industry structure affects long-run profitability has shown the need to understand and monitor competitors. Competitive information can be obtained from marketing research surveys, recruiting competitors' employees, secondary sources, distributors, stripping down competitors' product and gathering competitors' sales literature. *Competitor analysis* is thus crucial to the successful implementing of marketing strategy. Competitor analysis seeks to answer five key questions (Jobber 1998, 494-497):

1. Who are our competitors?
2. What are their strengths and weaknesses?
3. What are their strategic objectives and thrust?
4. What are their strategies?
5. What are their response patterns?

These issues are summarized in **Figure 17.** *Competitor analysis* and after that is answered to the questions by analyzing the competitors of Eltete TPM Ltd.

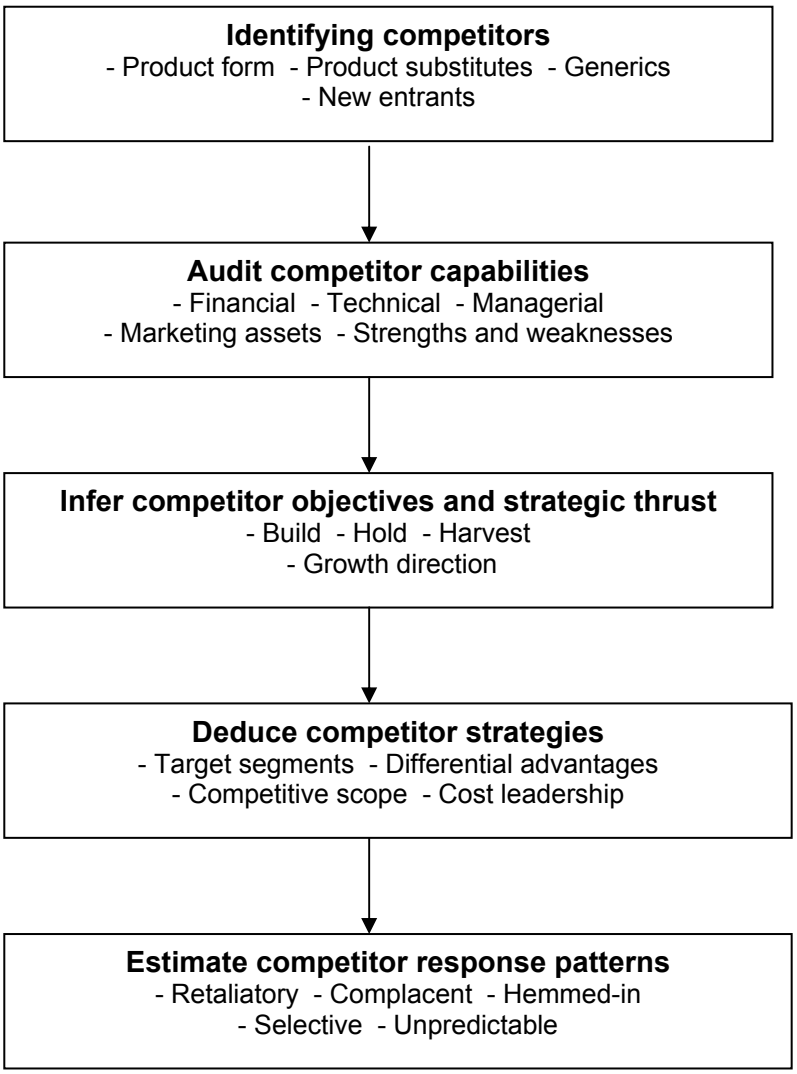


Figure 17. Competitor analysis (adopted from Jobber 1998, 497)

1) Identifying competitors

The danger when identifying competitors is that competitive myopia prevails. Only those companies who are producing technically similar products are considered to be the competition. This ignores the companies purchasing substitute products that perform a similar function and those that solve the problem or eliminate it in a dissimilar way. Beyond these current competitors the environment needs to be scanned for potential entrants into the industry with technically similar products or with technically dissimilar products. (Jobber 1998, 497)

As was said earlier in chapter ***2.2*** *Packaging Industry* there are numerous competitors in the packaging industry and the products are quite similar. This means that the threat of intense segment rivalry is high containing strong and aggressive competitors. In the packaging industry and especially in edgeboard sector the segment is quite stable having high fixed costs which leads quite often to price wars but also to new-product introductions. Old customer or distribution contacts, good relationships and locality matters a lot. Although the products of the competitors are quite similar they differentiate in some cases with the raw material used to produce these. The substitute products for Eltete TPM Ltd's products are the products made of different materials like wood, plastic, metal and EPS or combinations. Companies producing these will not be presented more precise because Eltete TPM Ltd competes more with the companies offering similar products than companies with substitute products. Even that as the aim is to replace wooden materials with cardboard materials it is not relevant who the wooden packaging producers are. As packaging industry is every day coming more and more attractive it will tempt new entrances to the markets. But as there already are a lot of different packaging companies it would be more probable that the big companies will acquire the small, local companies and so tighten the competition. It might be said that in this segment the entry barriers are high and exit barriers low meaning that few new firms can enter the industry, and poor-

performing firms can easily exit. The threat of buyers' growing bargaining power is also high because the products are very similar and the buyers are price sensitive because of low profits. This conducts to that buyers demand more quality like printing in the same price, smaller and faster deliveries and lower prices. The threat of suppliers' growing bargaining power is not high because of the reasons of named above.

Below follows the presentation and analysis of some of the current and biggest competitors of Eltete TPM Ltd. However, it is good to remember that the smaller and local competitors have their own advantages and segments.

ITW Angle Board Group (a division of **Illinois Tool Works Inc**.)*,* founded in 1964 and headquartered in Glenview Illinois, is a leading US producer of corner protection and also a leading manufacturer of protective packaging and transportation systems. Illinois Tool Works Inc. operates in 44 countries and employs close to 48 700 people worldwide. ITW Angleboard has its quite independent units in UK, France, Netherlands, Germany, Sweden and Denmark manufacturing protective packaging. (ITW 2003; ITW Annual Report 2002)

Paul & Co*.,* part of the **Kunert Group***,* founded in 1893 and based in German started its business with cardboard packaging. Later came garlands, round boxes; corrugated cardboard including edge protectors and finally paper cores and presently the company is one of the Europe's largest cylindrical paper core manufacturer. Beside the head-office Paul & Co. has three further production plants for paper cores and angular edge protectors in Germany as well as France, Switzerland, Austria, Indonesia, Hungary and Slovakia. (Paul & Co. 2003)

M.J. Maillis Group founded in 1968 and origin from Greece, is involved in the manufacture and distribution of end line industrial solutions having its manufacturing units in Greece, Spain, UK, Italy, Germany, Poland,

Romania and Canada. The production units in Europe are manufacturing edgeboards and special strapping belts. M.J. Maillis Group operates in more than 52 countries worldwide, through a network of 34 owned affiliate companies and more than 350 independent distributors. (M.J. Maillis 2003)

The Europal Group of companies (Europal Packaging NV, Europal Systems NV and Europal Logistics NV) founded in 1947 and based in Belgium is a family business which has expanded from a timber and sawmill for the manufacture of wooden pallets in the west-Flemish town of Deerlijk into an internationally operating, packaging firm. Europal manufactures and develops edge protectors, pallets and different packaging solutions made of corrugated cardboard or honeycomb board as a base. The Europal Group of companies has, besides the parent company in Deerlijk, three other Belgian business units, not forgetting several European sales offices in France, Holland, Germany and Switzerland. Europal is a fast-growing company with 83 employees. (Brochure of Europal; Europal 2003)

As can be seen the competitors of Eltete TPM Ltd are all different, producing also other packaging products and/or machines. ITW Angle Board can be said to be the biggest competitor with a quite similar product selection with Eltete TPM Ltd. The company is also strong being an own division of the admired Illinois Tool Works. M.J. Maillis is also a hard competitor but however heavily concentrating to other kind of packaging products and machinery than Eltete TPM Ltd does. Paul & Co. is an important competitor of Eltete TPM Ltd but their main products are the cores. The products of Europal are quite similar with Eltete TPM Ltd but Europal is still a little company concentrating only for few Western European markets. However, all of these competitors are strong in the markets where they have their own manufacturing plants.

2) Audit competitor capabilities

The process of assessing competitor's strengths and weaknesses may take as part of a marketing audit. As much internal, market and customer information as is practicable should de gathered. For example, financial data concerning profitability, profit margins, sales and investment levels, market data relating to price levels, market share and distribution channels used, and customer data concerning awareness of brand names, and perceptions of brand and company image, product and service quality, and selling ability may be relevant. Management needs to decide the extent to which each element of information is worth pursuing. This process of data gathering needs to be managed so that information is available to compare Eltete TPM Ltd with its chief competitors on the K*ey Factors for Success* in the industry. (Jobber 1998, 498.) The key success factors are gone through after the presentation of the internal, market and customer information of the competitors. The information has been gained from the companies' home pages and their brochures so it is quite clear that it was impossible to get parallel information of all the companies. Below is analyzed the information that were available.

ITW's financial performance is generated by some 600 worldwide businesses, operating in 44 countries that develop more than 5000 product lines for customers who are principally located in North America, Europe, Australia, Asia and Latin America. Key to their consistent performance is their commitment to achieving value-added returns, deliver healthy free operating cash flows and improve already strong margins across all units. ITW closed in 2002 with USD 9,5 billion (EUR 8,2 billion) in revenues which means annual revenue growth of 15 percent. Also return on invested capital was 15 percent. About the distribution channels, ITW is the leading US producer of corner protection with seven manufacturing facilities strategically located to offer a constant supply and quick deliveries. Their integrated manufacturing, sales and customer service operations offer quick response to customer request. ITW is

consistently listed in *Fortune* magazine's annual ranking of America's most admired corporations. The company has established a unique program to recycle paper and plastic waste using also scrap materials for their packaging products. (ITW 2003; ITW Annual Report 2002.) Here have to also be mentioned that the quality of ITW's edgeboards is called "chip-chip" - quality which is made by extrusion out of different plastic, cardboards and aluminium paper waste. These contents are shredded and mixed into an edgeboard. These kind of edgeboards are harder and more expensive to recycle. (Ketonen 2.12.2002.)

Paul & Co.'s innovation strength and mobility are symbolically expressed by the flexible, fast and reliable forwarding agencies that deliver their products to all countries all over the world. The cores and edgeprotectors of Paul & Co. are reliable, consistent and always of the highest quality guaranteed with their integrated quality assurance measures. These are also environmentally beneficial and with paper and cardboard they use only natural materials that either grow again or waste paper that has been recycled. The company has in addition gained the international quality standard DIN/EN/ISO 9002. Paul & Co.'s complete range of cores and edge protectors are produced for central Europe and export. (Paul & Co. 2003)

Despite the international negative sentiment of 2002, M.J. Maillis Group achieved 15 percent sales growth with consolidated sales of EUR 310,9 million and during in the past five years the company has achieved 70 percent sales growth. Since 1996 the company has been listed in *Main Market of the Athens Stock Exchange*. In the period 1995 – 1999, Maillis Group has undergone important capital investments in Greece with the aim to build a strong, vertical integrated production basis on all secondary packaging materials. The company has also heavily invested in Research and Development, launching several new products within 2002, mainly machines with competitive and advanced technology advantages. According to 2002 data, the company exports about 97 percent of its

annual production to the European and world markets. In response to the heavy international competition, the company has built an extensive sales network abroad. The company is selling its line of heavy-duty packaging products at 70 percent via independent distributors of secondary packaging products in 55 countries with 450 distributors and at 30 percent via its subsidiaries. In light packaging, the company is selling 70 percent of its products via its subsidiaries and 30 percent via independent distributors. Through a directly owned affiliate network in Europe, customer service is provided by skilled sales people. Being the lowest cost producer in several products, M.J. Maillis can offer most competitive prices overall in the industry. Dedicated to *Quality Assurance Systems*, Maillis systems have excellent, consistent quality quarantined with the ISO 9000 standard since 1993. (M.J. Maillis 2003)

Europal achieved, in 2002, a combined turnover of EUR 25 million where 25 percent of the output was exported. The company guarantees ultra-fast delivery times and “just-in-time” delivery based on its customers production schedules. This is due to advanced automation in production, logistics and administration. If JIT-production is not feasible, Europal will also stock for its customers. *The Europal Packaging Distribution Center* offers an advanced system of stock management to back up or replace their customer’s own. The company makes intensive R&D efforts, good for ca 10 percent of its total investments. Europal’s recycling policy or *GREEN WAVE* embraces a number of measures to make production as environmentally friendly as possible. Europal has also been awarded the quality guarantee label ISO 9001:2000 and following also other environmental standards. (Europal 2003)

Next is analyzed the key success factors. The key factors for success in the industry should be restricted to about six to eight factors otherwise the analysis becomes too diffuse (Jobber 1998, 498). Since these factors are critical for success they should be used to compare Eltete TPM Ltd with its competitors. Each company is given a score on each success factor using

a rating device. In this case there is used a scale ranging from 1 *very poor* to 5 *very good*. This results in a set of company capability profiles, which can be seen below. The evaluation was made together with Sales Manager Sanna Ketonen from Eltete TPM Ltd based on her experience from the market and the found information about the companies. The company were given a score 3 if there where no fact about the factor or it was not good or not poor.

Key Success Factor

	Eltete TPM	**ITW Angle board**	**Paul & Co.**	**M.J. Maillis**	**Europal**
Innovativeness	1 2 3 4 **5**	1 2 **3** 4 5	**1** 2 3 4 5	1 **2** 3 4 5	1 **2** 3 4 5
Financial strength	1 **2** 3 4 5	1 2 3 4 **5**	1 2 **3** 4 5	1 2 3 4 **5**	1 2 **3** 4 5
Technical assistance to customer	1 2 3 4 **5**	1 **2** 3 4 5	**1** 2 3 4 5	**1** 2 3 4 5	**1** 2 3 4 5
Product quality	1 2 3 **4** 5	1 2 **3** 4 5	1 2 **3** 4 5	1 **2** 3 4 5	1 **2** 3 4 5
Well-qualified workforce	1 2 3 **4** 5	1 2 **3** 4 5	1 2 **3** 4 5	1 2 **3** 4 5	1 2 **3** 4 5
Access to international distribution channels	1 2 3 **4** 5	1 2 3 **4** 5	1 2 **3** 4 5	1 2 3 **4** 5	1 2 3 **4** 5

Figure 18. Company capability profiles

As can be seen this analysis would suggest that Eltete TPM Ltd should consider taking steps to improve financial strength as it seems to be the weakest on this factor. Financially ITW seems to be very healthy what it comes to its revenues but it has to be remembered that the data concerned to the whole organization. M.J. Maillis has invested lot to its organization fundamentals, which has made it a very strong organization with increasing sales. The company has also intentions to grow more and invest to the important R&D. From Paul & Co. there was no financial data available. At the moment Eltete TPM Ltd enjoys a differential advantage over all competitors on product quality, technical assistance to customers and the strength in innovativeness should be used to maintain this

differential advantage. The special technical assistance that Eltete TPM Ltd can give to the customers is the testing possibility of edgeboards. These compression strength tests have also been made to the competitors' products and the results show that Eltete edgeboards are from 20 to 60 percent stronger than competitors. It has to be remembered that Eupopal is also producing cardboard pallets which might bring them to a serious competitor of Eltete TPM Ltd in the future. Almost all the companies have gained some of the ISO – standards, which should guarantee the quality except Eltete TPM Ltd. Paul & Co. and Europal are weakest overall than others. However, especially Europal has invested to their distribution channels using also JIT-deliveries. As ITW has also couple of units in Europe their distribution channels are quite exhaustive like also M.J. Maillis has quite wide distribution network.

3) Inter competitor objectives and strategic thrust

Companies may decide to build, hold or harvest products and strategic business units. The build objective is concerned with increasing sales and/or market share, a hold objective suggests maintaining sales and/or market share, and a harvest objective is followed when the emphasis is on maximizing short-term cash flow through slashing expenditure and raising prices wherever possible. Strategic thrust refers to the future areas of expansion that a company might contemplate. (Jobber 1998, 499)

ITW's recipe for success has been focused on creating value-added products for key customers around the world. They do this by growing their business and making acquisitions, which provide additional product solutions to their customers. ITW has grown mainly by acquiring small companies operating in the transport packaging area. Since 1999, they have acquired completed 127 acquisitions totaling nearly USD 5,6 billion (EUR 4,8 billion) of acquired revenues. ITW's marketplace experience coupled with insights gleaned from their partnerships with customers

drives their acquisition process and pipeline. They evaluate and ultimately buy companies with products that allow them to exceed their customers' operations. The target company must have a highly engineered product, a leading brand name, an experienced management team, a strong market position and margins that can be improved. (ITW 2003; ITW Annual Report 2002)

Paul & Co. sells 20 percent of its production to the neighboring countries of the Czech Republic, Slovakia, Poland and Romania. With effect from January 1st, 2002, the Kunert Group has taken over the plant **Halaspack Rt.** in Kiskunhalas from the Hungarian company **Dunapack Rt.** belonging to the Austrian **Prinzhorn-Group**. Halaspack Rt. is the leading manufacturer of cylindrical paper cores, angular edge protectors, fibre drums and composite cans in Hungary. Led by Paul & Co., Halaspack will play an important role in the development of the Central and Eastern market. (Paul & Co. 2003)

M.J. Maillis has evolved from a privately owned company into a multinational industry corporation through its corporate strategies of superior value, vertically integrated production, organic growth and acquisitive expansion. During the last two years it has proceeded with the aim to offer directly complete value added packaging solutions to a large number of industrial users. In the past year, the companies of the Group have invested heavily in the research and development of new products. In Greece the company is purely exports-oriented. M.J. Maillis has succeeded in consolidating its position in the markets on the strength of the quality of its products, of the powerful distribution networks it has built and maintained and of the efficient service provided to its customers. (M.J. Maillis 2003)

In recent years Europal's sales organizations have been established in Germany, France, Great Britain, The Netherlands and Switzerland. This successful international approach has increased Europal's export figures

drastic. Europal is also setting up a European network. Europal Packaging works towards a long-term business relationship with large and medium-sized enterprises which, on the basis of a shrewd packaging strategy, wish to optimize their productivity. (Brochure of Europal; Europal 2003)

It can be clearly said that ITW's strategy is to build and they do it wisely according to an exact plan as they acquire only companies that can give some additional value to them. ITW has also strategic trust referring that they can be expected to expand as before but to where it is impossible to say. Paul & Co. follows also the built strategy and has strategic trust but they are concentrating more to the Central and Eastern markets of Europe. Although Europal has established some sales organizations in Europe it can be said that the company follows more the hold strategy than built strategy as they do not have big plans to grow or expand. It will take time before the company starts to grow via their new sales organizations. But then again M.J. Maillis can be expected to expand and to follow built strategy. They have already acquired companies and that can be expected to continue but they will also concentrate more to the product developments.

4) Deduce competitor strategies

At the product level, competitor analysis will attempt to deduce positioning strategy. This involves assessing a competitor product's target market and differential advantage. The marketing mix strategies (e.g. price levels, media used for promotions, and distribution channels) may indicate target market, and marketing research into customer perceptions can be used to assess relative differential advantages. Strategies can also be defined in terms of competitive scope. For example, are competitors attempting to service the whole market, a few segments of a particular niche? Competitors may be playing the cost leadership game, focusing on cost

reducing measures rather than expensive product development and promotional strategies. (Jobber 1998, 500)

ITW manufactures for a wide variety of industries, including produce, packaged foods, automotive, lumber and steel. ITW's research and development happens at the customer location where product needs can be best identified. Many of their best product innovations come from simple observation coupled with a keen understanding of their customers' needs. The birth of ITW's *80/20 process* dates back to the early 1980s when a handful of their business sought ways to improve manufacturing practices so they could stay competitive in a changing economy. This process is really about simplifying and focusing on the key parts of their business. In the process of simplification, they view all aspects of the business on an 80/20 basis. This includes finding ways to simplify their product lines, customer and supply base, and business processes and systems. In the end, 80/20 improves quality, productivity, delivery, innovation, market penetration, and ultimately, customer satisfaction. (ITW 2003; ITW Annual Report 2002)

Paul & Co. supply mainly to the paper, film, food and textile industries, however producers of tin, aluminum, rubber, copper foils, labels, metal taper and synthetic fibers are also their customers. (Paul & Co. 2003)

The products manufactured and traded by M.J. Maillis are sold to steelworks, pipe-makers, wire-makers, building material, timber, aluminum, paper, food and drink and other industries, thereby offering a complete secondary packaging solution. The main object of M.J. Maillis operations is the production of metal strapping steel band, plastic strapping band and recently also of stretch and shrink film. Company objectives over the next years include substantial organic growth, the optimization of subsidiary company network operation, cost reduction and further expansion by strategic acquisitions. The objective is to promote sales by offering comprehensive solutions, by utilizing synergies from the

European-wide presence and the distribution networks of the companies of the Group. Implementation of a joint sales strategy based mainly on profitability per customer and the use of modern techniques such as telesales and e-business. Stepping up the effort launched in 2001 towards a more effective operation and cost reduction of the companies of the Group both in Greece as well as in the rest of Europe. The key components of this effort are the streamlining of the production network, a reduction of the distribution cost and a reduction of the cost of administrative services by merging joint functions. The company's staff policy aims to use human resources more efficiently while maintaining high levels of employee satisfaction. (M.J. Maillis 2003)

Europal's company vision is to pursue continuous innovation and drive future product development by implementing a constant stream of new applications. Europal is a customer-oriented company and wants to be sure that the customer always gets a good product, customized to its specific needs and wants. 'Total control of quality' and constantly improving work procedures are Europal's main goals. Customer satisfaction is always Europal's main aim. Europal has a firm belief in embracing the future. (Brochure of Europal; Europal 2003)

ITW has a very efficient way to research and develop products as they do this at the customer locations. Also the 80/20 process helps ITW to concentrate to the key customers and markets and makes the production functions more effective. The market area of ITW is the whole world but the concentration to the 80/20 customers leaves the other smaller customers to other competitors. It can be said that ITW tries to use differential advantages. As the main product of Paul & Co. is the cylindrical paper cores the edgeboard markets get less attention and their target markets are only the neighboring countries. Paul & Co. can be said concentrating more to the niche markets as film, textile, tin, labels and metal than to the whole markets. M.J. Maillis attempts to serve the whole markets which in their case are mainly Europe. The company also tries to

get the cost leadership by reducing their prices by optimizing their subsidiary company network operations. M.J. Maillis is also the only one that uses telesales and e-business. But then again Europal differentiates themselves and concentrates more to the distribution channels offering also advanced system of stock management. The product development is also important to them but the main market of Europal is still Europe.

5) Estimate competitor response patterns

A major objective of competitor analysis is to be able to predict competitor response to market and competitive changes. Their past behavior is also a guide to what they might do. Market leaders often try to control competitor response by retaliatory action. These are called *retaliatory* competitors because they can be relied on to respond aggressively to competitive challengers. The history, traditions and managerial personalities of competitors also have an influence on competitive response. Some markets are characterized be years of competitive stability with little serious strategic challenges to any of the incumbents. This can breed *complacency* with predictably slow reaction times to new challenges. Another situation where competitors are unlikely to response is where their previous strategies have restricted their scope for retaliation. They are called *hemmed-in competitor.* A fourth type of competitor may response *selectively*. Because of tradition or beliefs about the relative effectiveness of marketing instruments a competitor may respond to some competitive moves but not others. A final type of competitor is totally *unpredictable* in its response pattern. Sometimes there is a response at other times there is no response. (Jobber 1998, 500-501)

ITW's decentralized and flexible operation structure is the foundation for their success. Their lean structure gives the individual business unit leaders the power to direct each operation at the local level. Even with a reputation as a conservative ITW is always pursuing a new and better

way. Within each business ITW devote the majority of their resources to the 20 percent of customers who represent 80 percent of revenues. This discipline keeps them focused on customer satisfaction and streamlines operations across the board. For the customers who fall outside of the core 80/20 focus, ITW continues to provide support and product, but most often through less customer-service intensive ways. In 2003, ITW continued to evaluate their strong pipeline of potential acquisition targets with the same mindset. (ITW 2003; ITW Annual Report 2002)

As was said earlier Paul & Co. is going to concentrate to develop the Central and Eastern markets through Halaspack Rt.

M.J. Maillis aims to continue its research conducted to produce new high-quality packaging products and modern technology, to improve production methods, to use of recyclable raw materials which lower considerably the cost of production. M.J. Maillis have decided that 2003 would be a year of full utilization of the already existing infrastructure, of increase in its productivity, of reduction of its expenditures, and in general, a year of “tidying up” of the existing installation and processes. In spite of the above, the company is intending to invest in projects on environmental protection, energy savings, staff health and safety matters, fire safety and protection as well as in productivity and quality enhancing projects. Having built a most powerful base in Europe, the objective is now the implementation of selective strategic acquisitions with immediately utilizable synergies. The key objective is to transfer the successful strategy and know-how of the Group to the North American market. In 2004, the company shall first take stock of the gradual recovery of growth rates internationally, shall then re-launch its “aggressive” investment policy and shall promptly draw up its corresponding investment plan. (M.J. Maillis 2003)

Europal is setting a trend which will also drive their continued expansion with a multitude of investments, further restyling of their corporate identity and innovative product developments. (Brochure of Europal)

ITW's response pattern can be expected to be *retaliatory* as they are one of the market leaders and a strong company. They have resources to respond aggressively and fast but possibly the 80/20 process can put some restrictions. Paul & Co. and Europal can be predicted to be *complacency* because their market areas have a little serious strategic challenges although this markets are very attractive and growing. M.J. Maillis informs quite openly their future emphasis but their respond patter can expected to be a little bit *unpredictable* as they have so much going on so it is impossible to know if they always have time to respond.

6 METHODOLOGY OF THE MARKETING RESEARCH

This chapter presents the methodology that is used for the marketing research of the household appliance companies packaging solutions, buyer behavior and concentration in the field.

The marketing research of the household appliance companies and their packaging solutions has been carried out according to the *Marketing Research Process Model* that is introduced in the book of **Moutinho** and **Evans** *Applied marketing research* (1992, 10). Below the Marketing Research Process Model is presented and the stages of this research from one to five. Stage six is presented in the chapters ***7.2** Results of the marketing research*.

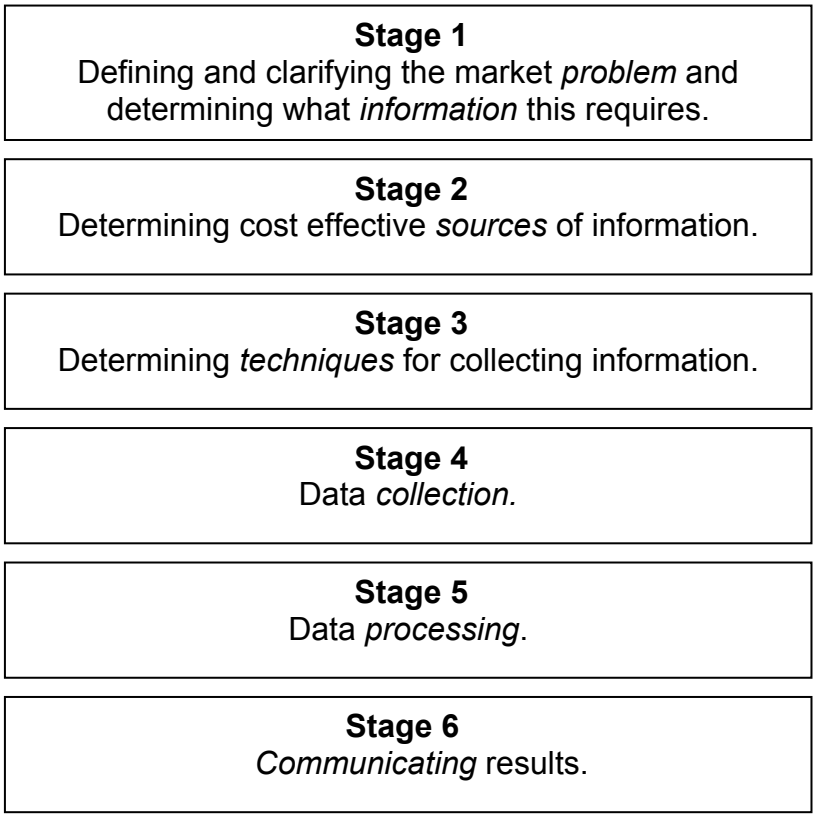


Figure 19. The Marketing Research Process Model (adopted from Moutinho & Evans 1992, 10)

6.1 MARKET PROBLEM AND REQUIRED INFORMATION

The market problem of the research is to find out how the case companies act in the markets and how they evaluate the packaging materials and solutions. This is examined through the buyer behavior, innovation adoption, regulatory issues and environmental factors. The case company Eltete TPM Ltd wants to sort out the market potential of their recyclable cardboard transport packaging solutions compared to wood and so clarify their future prospects.

The information that was required for the marketing research were then: *how the potential customers pack their products now, how satisfied they are with their current packaging, what are the buying and supplier criteria for the transport packaging, what are the attitudes toward a new transport packaging solution, how important are the environmental matters and what are their believes of the future of transport packaging*. The complete questionnaire and covering letter can be found as **Annex III.**

6.2 SOURCE OF INFORMATION AND COLLECTING TECHNIQUES

The subject that has been chosen to the marketing research is *the household appliance companies* in Europe because they already have noticed the importance of recyclability and they need to use protective transport packaging for their vulnerable products. The information that is gained from this branch can then be cautiously extended to other branches.

The household appliance companies that were chosen are *The Bosch Group* origin from Germany, *The Electrolux Group* origin from Sweden**,** *Merloni Elettrodomestici* origin from Italy and *Whirlpool Corporation* origin from United States. The detailed presentation of the companies can be found from the chapter ***7.1*** *Presentation of the case companies*.

The required information has been obtained from the secondary data sources like the companies' home pages and newspapers. The primary data source has been the household appliance companies and the collection technique was decided to be a postal questionnaire to be able to cover a large geographic area as the subject companies are foreigners and it would have been too expensive to make personal interviews. The filled questionnaires were decided to get back by fax as most of the daily correspondences are still gone through by fax and this is an easy and cheap way for all. The right person to answer the questionnaire was the Packaging Manager or person in charge.

6.3 DATA COLLECTION

The questionnaire was first tested inside Eltete TPM Ltd. All related persons for this business area as CEO, Sales and Marketing Director, Sales Manager and Production Manager have given their comments to it. Also the questionnaire was sent first only for one household appliance company to get a view if the answers give enough information. After testing the questionnaire it was sent to all chosen household appliance companies at the same time with a covering letter and some brochures giving more information about the new Eltete TPS - Framepack solution.

This kind of marketing research is a field research, which means obtaining real time and new information. The questionnaire was sent to all chosen household appliance companies and their subsidiaries. In order to be easy to answer the questionnaire the questions were all close-ended or had an interval scale, which gave the degree of importance of the question. The research is qualitative which means that it tends to research the target as comprehensive as possible. The aim is to find out facts that will affect the research area in the future, not verify information that already exist.

6.4 DATA PROCESSING OF THE MARKETING RESEARCH

As was said earlier the questionnaire was sent to all offices and subsidiaries of the chosen household appliance companies because it was impossible to get information by telephone or e-mail who were responsible of the packaging decisions and where they were located. Via the offices in Finland one contact person in two of the companies was reached and they gave a few contacts more. From one of the companies came no respond though they already are customer of Eltete TPM Ltd's products but not yet Eltete TPS - Framepack solution. Sending postal questionnaires there is no guarantee that the respondent is the addressee, since the questionnaire may be completed by another member of the organization. The single most significant problem usual in postal surveys is a low level of response – it is all too easy for the respondent to ignore a postal questionnaire (Moutinho 1992, 26).

Concerning this research the questionnaire was answered by Packaging Engineers and Packaging Managers. The level of response was low compared to the sent questionnaires but the persons responsible of the packaging decision were nevertheless only located to particular places not every office or production plant. As one of the companies is already customer of Eltete TPS – Framepack solution in one country and negotiating in another the questionnaire was not send to them to avoid disturbing the testing and negotiations. All of the companies have different responsibility models for the packaging decisions. Electrolux has in all of their units their own responsible for packaging decisions. Merloni has only one person responsible for packaging decisions for the whole of Europe and he is located in Italy. In Whirlpool they have one person responsible for one product selection. In Italy is located the responsible of packaging decisions of departments of refrigeration and cooking and in Germany departments of washing and dishwashing. Whirlpool also has a person as regards the compliance to the European Packaging Directive provision.

Validity of the research tells if the research measures that what it is supposed to measure. Validity is good when the target group and questions are right. Reliability of the research is good when the results of the research are not haphazard. Meaning that if the research would be made again in the same conditions the results should be the same. (Lahtinen & Isoviita 1998, 26.) The validity and reliability of the performed marketing research can be said to be good as the persons who answered the questions were from the packaging departments even though few questionnaires were sent back, the questions showed how the household appliance companies are thinking and acting and if the research would be made again the results should be similar. The target group was not perfect what it comes to the research objective replacing wooden transport packaging by cardboard as household appliance companies are not using wooden frames but EPS protection but they are still using wooden pallets and has so experience in wood.

7 ANALYSIS OF THE MARKETING RESEARCH

There was quite little information available concerning the industry of household appliances but below follows the information that could be found from the researched companies' homepages and a few other resources. After that follows a short introduction of the researched household appliance companies and the results of the marketing research.

The market for white goods are largely regional, thanks to high transport costs and different tastes (The Economist 2002, 93). The world-wide market of household appliances is 240 millions units (Merloni 2003) and the European appliance market in 2002 was estimated at a total of 68,9 million units, excluding microwave ovens. Western Europe accounts for 53,4 million units and the United States market for core appliances amounted to 41,7 million units in 2002. (Electrolux 2003.) For years, almost all appliance industry participants have been executing similar strategies that have been focusing on lowering the cost and improving the quality of products, while expanding distribution and increasing the competitive share of display space on the retail floor. (Whirlpool 2003.)

There are a number of environmental aspects that are common to all white goods, such as the manufacture of the white metal cabinet, the degree of reparability and durability, recovery at end of use, packaging, consumer education and noise in operation (Datschefski, 1999). Packaging of white goods and similar products is a demanding task, requiring a combination of economy and strength, which ensures that the fragile products are perfectly protected (Brochure of Eltete TPM Ltd 2003, 6). Typically, large products, such as refrigerators or stoves are placed onto a pallet, edgeboards are installed and the unit is wrapped. The advantages are less material is used to protect the product and material handlers can see what they are moving, thus taking more care. (Witt, 1997.)

7.1 PRESENTATION OF THE CASE COMPANIES

The name of **Bosch** is closely associated with the automotive industry but Bosch is not just famous for automotive technology products. Bosch also supplies many other products and services, including industrial technology, power tools, security solutions and household appliances. With sales of approximately EUR 35 billion in 2002, Bosch is one of Germany's largest industrial enterprises, with a significant international presence. At the beginning of 2003, a total workforce of some 224 000 was employed in the three business sectors. *BSH Bosch und Siemens Hausgeräte GmbH*, a joint venture in which *Bosch* and *Siemens* have equal holdings, is the German and European market leader for electrical household appliances. With its main brand names *Bosch* and *Siemens*, and a brand portfolio including the *Constructa, Gaggenau, Neff, Thermador* and *Ufesa* names as well as eight regional brands, BSH generated 73 percent of its sales abroad in 2002. The company produces at 42 locations in 15 countries in Europe, The United State, South America and Asia. At Bosch, the relationship between environmental protection and entrepreneurial action is one of harmony. Environmental protection has been a corporate principle of the Bosch Group since 1973. (Bosch 2003)

Electrolux is the world's largest producer of appliances and equipment for kitchen, cleaning and outdoor use with sales of SEK 133 billion (EUR 14,7 billion) and average number of employees 81 971. Electrolux is also one of the largest producer in the world of similar equipment for professional users. In 2002, *Consumer Durables* accounted for 80 percent of Group sales and *Professional Product* for the remaining 16 percent. Consumer Durables comprise mainly white goods, like refrigerators, freezers, cookers, washing machines, dishwashers, room air-conditioners and microwave ovens. Electrolux is the leading whitegoods company in Europe and Australia, and has substantial market shares in the United States, Brazil, India and China. Sales of white goods in 2002 rose to SEK 85 929 million (EUR 9,5 million). The Electrolux mission is *to be the world*

leader in profitably marketing innovative product and service solutions to real problems, thereby making the personal and professional lives of their customers easier and more enjoyable. (Electrolux 2003)

Merloni Electtrodomestici is among the top three manufacturers of refrigerators, cookers and washing machines in Europe, behind Bosch and Electrolux, producing and distributing more than 12 million units throughout Europe each year with its main brands: *Ariston, Indesit* and *Scholtès*. Merloni Elettrodomestici is now an enterprise with 20 000 people working in 21 countries and is Europe's third largest manufacturer of household appliances, with a 15 percent slice of the market, the number one position is firmly in sight, a few points from the market's top. Creation of value continues to be their mission on the future and the vision is *to be European leader in producing innovative solutions, to create, day after day, the quality of time*. (Merloni 2003)

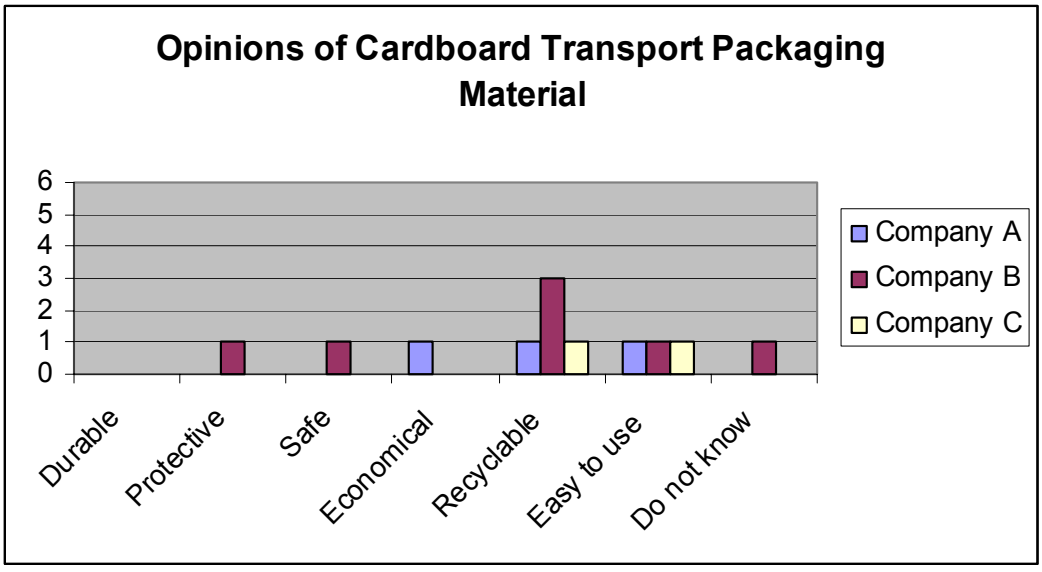
Whirlpool Corporation founded in 1911, is the world's leading manufacturer and marketer of major home appliances. The company manufactures in 13 countries and markets products in more than 170 countries under major brand names such as *Whirlpool, KitchenAid, Roper, Estate, Bauknecht, Ignis, Laden, Inglis, Brastemp* and *Consul*. In 2002 the full-year net sales of Whirlpool were USD 10,3 billion (EUR 9,45 billion) and the number of employees were 59 408. Whirlpool has a number one position in the industry in North America and Latin America, number four position in Western and Central Europe and is a leader among Western companies in Asia, with number one market position in India. The goal of Whirlpool is *a Whirlpool product on every home*. (Whirlpool 2003)

7.2 RESULTS OF THE MARKETING RESEARCH

The results of the marketing research and analysis of the answers follows below. All the companies have been renamed as Company A, B and C and these are in random order to keep the confidence of the information got.

The results of the marketing research and the experience of Eltete TPM Ltd shows that household appliance companies are all using most EPS protection to pack their products. Some of them are also using cardboard trays or boxes and PE shrink film. Every one of the household appliance companies has been quite happy with their current packaging though Company A and C say that the packaging is a little bit expensive and Company C that it is also unprotected and not durable. Most of the companies prefer EPS but also cardboard, plastic and shrink film was preferred. From the companies where also asked opinions of cardboard transport materials and the answer can be found from the table below. The respondents could choose as many qualities as they wanted and number the columns show how many of the respondents chose the quality in question divided by company by company.

Table 4. Opinions of cardboard transport material

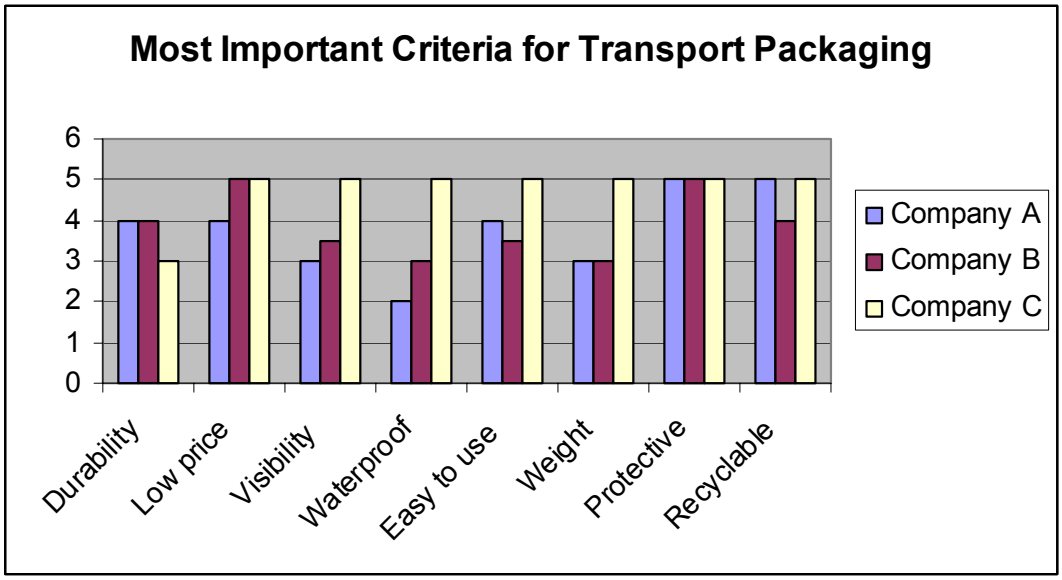


As can be seen all of the companies think that cardboard is easy to use and all of the respondents except one who did not know cardboard that it is recyclable which is true as cardboard is 100 percent recyclable. Company A also thinks that cardboard is economical and Company B that it is protective and safe. Nobody thought that cardboard is “durable” as none chose that one. This choice was not surprising as none of the respondents use cardboard they do not know that cardboard is even more durable than EPS what they are using because cardboard can take knocks but EPS cracks and then the packaging is not any more protective. From the picture below can be seen how easily EPS can be damaged during the transportation caused by too soft packaging and careless handling. This could have been avoided by using Framepack consisting of edgeboards in the corners.

Figure 20. Damaged EPS transport packaging (Eltete Marketing material – Helkama Forste summary)

From the table on the next page can be seen how important the given factors for transport packaging were. The respondents had to indicate the importance of each criteria using the scale from one (1) *not at all important* to five (5) *very important*.

Table 5. Most important factors for transport packaging

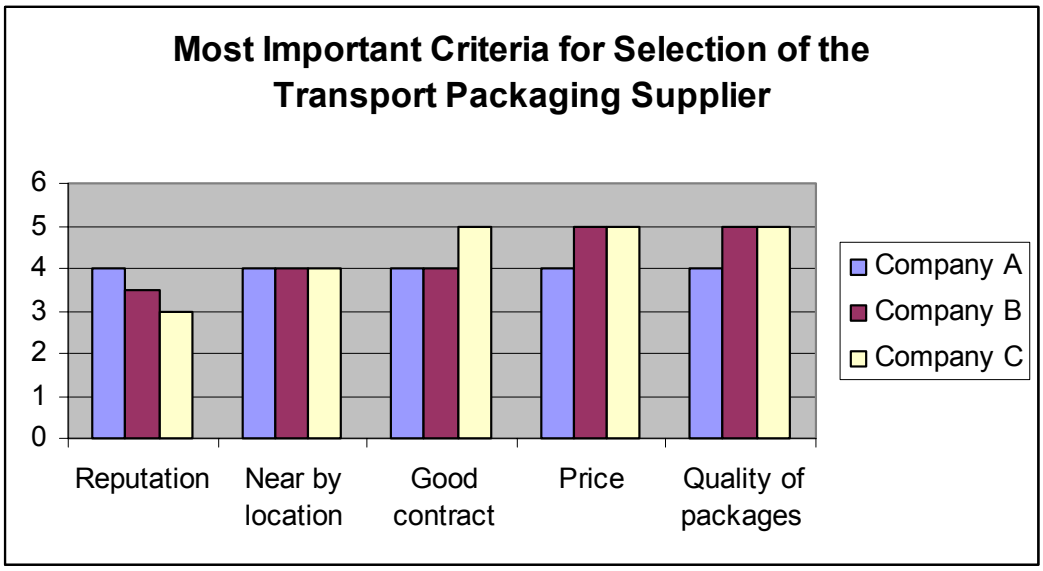


Quite clearly the most important criteria for transport packaging is protection as all of the companies have unanimously selected it to be *very important*. Other criteria that are *very important* and got back up from most of the respondents are recyclability and low price. Weight has not been so important criteria but it should be as the transportation costs are all the time rising and light products/packaging could also be transported by air. Company A does not care so much of the waterproof or visibility but durability and easy to use are *quite important* criteria for their transport packaging. Neither Company B does keep *important* waterproof but then again durability. Company C keeps *very important* all of the criteria except durability which is strange as usually the damaged packaging of household appliances have to be returned back to the factory and then again returned. Durable packaging would prevent the damages and save costs from repackaging and returning.

Concerning the packaging principles in Company A their factories pack their products and the decisions how the household appliances are packed are made by the Technical Manager and he also seeks the supplier for the transport packaging. In Company B their own packaging

department packs their product and the Packaging and/or Technical Manager decides how the household appliances are packed. Company B uses the central Procurement Manager to seek a supplier for the transport packaging. Own packaging department is also used in Company C to pack their products and the packaging decisions are made by the Technical Manager or by project teams for basics. Supplier for the transport packaging is sought by the Technical Manager. From the table below can be seen how important the given factors for selection of the transport packaging supplier were. The respondents had to indicate the importance of each criteria using the scale from one (1) *not at all important* to five (5) *very important*.

Table 6. Most important factors for selection of transport packaging supplier



As can be seen the most important criteria for selection of the transport packaging supplier are quality of packages and price and then good contract as almost all of the companies have selected these *very important* or near to it. Near by location also is *important* for all. Reputation of the transport packaging supplier does not play so vital role to company

C. It is quite obvious that price and quality of packages are one of the most important criteria as everyone has to cut costs to be competitive and the vulnerable household appliances need protective packaging.

To the household appliance companies were also send brochures and pictures of Eltete TPS - Framepack solution. Majority of the companies thought that *quite likely* the new solution could be a possible solution for them but a few thought that *not likely* as they think it is too expensive though one state that they are flexible if the solution pays itself back in one year. Only one company saw that there would be some obstacles to change to a new transport packaging solution which could be the price, quality, packaging release test and packaging process.

All of the companies see the environment *very important* or *quite important* and think that recyclable transport packaging could bring some additional value to the company or products but they did not name what. The recyclable image is *very important* to all. The regulations or directives that the companies are following are Packaging and Packaging waste directive 94/62/EC, CEN standards and Whirlpool prohibited material list in Whirlpool, Packaging directive in Merloni and CEN standards in Electrolux.

The household appliance companies assess that transport packaging is going to be more ecological, durable, cheaper and also reusable in the future. Though most of them think that it is going to be mainly EPS or reusable plastic but someone also assess that it is going to be cardboard. Company C foretells that it is going to have less components and material but still being a robust design. That is true and the statement is just as the description of Eltete TPS - Framepack solution. Majority also thinks that cardboard transport packaging material will replace wooden transport material *quite* or *very likely* in the future but a few still thinks that *not so likely*. The companies were also asked questions if they agree or disagree with nine given arguments. The answers can be found below by divided to

company by company and the arguments from the questionnaire as **Annex III**.

Company A says that they *possibly* would like to change to a new transport packaging solution which *possibly* could be Eltete TPS - Framepack solution but probably it would not be easy to change. They think that their whole supply chain should have the same transport packaging solution. Company A sees the importance of EU Packaging directive and believes that EU will regulate more about recyclability of transport packaging in the future. They *do not* believe much that the use of wooden transport packaging will be forbidden in the future or either that it would be replaced by cardboard.

Company B would *possibly* like to change to a new transport packaging solution which *could be* Eltete TPS - Framepack solution but they think that it would not be so easy to change to a new solution. They do not see important to have the same transport packaging solution to their whole supply chain. They state that EU Packaging directive is important and they believe that EU will regulate more recyclability in the future. Company B thinks that wooden transport packaging will *possibly* be forbidden in the future and cardboard transport packaging could replace wooden transport packaging.

Company C *would like* to change to a new transport packaging solution which *possibly* could be Eltete TPS - Framepack solution. This is not surprising as they already are using this in few countries and got good results. They think that it also would be easy to change to a new solution. Company C sees it important that their whole supply chain have the same transport packaging solution. They state that EU Packaging directive is important and believe that EU will regulate more recyclability of transport packaging in the future. They also believe that wooden transport packaging *will be* forbidden in the future and *possibly* that wooden transport packaging material would be replaced by cardboard.

8 SYNOPSIS, IMPLICATIONS AND DIRECTIONS FOR FURTHER RESEARCH

The transport packaging industry is in the middle of great changes. The traditional wooden packaging is confronting major societal forces from many sides and the interest is in environmental trends and events. The direction where the transport packaging industry is heading depends how successfully cardboard packaging manufactures drive their new solutions comparing to wooden, plastic and other manufacturers.

According to the societal forces and the marketing research the customers of transport packaging are requiring higher quality but at the same time lower prices. The higher quality means here protection, strength and recyclability. Concerning wooden materials these protect well, are strong but not recyclable. Cardboard materials protect well and are also recyclable. It is just a question of peoples mind to change the way of thinking that cardboard is also strong and durable enough. All what is needed to see this are simple tests but this of course requires time and some investments. Cardboard is also price sensitive as it reduces the material in use, saves costs in transportation and in stocking. These factors would support the use of cardboard instead of wood and would be in consensus with all the customers' requirements except the little investment needed for assembling equipments.

The environmental trends also drive to the change of transport packaging industry. Manufacturing plants come more automatic all the time as also the packaging lines which requires again light-weight packaging materials and faster installation solutions. This affects, of course, to the materials that can be used. Governmental trends are the most significant change promoters in the packaging industry at the moment. For example, mandatory recycling laws have given to the industry a major boost and spurred the creation of dozens of new companies making new products from recycled materials. Because of the new standards the markets are

growing faster. The directive 94/62/EC on Packaging and Packaging Waste has provided a solid foundation for recycling laws and standards and the international standard for phytosanitary measures tighten further the requirements. Recyclability of packaging is also in interest of manufactures and wholesalers because packaging collection and disposal costs became charged on them. They are now in a hurry finding new materials and solutions to change the industry more ecological and economical. The business culture and buyer behavior is also driving the change of packaging industry. The new generation is more educated and aware of the environmental factors like material consumption and disadvantages of reusing compared to recycling. This means changes in buyer segment served and in buyer behavior. Also the marketing research revealed that customers of transport packaging are requiring recyclable materials and solutions. Majority also thinks that cardboard transport packaging material will replace wooden material quite or very likely in the future.

The driving forces in transport packaging industry also refer to the change of the industry. The long-run changes in growth factors like change in the relative position of substitutes affects positively to the cardboard materials. At the moment the price of wooden materials are increasing because of these have to be treated against pests and insects. This gives a competition advantages for cardboard materials and a reason to look for new possibilities. Light cardboard pallets give a possibility to penetrate to a new customer groups like to customers using air-freight. The old segment forces also to develop the product, its use, and characteristics because buyers accumulate knowledge about it. They want to reduce the packaging in use, they want it to be recyclable and not to keep it in stock. This all force to changes in the product or in the whole industry. As soon as the uncertainty of cardboard's characteristics reduces, meaning the strength and moisture, it can be the leader of the industry change. Over time, diffusion of proprietary knowledge and accumulation of experience will be more available which will attract competitors but at the moment

companies trying to produce cardboard pallets with bad success will only destroy the reputation of cardboard products. It would be extremely important to come to the market with a strong and durable model of cardboard pallet because of cardboard already is kept weak. New innovations both product and process innovations are great promoters for industry change.

The characteristics of the new Eltete innovations give also positive impressions and support the industry change. Relative advantage, compatibility, complexity, trialability and observability are all positively associated with its rate of adoption. Introducing the new cardboard innovations there also lie some risks in a set of conditions. These conditions can reflect a rather basic lack of understanding of buyer behavior in industrial markets. Problems can arise from underestimating of the amount of marketing effort required to generate the expected revenue level, underestimating of the amount of new investment required on the part customers and the extent to which present production technology is made obsolete, and inadequate understanding of the buying process and influence patterns within customer organizations leading to underestimation of the amount of time required for evaluation and trial by each customer. It would be very important to listen and support the customer from the beginning though it will require a lot of time and patience. It will not be easy to change from wood to cardboard materials.

It is sure that the transport packaging industry is going to change and it is going change more ecological. Cardboard packaging solutions are going to do away with wood but this is going to require a lot of work and hard commitment. Though the international standard for phytosanitary measures is already in force it is going to take time before it will be followed 100 percent. Companies will ignore it as long as they will be forced to change because this is also a question of investments. When the packaging industry starts to change from wood to cardboard it will require also improved recycling and handling stations. However, increased use of

cardboard packaging will reduce the need for felling trees and so will help maintain the ecological balance, which is vital for the health and wellbeing of future generations.

Concerning the future research of this sector it would be interesting to investigate how long it have taken that the whole industry is following the restrictions of the wooden materials or if these never come totally in force. Especially it would be interesting to know how many have changed from wood to cardboard and what were the other possible solutions. Concerning the case company Eltete TPM Ltd it would be interesting to know if it managed to became the market leader of the innovative cardboard solutions in the global markets and what their competitors have done.

9 CONCLUSIONS

Packaging and especially transport packaging really has become a particular focus of green concern and it has been it for at the least last ten years. Though EU Packaging Directive has been forced since 1994 and Packaging Regulation became effective as early as 1991 the industry did not start to take measures until recent years when packaging collection and disposal costs became charged on manufacturers, wholesalers and retailers. That has been and is driving the industry to sort out how to reduce packaging and better its recyclability as also the amount of suitable space in which waste can be buried is diminishing which affects to the costs of landfill dumping.

Pressures going green are enormous as it is pressed from three different directions. Environmental politics are launching new environmental legislation, consumers are demanding for greener products and competitors seizing competitive advantages by improving their environmental performance. Yuva is right writing (2003) that packaging does play a vital role in the supply chain from the selection of the raw materials to its final disposal. Especially when domestic supply management organizations reach out globally, they will be subjected and expected to adhere to strict packaging regulations and fees. Packaging can serve many purposes for organizations. However, those purposes should serve not only the organization and its end users but the environment as well. The image of packaging has changed from cost-adder to value-adding design.

Also the markets are growing bigger and more international all the time. This sets great challenges and requirements for packages, packaging, materials and logistics. Current packaging trends dictate that the field should develop its own values, in which materials and recyclability dominates. The recycling rates set by EU are high but the Packaging Directive has already produced good results. Keeping in view the need for

ecological balance, the corrugated packaging industry has supported the development of non-conventional raw materials as well as use of waste paper in the manufacture of its major raw material – kraft paper. The corrugated packaging industry has been effectively and completely meeting the packaging requirements of the industry both for domestic need and for export. Also the costs of raw material, production and transportation promote the use of cardboard. It also has been indicated that recycling systems reduce environmental impact more effectively than reuse.

Of course it is not feasible to replace all wood in packaging but in many cases a modern recyclable cardboard solution can do the same job. Current enhancement to materials such as solid fiber and corrugated will make these products attractive choices in the future. A solution in accordance with current recycling philosophy projects a good corporate image as well as reflecting a company's ability to react to change. Corrugated shipping platforms and pallets are easy to custom design, ergonomically safe and often manufactured from recycled material. Wooden pallets in transport applications and the external logistics chain will gradually be phased out due to their weight, shipping, storing, high handling costs and need to treatment against pests and insects. Especially when the costs increasing standard for phytosanitary measures comes into force requiring that all solid wood packaging has to be treated and marked will drive the industry towards non-wood materials as Eltete PallRun pallets and Eltete TPS Frame-packaging.

Also the marketing research showed that one of the biggest industries, the household appliance industry, is already environmentally oriented as they are taking into consideration the degree of reparability, recovery at end of use and packaging. In Bosch Group environmental protection has even been a corporate principle since 1973. All of the researched companies are following some of the environmental regulations or directives believing that recyclability can bring some additional value to the company.

Whirlpool even has a person as regards the compliance to the European Packaging Directive provision.

The research also showed that the household appliance companies do not have so many decision makers for packaging matters and one of the companies has only one responsible for that which is an advantage to Eltete TPM Ltd. It could be expected that this is the same in other big industries. At the moment most of the household appliance companies prefer EPS protection but as was seen they do not know the qualities of cardboard as a protective transport packaging but as was showed cardboard is even more protective than EPS. Cardboard is also 100 percent recyclable but EPS is not and one packaging of household appliance requires a lot EPS which cannot be disposed ecologically or economically.

The markets of household appliances are very big and what is positive is that Eltete TPS Frame-pack solution was well received by all of the companies. Now they should be given more information and visited to introduce the solution more precise. One of the companies is already using Eltete TPS Frame-pack solution in one of their plants which is a good reference to their other plants. The two other companies were also showing interest to change to that. Two out of three of the researched companies also believe quite strongly that wooden transport packaging material will or possibly will be forbidden in the future and cardboard could replace it.

Considering the competition situation of Eltete TPM Ltd the only thing that the competitors have got better at first was the location being in the middle of Europe but now Eltete TPM Ltd can be found almost everywhere in the world. The presence of competition has benefited Eltete TPM Ltd in the way trying to improve the markets, finding new methods of applications, finding new customers and developing products. The negative effect that the competition has at the moment is the combat of the same customers

which forcibly contributes to the worldwide prices as not all of the competitors have resources to differentiate themselves from others. The competitor analysis showed that Eltete TPM Ltd is financially a little bit weak but the product quality, technical assistance and the innovativeness will give powerful tools to compete on the tighten market areas. Eltete TPM Ltd has a strong market position at the moment but it is still best to start and continue the concentration and specialization on total transport packaging solutions as the competitors has already started to respond very aggressively especially by lowering prices.

The future looks promising for the corrugated packaging industry as the trend is toward light-weight, low-cost and recyclable solutions. Also the society is requiring that. The information got from the marketing research of household appliance companies can quite easily be extended to other branches as there will be an increasing emphasis on recyclability in the world and cardboard materials will be required to conform to regulations on wooden materials. It has been indicated that wooden transport materials can and will be replaced in most cases by cardboard transport materials. This gives unlimited possibilities to Eltete TPM Ltd to succeed in the requiring markets. The industry change has started from wood to cardboard but it will take time and require powerful tools to win the battle.

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APPENDIX I:

THE ESSENTIAL REQUIREMENTS AND THE CEN STANDARDS - 1

APPENDIX II:

COMMISSION DECISION OF 12 MARCH 2001

APPENDIX III:

THE SURVEY DOCUMENTS

Appendix III, 1: The Covering letter

Appendix III, 2-4: The questionnaire