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ENVIRONMENTAL INNOVATION MANAGEMENT

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The purpose of the thesis is to research innovation management strategies and green marketing strategies. More Specifically the thesis consentrates to discuss the theories of innovation management with focus on models of innovation, conceptual framework of innovation, linear models of innovation, blue ocean strategy and new product development. As a practical example a case study of Durat was conducted and theories of green marketing including research and theories on green consumer and green design.

Todays economies are based on growth and signs for economic decline are being more and more visible as the planets resources for growth are starting to reach their limits. It is undeniably a time for new environmentally friendly innovations. It is a long and sometimes hilly road from an idea to an innovation and to an actual product ,hence the innovation management process is at the core of the thesis. But the innovation itself isn't enough if it goes unnoticed and is placed on a wrong market or fails to reach the target audience of the green consumer. As a conclusion of the thesis research and case study a suggestion for a formula for success is suggested and discussed. The formula is sectioned to three important ingredients that are the green innovation, market and marketing strategy.

The thesis tries to find answers to the following research questions:

- What is needed to turn an idea into a innovation?
- What is the definition of green marketing

KEYWORDS:

Innovation management, green marketing, environment.

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ENVIRONMENTAL INNOVATION MANAGEMENT

(Tämän opinnäytetyön tarkoituksena on tutkia innovaatiojohtamisen ja ympäristömarkkinoinnin strategioita. Tarkemmin sanoen opinnäyte työ käsittelee erityisesti innovaatiojohtamista keskittyen innovaatiomalleihin, innovaatioiden koseptuaaliseen kehykseen, innovaatiojohtamisen teorioihin, niin kutsuttuun Blue Ocean –strategiaan sekä tuotekehitykseen. Teorioita tukeaksemme teimme case-tutkimuksen Durat –yrityksestä, ja mitä?

Nykypäivänä talous perustuu kasvuun, mutta kasvun haasteet ovat yhä selvempiä maapallon resurssien ja kantokyvyn rajojen tullessa hiljalleen vastaan. Tästä johtuen ympäristöystävällisille innovaatioille on valtavasti kysyntää. Usein kuitenkin tie ideasta, innovaatioon ja edelleen kaupalliseksi tuotteeksi on haastava, mistä syystä tässä opinnenäytetyössä keskitymme juuri tähän prosessiin. Innovaatio itsessän ei riitä mikäli se ei pysty erottautumaan kilpailijoista, löydä tietään oikeille markkina-alueille, tai ei saavuta tavoiteltuja ympäristötietoisia asiakkaita. Tämän opinnennäytetyön lopuksi nostamme esiin ja pohdimme kohtia, joihin menestyksekkäässä innovaatiojohtamisessa tulisi keskittyä. Toimiva innovaatiojohtaminen kattaa olme kriittistä osa-aluetta: ympäristöystävällisen tuotteen tai palvelun, markkinat ja markkinointi strategian.

Opinnäytetyömme pyrkii vastaamaan alla oleviin kysymyksiin:

- Mitä idean kehittäminen innovaatioksi vaatii?
- Mitä on vihreä markkinointi?

ASIASANAT:

Innovaatio johtaminen, vihreä markkinointi, ympäristö

LIST OF ABBREVIATIONS (OR) SYMBOLS

WEEE Directive	Waste Electronics and Electrical Equipment
LCI	Life cycle inventory
alternatives erythropoetin or erithropoyetin or EPO, is a glycoprotein hormone	that controls erythropoiesis, or red blood cell production. It is a cytokine for erythrocyte (red blood cell) precursors in the bone marrow. (University of Helsinki 2003)
HTML	HTML, which stands for HyperText Markup Language, is the predominant markup language for web pages.
UNESCO, Unesco	The United Nations Educational, Scientific and Cultural Organization.
GDP	Gross domestic product
CEO	Chief Executive Officer
MRP II	Manufacturing Resource Planning

1 INNOVATION MANAGEMENT

It is often heard nowadays that the only constant is change and it is easy to admit that the claim is undeniably true. Corporations must be able to adapt and evolve if they wish to survive. Olli-Pekka Kallasvuo, the former CEO of Nokia, said during the company's major organizational transformation in the end of year 2007 that a modern business organization must be like a living organism. Businesses operate with the knowledge that their competitors will inevitably come to the market with a product that changes the basis of competition. The ability to change and adapt is essential to survival. Like Christopher Freeman wrote in 1982 in his famous study of the economics of innovation '…not to innovate is to die'. (Trott 2005, 5).

According to the European Commission's Innovation Policy economic globalization has changed the world economic order in a remarkably short period of time, bringing new opportunities and new challengies. To compete, Europe must become more inventive, react better to consumer needs and preferences and address global and environmental challengies by innovating more. Innovative products and services are a key boost to Europe's competitiveness and growth. The first ever Innova conference was held in Valencia in November 2006 and the clear message of the conference was that if Europe was to maintain its status as a major industrial power it would have to innovate. Günther Verheugen, the European Commissioner for Enterprise and Industry and the Vice President of the European Commission, states that Europe can't compete with cheap labour or natural resources – it has to gain its leadership by knowledge and creativity. Europe must utilize its key competences in order to be the most innovative and technologically advanced economic region in the world and a forerunner in environmental sustainability and social responsibility. Innovations can, and should, exist in all sectors of business, that is to say from traditional industries like the ceramics to

information and communication technology. Innovativeness must be supported and promoted with, for instance, creation of industrial clusters, developing standards, knowledge sharing and networking. Innovations require money and all above mentioned practices help to make full use of resources and to spread the knowledge all over Europe, and the world. The future of European economy depends on the resources used for education, qualification, training, research and technological development and innovations. Innovation was also defined a major part of he Lisbon Strategy for growth and jobs, that was originally launched in 2000 and relaunched in spring 2005. The Lisbon Srategy was set out to make Europe more dynamic and competitive for the future. One ambitious objective among the many set by the Lisbon Strategy is to increase research and development spending to 3% of GDP.

(http://ec.europa.eu/enterprise/innovation/index_en.htm)

The European Commissioner responsible for Science and Research Janez Potočnik has stated the following about his role: “My objective is to improve the situation for research and researchers in the European Union. Research leads to knowledge and Europe needs new knowledge for growth and for enhanced quality of life in a globalized world.”

(http://www.innovaatiostrategia.fi/files/download/FINAL_program_mobilisingknowledge2912008-20080128.pdf)

That is a very clear, yet thorough statement and truly applicable to Finland as well as the other member states. Finnish Ministry of Employment and Economy in cooperation with other key actors of the national innovation system have put together a substantial national innovation strategy which follows the principles set by the European Union. In Finland’s future strategy, expertise and innovations are playing an increasingly important role.The task of the national innovation strategy is to create the preconditions for a broad-based innovation

policy within Finnish society, to ensure the international competitiveness of our innovation environment, and to promote the creation and introduction of innovations. The strategy will define the package of policies and choices that will make the Finnish innovation environment one of the best in the world by 2015. Moreover, the strategy in hand will define the procedures whose implementation will be necessary by 2011.

Globalization has an increasing impact on the innovation strategy of European economies, whose traditional innovation and competitive strategies must be adapted to accelerateing global circulation of people, goods, capital, knowledge and technology. While Finland has evidently benefited greatly from globalization over the past decade, future success recuires new, active approach to innovation and globalization. The new national innovation strategy has broadened the base of Finnish innovation activities and recognizes also that the delivery of the objectives necessitates the expansion of innovation policies towards services, social innovations and the development of public sector. The goal of the national innovation strategy is to ensure the continued global competitiveness of Finnish industries and jobs, create favourable conditions for sustainable economic growth and well-being.

(http://www.innovaatiostrategia.fi/files/download/FINAL_program_mobilisingknowledge2912008-20080128.pdf)

1.1 THEORIES OF INNOVATION MANAGEMENT

Innovation is a vastly used term, but it doesn't necessarily mean that its meaning is well understood. It can be seen as a single event or as a process. Innovation is very often used synonymously with invention, but the two words are not interchangeable. It is essential to understand and to distinguish these terms hence clear definitions will be provided next.

Both innovation and invention are very intricate concepts that can be understood in a variety of ways. Kotler (2002, 409) describes invention as “a new technology or product that may or may not deliver benefits to customer” whereas innovation is “an idea, service, product or technology that has been developed and marketed to customers who perceive it as novel or new “. Kotler adds that an innovation “is a process of identifying, creating and delivering new product or service values that did not exist before in the market place”. One of the more comprehensive definitions of innovation is offered by Mayers and Marquis in 1969: Innovation is not a single action but a total process of interrelated sub processes. It is not just the conception of a new idea, nor the development of a new market. The process is all these things acting in an integrated fashion. (Trott 2005, 14-15) Innovation is concerned with the commercial and practical application of ideas or inventions. Invention, then, is the conception of the idea, whereas innovation is the subsequent translation of the invention into the economy. (US Dept of Commerce, 1967). Paul Trott’s simple equation clarifies the relationship of the two terms:

Innovation

=

theoretical conception

+

technical invention

+

commercial exploitation

The starting point for innovation is the conception of new ideas. However, a new idea itself is neither an invention nor an innovation; it is merely a concept or a thought or collection of thoughts. The process of converting intellectual thoughts

into a tangible new artefact like a product or a process is an invention. Science and technology typically play a significant role in this phase. These inventions need to be further developed in order to turn them into products that will actually improve company performance. These later activities represent exploitation. However, it is the complete process that represents innovation. This introduces the notion that innovation is a process with a number of distinctive features that have to be managed. Hence, innovation depends on inventions but inventions need to be harnessed to commercial activities before they can contribute to the growth of an organization. As a result, innovation is the management of all the activities involved in the process of idea generation, technology development, manufacturing and marketing of a new or improved product, manufacturing process or equipment. This definition of innovation as a management process also offers a distinction between an innovation and a product, latter being the output of innovation. (Trott 2005, 14-15).

Not all innovations are similar. According to Trott (2005) a rough classification can be made between major, or radical, and minor, or incremental, innovations. This implication is derived from the notion that many technological innovations necessitate additional managerial and organizational changes, which are often referred to as innovations. Consequently the concept of innovation becomes incoherent, and thus opaque. Innovation is the application of knowledge (Trott 2005, 17), and this notion constitutes the fulcrum of all types of innovations from products to processes. It is also rather evident that one type of innovation often leads to another type of innovation, i.e. a product innovation nurtures proc ess innovation, for instance, forgeing a so called industry innovation cycle

Table 1

Typology of innovations

Typology of innovations	
Type of innovation	*Example*
Product innovation	The development of a new or improved product
Process innovation	The development of a new manufacturing process
Organizational innovation	A new venture division; a new internal communication system
Management innovation	TQM (total quality management); BPR (business process re-engineering; introduction of SAP/R3*
Production innovation	Quality circles; just-in-time (JIT) manufacturing system; new production planning software, e.g. MRP II; new inspection system
Commercial/Marketing innovation	New financing arrangements; new sales approach, e.g. direct marketing
Service innovation	Internet-based financial services

* SAP is a German software firm and R3 is an Enterprise Resource Planning (ERP) product.

(Trott 2005, 16)

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1.2 Models of Innovation

Even though cartoons and children's books are full of characters like Gyro Gearloose of Disney and Snork in the Finnish Moomin series, neither inventions nor innovations are usually serenpidities. Parts of the procress may be favoured by good chance, but luck alone is not enough usually. Accroding to Trott (2005, 22) the US economists were the ones to introduce a so-called linear model of science and innovation after the Second World War. Its advantage is its simplicity and greatly because of it the model is still commonly used on explaining how innovation occurs. It was perceived as superior for decades until

in the 1980's academics started to challenge the sequential linear process. Trott further explains that recognizing that innovation occurs through the interaction of the science base, technological development and the needs of the market has been great progression. These three elements form the basis for innovation models even today. The three elements are not undebated but well acknowledged (see table 2: Conceptual framework of innovation). In the end, it all comes down to execution and detail. It has been recognized that the United States have succeeded in creating seemless collaboration between innovative companies and various universities. On the contrary, European Union has not beamed in this field. The universities in various member countries of the European Union have not managed to build as effective links with the industry as their equivalents across the Atlantic.

Table 2

Conceptual framework of innovation

Creation of new knowledge, dominated by unoiversities and large science-based organizations.	Technology and development, dominated by organizations.	Consumers express their needs and wants through the consumption of products.
Science and technology base	Technological developments	Needs of the market

(Trott 2005, 23)

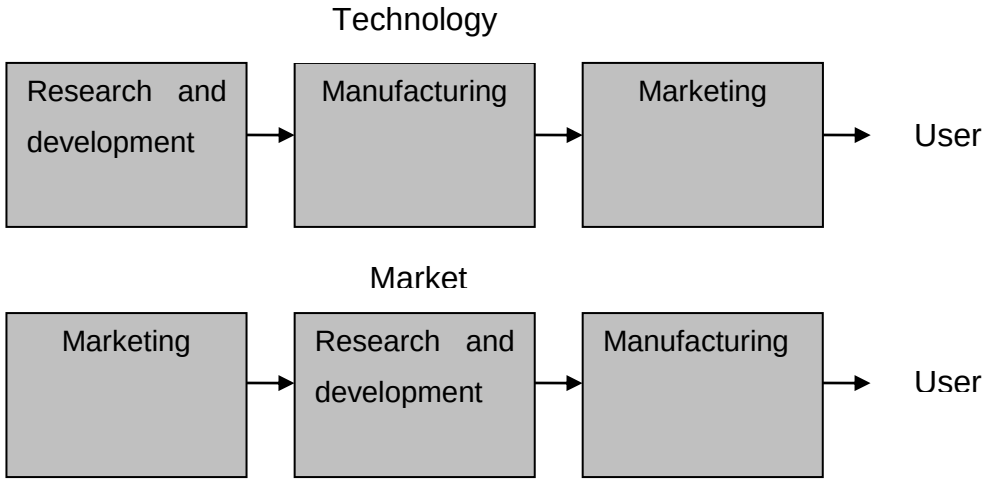
The conceptual framework of innovation portrays how the innovation process has (Trott 2005, 23) traditionally been seen as a sequence of separable stages or activities. However, the process is not necessary similar in all circumstances.

There are mainly two separated models: first one is the technology-driven model, which is commonly referred to as “technology push” model. This model is based on the assumption of scientist making unexpected discoveries that are further applied for developing new product idees by technologists, followed by engineers and designers turning them into prototypes for testing. Manufacturing is given the task of creating effective ways of manufacturing the products. In the latter part of the process, marketing and sales deliver their value added by promoting the product to the potential consumers. The key notion in the so-called “technology push” model is that the marketplace did not play an active role in initiating the product but acted solely as a passive recipient. R&D performed the initiave. This research & development driven model used to be very popular after the Second World War, but more recently it has given way to another model that has proven to meet the current customer requirements better. (Trott 2005, 23)

From the 1970’s onwards the role of the marketplace has grown. The second linear model called the “market pull” model, is based on the finding that the marketplace can be very influencial in the innovation process. The profound initive comes from the customers. Since marketing and sales people are constantly in close collaboration with the customers, they play a key role in the model interpreting the customer needs, and delivering the message inside the company. These findings are further processed within the company and finally R&D personnel convey the findings into tangible products together with the designers and manufacturing personnel.

Table 3

Linear models of innovation



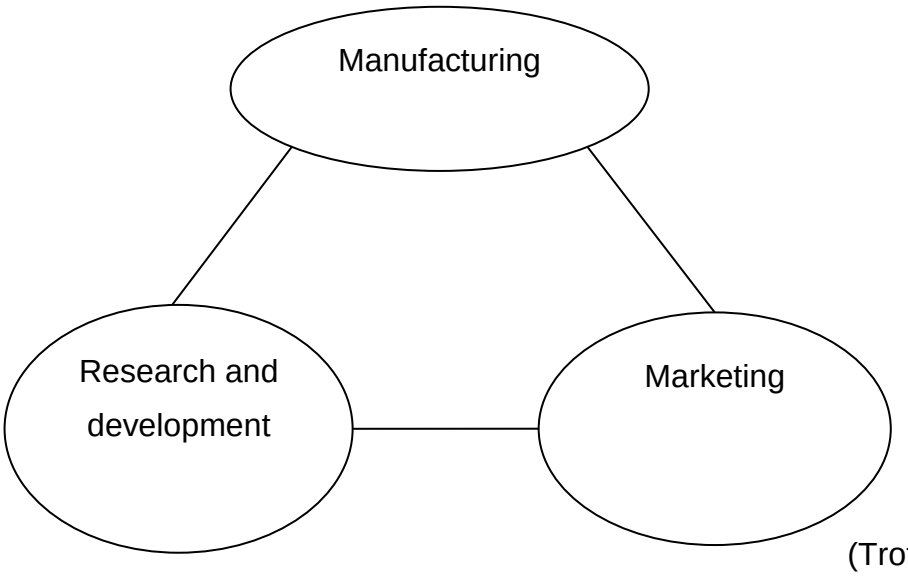
(Trott 2005, 23)

Even though the two linear models have held their groungd very well over the decades, they are not the only existing models. A so-called simultaneous coupling model concentrates on how innovations occur, rather than on the initial driving forces of innovations like in the linear models. The simultaneous coupling model offers an opinion that innovation is promoted by simultaneous coupling of the knowledge within all three functions, R&D, manufacturing and marketing. An important notion of the model is that the point of commencement for innovation is not known in advance. (Trott 2005, 23)

Table 4

The simultaneous coupling model

The simultaneous coupling model



(Trott 2005, 24)

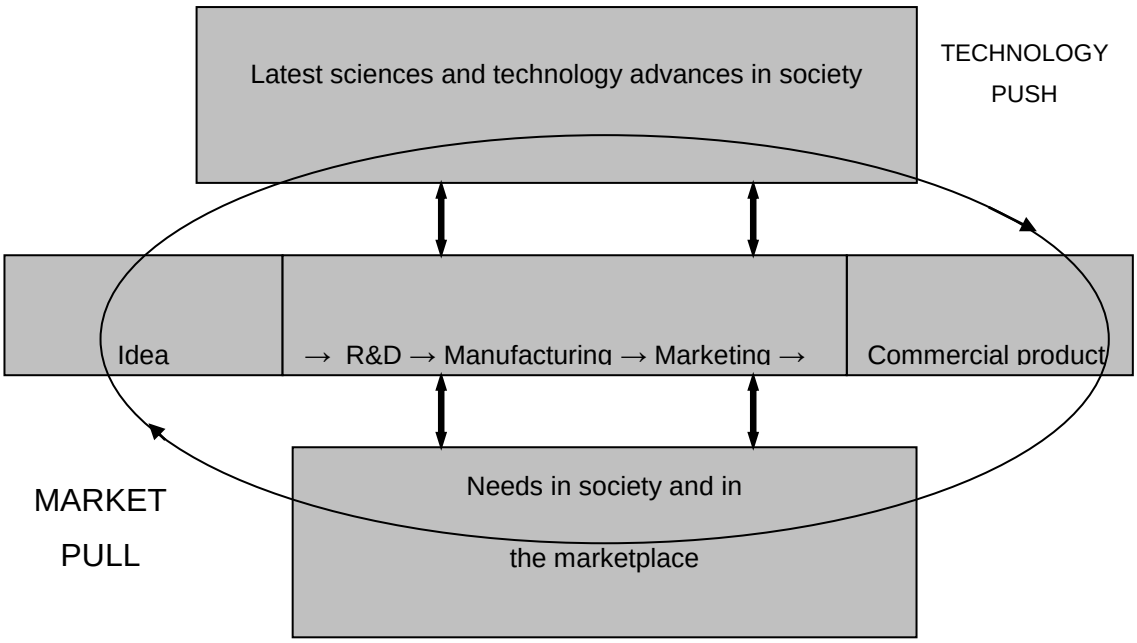
An interactive model takes the simultaneous coupling model one step futher by combining it with both technology push and market-pull models known from the linear models. The focus point of the model is that the interaction of the marketplace, the science base and the capabilities of the organization results innovation. The starting point can be anywhere – just like implied in the simunltaneuous coupling model. According to Trott (2005, 24) “the overall innovation process can be thought of as a complex set of communication paths over which knowledge is transferred”. Organizations that can effectively manage the innovation process illustrated in table 4, that includes both internal and external linkages to the marketplace and the science base, will succeed in the innovation process. (Trott 2005, 24)

Also in the interactive model of innovation the organizational functions of R&D, engineering and design, manufacturing and marketing and sales are at the very core. What distinguishes the interactive model from the linear models is that the information flow does not necessary have to be linear but rather can take alternative course, and additionally also other functions than R&D and maketing

acknowledge the presence and influence of both the science base and marketplace. The idea generation is leaning heavily on inputs from three basic components, which are organization's capabilities, the needs of the market place and the science and technology base. (Trott 2005, 24)

Table 5

Interactive model of innovation



(Trott 2005, 25)

1.3 Innovation as a management process

As innovation is not a sole occurrence but a complex process it naturally oughts to be managed in order to reach the best possible results. The profound aspects are the transactions and communication flows between the internal and

external stakeholders. Depending on the company and the field of business it is operating, slightly different function smay be morem influencial than others. Trott (2005, 27) highlights three functions: marketing, research and development, and business planning. However, the most important thing is the interaction and communication flow, fundamentally including knowledge sharing, between the different functions, no matter what the functions themselves are. They all need to understand the holistic picture of the process and underdstand the causes and effects of each function. Each function must consider the external inputs affecting each area. Trott (2005, 28) has identified many very concrete examples of external inputs for each function separately. Reasearch and technology department must follow the scientific and technological development, competitors, suppliers, customers and university departments. Finance and business leadership functons are exposed to the influences of macro factors, competition, profit, growth, diversification, costs and input prices, and political influence. Marketing confronts the external inputs of societal needs, competitors, supplier partnerships, distributors, customers, and strategic alliances.

In the before chapter it was clearly emphasized that the interaction and knowledge exchange are at the absolute core of the innovation process. Innovation can be described (Trott 2005, 28) “as an information-creation process that arises out of social interaction”. The firm is the concrete scene for the creative process to take place. The interaction is essential for thoughts, potential ideas, views and experiences to be shared and exchanged – and in the end further developed. The problem is that part of the knowledge that people hold is so-called tacit knowledge, which is not easily passed forward. It is something more like experience than theoretical knowledge that could be put into words. And even though it was mentioned earlier that only very rarely innovationd are pure serendipities, parts of the process may be fortunate coincidences occurring during the process. This is knowledge that is learned through trial and error, practice and experience. Some of it can be taught to

others, some is highly intuitive. However, it is often the details that matter. Companies that are able to identify, and more importantly utilize, this kind of tacit knowledge are likely to succeed. This puts significant value to know-how, and on the ways it is exploited within the company. (Trott 2005, 29). It is of vital importance that the organizational culture and spirit are such that encourage people to share their knowledge and know-how continuously and in a way effordlessly. Formal ways of communication are naturally of great importance but additionally ample opportunities lie in the unofficial knowledge sharing. In order to share a common langueange, an organization and its actors must share some common knowledge in order to create fruitfuil discussion. The less siloed and hierarchical the organization is the easier it is to promote open knowledge and information sharing. (Trott 2005, 29). When the communication is seemless it gives room for creativity. It is evident organizations must be diverse enough in order to promote discussion, and on the other hand certain uniformity is required to create sence of belonging and community. (Trott 2005, 29).

Companies are organisms that create their own history over the years. What happens at present times can not be viewed disjoinrd from the past. Organizations knowledge base accumulates knowledge over time creating the organizarional heritage of the company. Being separate from organizational culture, which according to Free Management Library (http://www.managementhelp.org/org_thry/culture/culture.htm) is basically the personality of the organization consisting of its assumptions, values, norms and tangible signs (artefacts) of organization members and their behaviours, organizational heritage is an ensemble of organization’s knowledge base that has been established over the years of operating, and the organization’s unique architecture. (Trott 2005, 29). The organizational heritage should not be underestimated as it can provide a significant competitive advatage for many companies. Examples can be found from infinitely polished logistics chains to enviably strongly managed brands. According to Trott (2005, 29) these

heritages can not be ignored or dismissed as irrelevant when observing how companies manage their innovations.

1.3.1 Managing innovation within organizations

Innovation management is a process that is spread across the organization, that is to say it can't be a separate function of a separate department. The topic is undeniably vast, but Trott (2005, 73) has identified few main specifications necessary for each organization to manage innovation successfully. *Classical or scientific management perspective* sees innovation as a series of rational decitions leading to a clearly deifned outcome. The basic assumption is that everybody and every department has its own distinctive role and area of expertise, which all combined and well managed creates a superior entity. This approach goes hand in hand with the "technology push" model. (Trott 2005, 74).

Human relations approach acknowledges also the importance of informal communications and activities within the organization. (Trott 2005, 74). Third trend is called the *contingency approach* and it has been derived from the human relations approach. This approach implies that "there is not necessarily *a single best* organizational structure, but rather that the structure should be adapted to the activities being performed" (Trott 2005, 75). The contingency approach concentrates less on the structure and more in the internal activities in regard to innovation. In the end, innovation is a process that is "made up of *series of linked activities within an organization*" (Trott 2005, 75). All organizations consist of different kinds of characteristrics that identify the particular organization. The below list is an ensemble of the characteristics identified many researchers (Trott 2005, 75):

- Certainty versus uncertainty
- Stability versus instability

- Uniform versus non-uniform
- Few exceptions versus many exceptions
- Many repetitive events versus few repetitive events

A common assumption derived from the studies is that “tasks that are certain, stable, uniform, have few exceptions and many repetitive events are compatible with bureauctratic organizational forms, which stress formality. At the other end of the task continuum, tasks that are uncertain, unstable, non-uniform, have many exceptions and few repetitive events are compatible with organic flexible organizational forms.” (Trott 2005, 75). The fourth approach is called *systems theory* and it is closely related to the contingency approach. While contingency approach focused on the characteristic and structural analysis, the systems theory puts importance on processes and dynamic analysis. (Trott 2005, 77). “Systems theorists analyze the commercial organization from the perspective of complex organic systems. A system is defined as any set of elements linked in a pattern which carries information ordered according to some pre-determined rules.”

Table 6

Issues identified by systems theory

Issues identified by systems theory	
Issue	*Characteristics*
Adaption	The ability to alter ways of working to meet the changing environment
Coordination	Enabling the different parts of the organization to function as one
Integration	The ability to harmonize a diverse range of activities and people
Strain	Coping with friction between organizational parts
Output	Achieving purposes and goals
Maintenance	Keeping elements in the system active

(Trott 2005, 76)

Table 7

Organizational characteristics that facilitate the innovation process

Organizational characteristics that facilitate the innovation process	
Organizational requirement	*Characterized by*
1. Growth orientation	A commitment to long-term growth rather than short-term profit
2. Vigilance	The ability of the organization to be aware of its threats and opportunities
3. Commitment to technology	The willingness to investi in long-term development of technology
4. Acceptance of risks	The willingness to include risky opportunities in a balanced portfolio
5. Cross-functional operation	Mutual respect among individuals and a willingness to work together across functions
6. Receptivity	The ability to be aware of, to identify and to take effective advantage of externally developed technology
7. ‘Slack’	An ability to manage the innovation dilemma and provide room for effectivity
8. Adaptability	A readiness to accept change
9. Diverse range of skills	A combination of specialization and diversity of knowledge and skills

(Trott 2005, 77)

1.3.2 New product development

In competitive markets, the best and strongest firms sustain growth and maintain profitability over the longer term through successfully developing a steady stream of new products or services. The rapid changes in customer tastes, technology and competition force firms to develop new products or services. (Kotler et al. 2002, 497)

Basic marketing theory states that a product undergoes a product life-cycle of introduction, maturity, and finally decline. In the maturity of or decline phase it is imperative that an organization take an active role to (1) expand the product line and extend the life cycle, (2) redesigning the product to maintain superiority, or (3) to develop a new product to maintain revenue. If new poducts are not developed, sales and profits decline as competition increases, technology and markets change, or innovation by other firms make existing products obsolete. An organization cannot afford to ignore innovation if it wants to grow and prosper. (Urban & Hauser 1993, 3-4).

However, new product failure rates are substantial, and the cost of failure is large. The risks of failure given that a product is introduced to the market are only the tip of the iceberg – many projects fail before launch and result in the loss of considerable time, talent, and funds. Innovation is a high-risk activity and getting riskier as the life of successful new products gets shorter and as technological changes render products obsolete at faster rates. New product development is also costly. Large investments in research and development (R&D), engineering, marketing research, marketing development, and testing are made before the product in introduced. Because many products do not make it from idea to the market, much of this investment is made on products that never return revenue. This means that successful products must not only return its unique development cost, but cover the costs of other products that received attention but were not introduced. The high failure rates and the high

costs make new product development risky. But new product development can be managed so that the risks are minimized and the profit maximized. (Urban & Hauser 1993, 5).

According to Kotler (2002, 499) due to the rising costs of developing and introducing major new producs many firms have decided to rather acquire existing brands rather than creating new ones. Hence, acquisitions - i.e. buying a complete company, a patent or a licence to someone else's product - is one way to obtain new products. Another option is new product development through R&D. As said, innovations can be very risky. Referring to Kotler (2002, 499) it takes a lot of both time and money. Addtionally the R&D process is complex and therefore full of surprices, and the process is often hindered by delays. In addition many of the products simply fail – for several reasons.

Success depends on many factors - the extend to which the product satisfies customers' perceived needs, the relative advantages vis-à-vis competition, the propensity of competitors to defend their market, the size and the growth rate of the target segment, whether or not the firm is a pioneer in the market or a follower, the cost and engineering ot advantages in producing the product, the creativity of the marketing plan, and so on. Some of these factors are under the control of the firm; others require information about the market, competitors, engineering capabilities, or potential consumers. Stil others are less controllable, but represent risk that can be considered and managed. (Urban & Hauser 1993, 5).

According to Urban & Hauser (1993, 5-6) building a relationship between customer input on their their perceived needs and how products are designed, produced and managed is of utmost importance. In order for products to sell, they ought to be perceived of superior or considerably different relative to

competition. As per Kotler (2202, 500) the offerin should be a unique superior product in order to become a success. Products, and hence companies, that can deliver the perceived benefits more effectively and efficiently than competition will eventually prosper. Companies may gain significant competitive advantage by discovering what makes a product superior to other similar offerings or of higher value by certain standards, and by interpreting the findings into product design and marketing. A well defined product concept can also be the key to success (Kotler 2002, 500). Other commonly recognized aspects relevant to success are well studied and sufficiently large target segment, and reasonable, manageable competition. It is well worth mentioning that neither of the complementing elements is stable, but in constant evolution. New technologies emerge at a constant stream while simultaneously customer needs and likes transmute and markets sature. Kotler (2002, 500) points out that the better the new products meet the market needs, the more likely they are to succeed. Additionally “senior management commitment, relentless commitment to innovation, a smoothly functioning and proficiency in executing the new-product development process play a part in bringing success. Thus, successful commercialization of new products requires a company to have a clear understanding of its consumers, markets and competitors and to develop products that deliver superior value to customers”.

Fierce competition has forced firms to specialice and more demanding consumers have created ever smaller market segments. “Increased market fragmentation causes smaller sales and profits for each product”, says Kotler (2002, 5001) and continues: “New products must meet growing social and government constraints, such as consumer safety and environmental standards. The cost of finding, developing and launching new products will increase steadily due to rising manufacturing, media and distribution costs. Many companies that can not afford the funds needed for new-product development will emphasize product modification and imitation rather than true

innovation. Even when a new product is successful, rivals are so quick to copy it that the new product is typically fated to have a short life. “

Companies are facing a dilemma of executing vital new-product development and fighting against the great chance of failure. Competition does not only consist of similar offerings but time, money and other resources must compete over completely new innovations, products and services. Despite the ample uncertainties, new product development process ought to be managed. The keys are solid new-product planning and a systematic new-product development process (Kotler 2002, 501) Consumers send messages in abundance and professional managers filtrade the signals to fit the company’s product strategy by considering the (Urban & Hauser 1993, 6) financial goals, sales growth, competitive position, product life cycle, technology, globalization, regulation, material costs, inventions, demographic and lifecycle changes, customer requests, supplier initiatives, and allinces. The before mentioned initiating factors are fundamental regarding new product development. As per Urban & Hauser (1993, 6) need for new product development can be derived from increasing the stock price, and hence from the pressure of achieving financial goals of profit, market share, or revenue. Also growing sales can be a trigger to new product development activities, and resulting strategy of achieving long-term profitability through sales and share growth has become an effective strategy. Urban & Hauser continue to clarify that “building a strong share position requires focus on a small set of markets rather than scattered attention to many markets. New products become the chief means of market share growth in a focused market strategy. Product innovation and lower costs are critical success factors in a share-based market strategy.”

Based on Urban & Hauser (1993, 7) another forceful initiating factor is the competitive position of a company in the industry. A firm’s standing relative to its competitors is very important and especially in some industries like automobile

and telecommunications a 1% change in market share can have a big impact on profitability. If the market position is unfavourable it creates significant pressure for change – new product development being a valuable alternative for regaining lost market share. As mentioned earlier, products go through a product life cycle of four stages: intoruduction, growth, maturity and decline. Profits decline as the the products ages and reaches the decline stage creating a need for regaining profitability. A company can (Urban & Hauser 1993, 8) direct its efforts towards rejuvenating the product or replacing it with a new product that fulfills customers' needs better. Sometime it is possible to revive or replace a product whose sales are dropping by intorudcing it to new markets, improving the product or by repositioning it (Urban & Hauser 1993, 8).

Sometimes raw material costs and availability can steer new product development. Scarcity puts pressure on prices and hence lower profit expectations. It can result in completely new product innovations utilizing new, or simply alternative, cheaper, materials. Recent oil price fluctuation is an example of this phenomenon. The substancial price increase - among the environmental aspects of the topic - has caused a lot of discussion on developing alternative energy sources, for example. The effects material cost and availability can also be indirect: increased air petrol prices encourage for developing smaller packaking options in order to minimize transportation costs, for instance.

A true invention can act as an initiating factor as well. Often these are totally new technologies or technology related innoations. The often used example is the Polaroid camera. (Urban & Hauser 1993, 11). Dramatic demographic and lifestyle changes can also change the customer demand significantly. The baby boomers who were born after the Second World War are aging and a notably smaller generations are occubuying the job market. The needs of people of different age are naturally different hence demographics can sway the demand

of certain products or services greatly. Lifestyle plays a part in soncumer behavior, too. Traditional family norms have given way to more liberal lifestyle resulting in devorces, fewer children and smaller household units, which consequently generates demand for smaller apartments, smaller food packages and so fort. Accroding to Hauser & Urban (1993, 11) the fact of women entering the business world diminished the time they spent taking care of the house, which eveidently increased the demand of certain services. In more recent history people have become more conscious of their well-being, increasing the demand of everything related to fitness and healthy foods. Due to the cloimate change and ever increasing awareness of the environmental issues across the planet have heavily contributed to the demand of environmentally sustainable and ecological offerings.

The last three initiating factors based on Urban & Hauser (1993, 11-12) are customer requests, supplier initiatives & reactions, and alliances. Customers give more and more input: they demand more and they can even create content themselves. Suppliers can innovate for instance materials, manufacturing processes – or completely new products. An ever more common strategy is to combine efforts and expertise with another firm and to form an alliance. Urban & Hauser point out that these alliances lead to opportunities to serve better the target market needs. It also minimizes risks and costs related to new product development when the intellectual capital can be joined and development costs shared. However, it is worth bearing in mind that alliances are usually complex and include many other obstacles, such as resistance to change, colliding corporate cultures among other issues.

The pressure to innovate will continue and Urban & Hauser want to highlight the following future regarding the future in order to manage the innovation and new product development process in a controlled way:

- Forces in the financial markets are keeping pressure on sales growth, profitability, and share price.
- Within markets, competition Is tough and increasingly gloal in scope.
- Organizations continue to seek new markets and new opportunities outside their traditional businesses as they search for focused profit opportunities.
- Life cycles are becoming shorter, and markets are becoming mature and saturated with product offerings.
- The pace of technological change will increase, and companies (and countries) are increasingly aggressive in supporting high-technology growth-oriented businesses.
- Social and political changes are accelerating. Demographics and consumer attitudes and lifestyles are continuing to change rapidly.
- Buyers are becoming more sophisticated in their decision making and active in demanding products to solve their problems.
- Distribution channel members are gaining power.
- New raw materials are becoming available, and old materials are being restricted as environmetal regulation and consciousness grows.
- Alliances are being used increasingly as a strategic tool in planning overall corporate success.

(Urban & Hauser 1993, 13)

All before mentioned factors indicate that new product development will grow in significance and become a crucial success factor.

Innovation adoption curve

“The innovation adoption curve of Rogers is a model that classifies adopters of innovation into various categories. It is based on the idea that certain individuals are inevitably more open for adaptation than others. It is also called: Multi-Step Flow theory or Diffusion of Innovations Theory.”

(http://www.12manage.com/methods_rogers_innovation_adoption_curve.html, 28.10.2008)

Five elements are on focus of diffusion. First one is the characteristics of and innovation which can influence its adoption. Second one is decision making processes that occurs when individuals are considering an adoption of a new idea, product or practice. After the decision making process the characteristics of individuals that make them likely to adopt an innovation come into play. Forth element is the consequences for individuals and society of adopting an innovation. And the last research element is the communication channels used in the adoption process.

(http://www.valuebasedmanagement.net/methods_rogers_innovation_adoption_curve.html 28.10.2008)

Categories on innovation adoption curve are:

Innovators, are very important communication mechanisms. These people are brave and pulling the change.

Early adopters are trying out new ideas but are careful doing so. These people are also respectable opinion leaders.

Early majority accept change more rapidly than average people do. These people are considered thoughtful.

Late majority will begin using new products and ideas only when majority of people are using them. Skepticism is linked to these people.

Laggards like to stick to the traditional old ways. These people will accept new idea or product only after it has become mainstream or even tradition. These people are very critical.

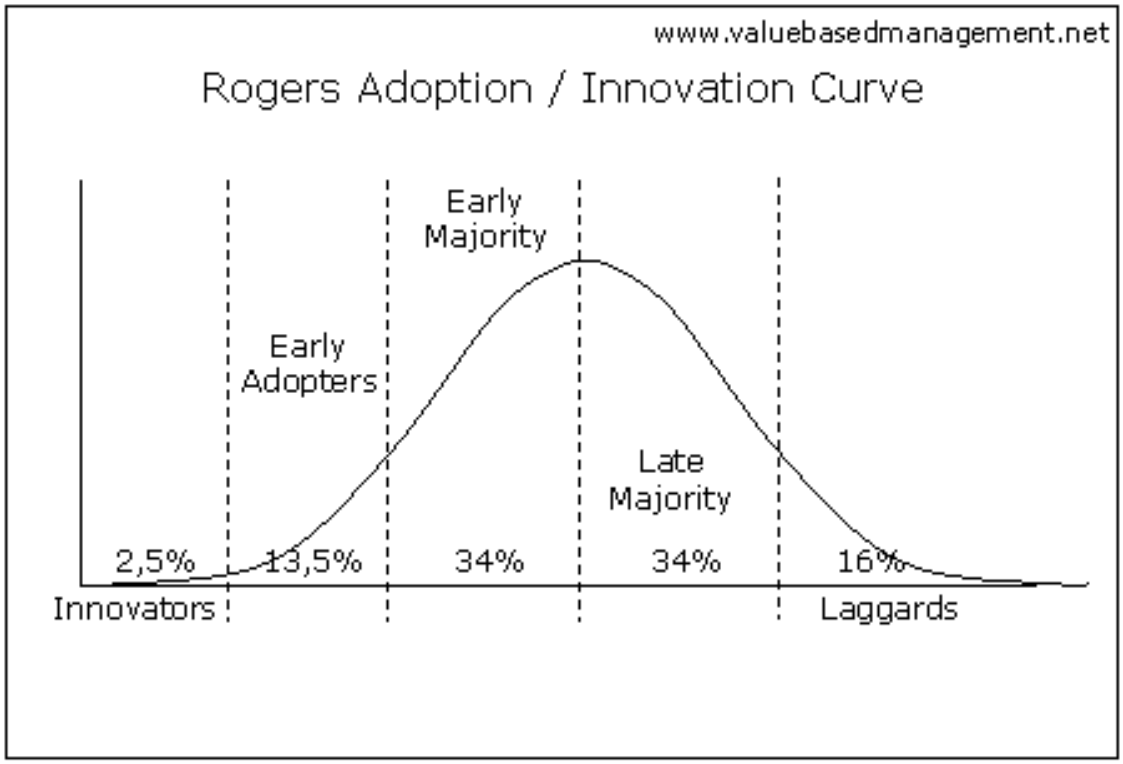
(http://www.12manage.com/methods_rogers_innovation_adoption_curve.html and http://www.valuebasedmanagement.net/methods_rogers_innovation_adoption_curve.html 28.10.2008)

“The adoption curve of Rogers for innovation is useful to remember it is useless to try quickly and massively convince the mass of a new controversial idea. It is better to start first with convincing the innovators and the early adopters. Also the categories and percentages can be used as a first draft to estimate target groups for communication purposes.”

(http://www.12manage.com/methods_rogers_innovation_adoption_curve.html 28.10.2008)

Table 8

Rogers innovation/adoption curve



(http://images.google.fi/imgres?imgurl=http://fox.wikis.com/graphics%255CRogersAdoptionInnovationCurve.png&imgrefurl=http://fox.wikis.com/wc.dll%3FWiki~RogersInnovationAdoptionCurve~VFP&h=307&w=451&sz=5&hl=fi&start=2&um=1&usg=__XFfOKg_qjUmcDQcmC1EqujMgFEU=&tbnid=J6dW8nOP2dzaBM:&tbnh=86&tbnw=127&prev=/images%3Fq%3Dinnovation%2Bcurve%26um%3D1%26hl%3Dfi%26sa%3DN, 28.10.2008)

1.3.3 Blue ocean strategy

The Universe of business consists of two distinct kinds of space, which are thought of as red and blue oceans. The known market space, i.e. all the industries existing today are, represented as the red ocean. The competitive rules are well understood and industry boundaries are refined and accepted in the red ocean. Grabbing a greater share of existing demand is the way for companies to outperform their rivals in the so called red ocean. As this area gets more and more crowded profit and growth prospects are reduced. The increasing competition turns the products in to commodities.

The unknown market space, unattained by competition is the Blue ocean. Blue ocean denotes all industries that do not exist today. Rather than fighting over demand it is created in blue oceans. The profitable and quick growth is an ample opportunity. In most cases a blue ocean is created within a red ocean when boundaries of an existing industry are altered by the company. In few cases, however companies can give rise to completely new industries.

(article in Harvard Business review by W. Chan Kim and Renee Mauborgne, 4.10.2004, page 2)

Table 9

Red Ocean vs. Blue ocean strategy

Red Ocean strategy	**Blue Ocean strategy**
Head-To-Head competition	Creation of new markets
Compete in existing market space	Create uncontested market space
Beat the competition	Make the competition irrelevant
Exploit existing demand	Create and capture new demand
Make the value-cost trade-off	Break the value-cost trade-off
Align the whole system of a firm's activities with its strategic choice of differentiation OR low cost	Align the whole system of a firm's activities in pursuit of differentiation AND low cost

(http://www.1000ventures.com/business_guide/strategy_blue_ocean.html 17.11.2008)

In the Red Ocean (Head-To-Head competition area), the firms compete with the same best-practice principle which makes the differentiation costly. Strategic choices here for firms are to pursue either differentiation or low cost.

(http://www.1000ventures.com/business_guide/strategy_blue_ocean.html 17.11.2008)

In the Blue Ocean in case of revolutionary value innovation also called radical innovation, the strategic aim is to create new best-practice rules by breaking the existing value-cost trade-off and creating a blue ocean thereby.

http://www.1000ventures.com/business_guide/strategy_blue_ocean.html)

“To define a blue ocean strategy, you should look across alternative industries, look across strategic group within industry, redefine the industry buyer group, look across complementary product and service offerings, and participate in shaping external trends over time. You need to stand apart in the market place. So your strategy must deviate from me-too-ism, and your value curve must diverge from industry standards.”

http://www.1000ventures.com/business_guide/strategy_blue_ocean.html 17.11.2008)

Table 10

Six principles of Blue ocean strategy

Formulation principles	**Execution principles**
1. Reconstruct market boundaries	5. Overcome key organizational hurdles
2. Focus on the big picture, not the numbers	6. Build execution into strategy

3. Reach beyond existing demand	
4. Get the strategic sequence right	

(http://www.studymarketing.org/articles/Presentation_Slides/Blue_Ocean_Strategy.html 17.11.2008)

Formulation Principles:

Reconstructing market boundaries Blue ocean strategy Looks across to complementary products and service offerings and participates in shaping external trends over time. Head-to-Head strategy on the other hand focuses on maximizing the value of product or service offerings within the bounds of its industry and adapting to external trends as they occur.

Focus on the big picture, not the numbers entails four steps of visualizing strategy. In Visual awakening the company is compared to its competitors by drawing a “as is” strategy canvas, this is used to finding out how the strategy needs to change. Visual exploration is about exploring six paths to create blue oceans, observing distinctive advantages of alternative products and services and seeing which factors should be eliminated, created or changed. Visual strategy fair is used to drawing a “to be” strategy canvas based on insights from field observations. One needs to get feedback on alternative strategy canvases from customers, competitors’ customers and from noncustomers. This feedback is used to build the best “to be” future strategy. Visual communication is used to distribute the before and after strategic profiles on one page for easy comparison. Only those projects and operational moves that allow the company to close the gap to actualize new strategies are to be supported.

Reaching beyond existing demand is about the three tier of noncustomers. First tier are the “soon to be” noncustomers who are the edge of the market waiting to jump ship. Second tier are the “refusing” noncustomers who consciously choose against the market. And the third tier “unexplored” noncustomers are the ones who are in markets distant from the market in concern.

The sequence of the Blue ocean strategy begins with buyer utility, finding out if there is exceptional buyer utility in the business area. The price also needs to be investigated, is the price easily accessible to a mass of buyers. After Price the cost needs to be adjusted, can the cost target be attained to profit at the strategic price. Last is the adoption, research on what are the adoption hurdles in actualizing the business idea. After these steps a commercially viable blue ocean idea is ready.

Execution principles:

Overcoming the key organizational hurdles includes cognitive hurdle, resource hurdle, motivational hurdle and political hurdle. Cognitive hurdle (status quo) is about riding the “electric sewer” and meeting the disgrudled customers. Resource hurdle is about redistributing resources to hot spots by redirecting those to cold spots and engaging in horse trading. Motivational hurdle is about zooming in on kingpins (key influencers), placing them on a fishbowl and atomizing the organization to get it to change it self. Political hurdle is securing the consigliore on the top management team, leveraging the angels and silencing the devils.

Building execution into strategy is a fair process of strategy. Strategy formulation process should be fair and include explanation, engagement and expectation clarity. Attitudes should project trust and commitment in a way that everyone’s opinion matters. Behavior is voluntary co-operation, everyone will go

beyond the call of duty. Strategy executions exceeds expectations and is self initiated.

(http://www.studymarketing.org/articles/Presentation_Slides/Blue_Ocean_Strategy.html17.11.2008)

“Blue Ocean Strategy” as a term is pretty synonymous to well-known term “Venture Strategy.” For decades Venture strategies have been being practiced by many market leaders. The difference between Blue ocean strategies and Venture strategies is as follows. Blue ocean strategy is about value innovation in general the speed to market is not emphasized. Venture strategies on the other hand deal specifically with technology innovation that must be brought to the market very fast.

(http://www.1000ventures.com/business_guide/strategy_blue_ocean.html17.11.2008)

2 ENVIRONMENTAL MARKETING

2.1 Need for green

America's Environmental protection agency predicts ozone depletion over northern mid-latitudes to peak around 10 percent, but more pessimistic predictions of between 18 and 30 percent have been made as well. (http://www.epa.gov/ 28.10.2008)

According to Ken Peattie (Environmental Marketing management, meeting the green challenge,3) a hole appears in the Antarctic ozone layer each spring and at the time the book was published in 1995 the ozone layer was 18 million square kilometers in size and big enough to swallow up all of Europe. It is estimated by scientist that each one percent drop in ozone will increase the incidence of human skin cancer by between 3 and 6 percent. Peattie (Environmental Marketing management, meeting the green challenge,3) continues that for example one study has estimated if current global warming trends continue, by 2060 the disruption to agricultural systems would leave around 360 million people starving. Also only about 1.5 million species out of estimated 30 million species on earth have been identified and catalogued, but only a few hundred thousand now exist in sufficient quantities to avoid being qualified as "at risk". It has been estimated that species loss is between 10 to over 100 every day. (Ken Peattie, Environmental Marketing management, meeting the green challenge,3)

In the USA bottlenose dolphins have been found dead and so contaminated with chemicals such as PCBs (polychlorinated biphenyls) that the dolphins have met the government's criteria for a "toxic waste hazard". For example industrial heave metals and the equivalent of 17 Exxon Valdez oil spills each year have lead to our oceans being very polluted. 70 percent of the world's population live on the shores of these oceans and 50 percent of the fish harvest comes from these polluted oceans. (Ken Peattie, Environmental Marketing management, meeting the green challenge,4)

As Peattie continues (Environmental Marketing management, meeting the green challenge,4),we are also reaching the limit of cultivable land, water is becoming more and more scarce in many regions, we have destroyed over half of the rainforests and the land which we inhabit is becoming increasingly polluted.

Because of its central role as a driving force behind the unsustainable growth in consumption, marketing can be said to have contributed to the current environmental crisis. By contrast marketing should and will become thus part of the solution as well. What is needed is marketing of new, more sustainably produced products, new companies, new lifestyles, new values and new ideas. (Ken Peattie, Environmental Marketing management, meeting the green challenge,24)

According to Peattie (Environmental Marketing management, meeting the green challenge,25) the hype of green consumers, green markets, green products and the practice of environmental or green marketing activities that sought to create competitive advantage by convincing consumers that some brands were in some way less harmful to the environment than others, was passed for environmental marketing in the initial stages, even though it had very little to do with marketing. And even less to do with the environment. Nowadays environmental marketing has begun to focus on more significant and fundamental changes within businesses. Environmental marketing will require many things though, including investment, technological breakthroughs, practical successes and luck. Maybe the most important thing is the education of consumers and managers and the creation of new tools and concepts.

“Environmental innovations consist of new or modified processes, techniques, practices, systems and products to avoid or reduce environmental harms. Environmental innovations can be developed with or without the explicit aim of reducing environmental harm. They also can be motivated by the usual business goals such as reducing costs or enhancing product quality. Many environmental innovations combine an environmental benefit with a benefit for the company or

user." (Marian Beise and Klaus Renning, Lead markets of environmental innovations: A framework for Innovation and Environmental Economics,8)

The relationship between environment and innovation has been receiving increasing attention in recent years. According to Marian Beise and Klaus Renning (Lead markets of environmental innovations: A framework for Innovation and Environmental Economics,2) Eco innovations are thought of as an important mean of solving country's ecological problems without reducing the economic activity that causes the economical problem. The attention is paid to how regulations can induce environmentally friendly innovations with export potentials for the domestic industry and to the dynamic process of technological change. Governments thus are attempting increasingly to actively support the generation and adoption of eco-innovations.

"In Europe (as well as in Japan) companies are now preparing to respond to government directives and policies that seriously impact how many types of products will be designed and conceived in the future. Two such examples are the End of Life Vehicles Policy the WEEE Directive (Waste Electronics and Electrical Equipment) that requires manufacturers to assume responsibility of their products from birth through the end of their lives." (Jacquelyn A. Ottman, The real news about green marketing: Yesterday, Today, Tomorrow, 2006)

2.2 Green marketing

Environmental or green marketing is a term that can mean different things to different people. According to Ken Peattie (Environmental Marketing Management meeting the green challenge,25) the term green marketing has been popular in the UK and some other countries, however the in the international business environment it does not have a universally consistent meaning. The word green in some countries denotes a style of politics but not an approach to marketing and commerce. And in some countries such as Spain green is associated with low-cost

and low-quality goods. (Peattie,Environmental Marketing Management meeting the green challenge,25)

Table 11

Meanings of green

THE MANY MEANINGS OF GREEN
New-consumerism
Sustainability
Equality
Humanitarian
Ecological
Political
Corporate social responsiveness
Fair trade
Conservation
Non-profit

(Peattie,Environmental Marketing Management meeting the green challenge,26)

Peattie continues (Peattie,Environmental Marketing Management meeting the green challenge,26) that countries such as the USA uses label environmental marketing. The word environmental also causes problems in international scale as for example there is no German translation for the English use of the word environment. Also the usage of the word environmental has changed over the years and has somewhat in some cases emerged with the word social. This merging of the two words has reflected for example in the increasing environmental concern being shown by 'humanitarian' charities. (Peattie,Environmental Marketing Management meeting the green challenge,26)

There is a vast range of definitions of marketing. Kotler defines marketing as "a social and managerial process by which individuals and groups obtain what they

need and want through creating and exchanging products and value with others." (Kotler, Armstrong, Saunders, Wong, Principles of marketing 2002, 5)
The Chartered Institute of marketing defines marketing as the management process responsible for identifying, anticipating and satisfying customer requirements in a profitable manner. (Peattie,Environmental Marketing Management meeting the green challenge,27)

According to Peattie (Peattie,Environmental Marketing Management meeting the green challenge,29) social responsibility, the pursuit of sustainability and an holistic approach are the three principles environmental marketing is based on. Peattie (Peattie, Environmental Marketing Management meeting the green challenge,39) continues with the key elements of Environmental marketing that should be possessed when practicing Environmental marketing. Fist there should be a balanced approach to the technological, social, economic and physical aspects of societies and business that will allow the company to step forward. Secondly an emphasis on long-term sustainable qualitative development rather than short-term unsustainable quantitative growth is needed. Also thirdly a holistic approach aimed at reversing the reductionalist and fragmented approach of previous business practice and theory is needed. Fourth key element is consideration towards consumers as real human beings rather than as hypothetical 'rational economic' entities. The fifth key element is about putting an emphasis on meeting the genuine actual needs of consumers rather than trying to stimulate superficial desires. As a sixth key element it needs to be recognized that society and consumers have multiple and sometimes conflicting wants and needs. Company and all its activities should be viewed as part of the product that is consumed according to the seventh key element. The eight element states that it should be recognized that in the future small and local will be beautiful when taking in consideration the long-term, large-scale nature of the current economy. Element nine is about eco-performance which incorporates the non-market outputs of the company. Also the environmental impact of companies that contribute to the creation and marketing of the product somewhere else in the supply chain should be taken in consideration as well as the performance of the product during and

after use. Last key element encourages to pursue added techno-economic value as well as added socio-environmental virtue. (Peattie, Environmental Marketing Management meeting the green challenge,39)

Green marketing refers to the process of selling products and services based on their environmental benefits. This product or service can be environmentally friendly in itself or it can be produced or packaged in an environmentally friendly way.

The normal assumption of green marketing is that possible customers will view a product or service's "greenness" as a benefit and will base their buying decision accordingly. The less obvious assumption of green marketing is that consumers would be willing to pay more for green products than they would for a less comparable alternative product or service. Even though green marketing is growing rapidly as increasing numbers of consumers are willing to back their environmental consciousnesses with their money, it can be dangerous. The public tends to be skeptical of environmental claims to begin with and companies can seriously damage their brands and their sales if a environmental claim is discovered to be false or contradicted by company's other products or practices. When a product or service is presented as green when it actually is not is called greenwashing.
(http://sbinfocanada.about.com/od/marketing/g/greenmarketing.htm 17.11.2008)

Formulas and assumption that guided consumer marketing in the high production-high consumption postwar era cannot be applied anymore to effectively address the needs of customers with a raised environmental consciousness. What is needed now is new strategies and innovative products and services. Where conventional marketing includes developing products and services that meet consumers' needs at affordable prices and then communicating the benefits of those products and services in a compelling way, Environmental marketing is more complex. Environmental marketing serves two key objectives. The first one consists of developing products and services that balance consumers' need for

quality, performance, affordable pricing and convenience with environmental compatibility e.g. minimal impact on the environment. The second objective is about projecting an image of high quality, including environmental sensitivity, relating to both a product's or service's attributes and the manufacturer's track record for environmental achievement.
(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 45)
Ottman (Green marketing,46) continues saying that these two objectives can not be met using conventional marketing. In the age of environmental consumerism marketers face tough new standards.

According to Ottman (Green marketing,46) Naderism and feminism were the predecessors of environmental consumerism. Environmental consumerism represents deep psychological and sociological shifts. Higher quality products that were produced more safely and were marketed with more credible claims was a result of Naderism. Feminism on the other hand forced marketers to portray women with a new respect and develop convenient products. Mandates for corporate processes, product quality and promotion are the challenges to be met in environmental consumerism. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 46)

"To realize that conventional strategies won't succeed, one need only recall the unsavory backflash that pioneering green marketers incurred over what was perceived by environmentalist, regulators and press as inconsistent and often misleading labels and claims. Marketers, desirous of keeping in step with competitors and encouraged by polls erroneously suggesting that overwhelming majorities of consumers would play hefty premiums for greener goods, rushed headlong to underscore the environmental benefits of their offerings, however insignificant or coincidental." (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 46)

Green claims quadrupled between 1989 and 1990, even trash bags and diapers were touted as degradable and ozone friendly marked hairsprays emerged. These

quickly resulted in skepticism, confusion and regulatory nightmares and proved that environmental marketing involves a lot more than tweaking few product attributes and dressing up packages with meaningless claims. Marketers learned that partaking of environmentally related opportunities requires a total corporate commitment to actually 'greening' the product or service and the company's communication. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 46)

Ottman (Green marketing,47) continues by saying that a new paradigm is now in the making. The basic assumptions of how best respond to consumer needs are in question. Consumers are now viewed as human beings concerned about the condition of the world around them instead of as individuals with insatiable appetite for material goods.

2.2.1 Green consumers

The process of consumption has number of different roles in society. In industrial countries purchases seem to move to be based on desires rather than needs hence consumption is transforming into social, as opposed to purely economic activity. Consumption can be said attempting to fulfill one's needs and wants. Consumption also drives the economy, as unless existing supply and demand are brought together to create purchase and use there won't be any economical activity. Consumption can also provide entertainment weather it's just dreamt about or actualized as shopping. The goods one purchases are as well an important part of the sense of one's identity and hence consumption also helps to define one self. It can also make a statement about who we are as individuals and how we are perceived by others. Consumption can also act as a reward or be something that is earned, it is also often used as a measurement of success. Purchasing also has an element of power as by purchasing or not purchasing a consumer can experience real although maybe not significant power. Even though consuming is associated with many positive things it can also become a disease, as shopping addictions

have been recognized and have become a serious problem for some. (Peattie, Environmental Marketing Management meeting the green challenge,81)

Borrowing from The Green Consumer Guide by Elkington and Hailes (1988) Peattie (Environmental Marketing Management meeting the green challenge,83) defines the green consumption trends as shown in the figure.

Table 12

Green consumption defined as the process of avoiding products that are likely to:
Endanger the health of the consumer or others
In production, use or disposal significantly damage the environment
During production, use or disposal consume very large amounts of resources
Through unduly short lifespan , over packaging or excess product features, cause unnecessary waste
Products that use materials derived from endangered species or environments
Involved in cruelty to, or needless exploitation of, animals
Unfavorably affect other countries, developing countries in particular

(Peattie, Environmental Marketing Management meeting the green challenge,83)

Consumption does not include just a single activity, but a series of activities that can be described as the buying process. 'Normal' e.g. grey marketing has always focused on the elements and activities which lead up to the actual purchase of a product or service. Hence the needs and motives of consumers have been known to dominate the research agendas of academics and the thinking of practioners. More balanced view of the consumption and purchase process is needed in Environmental marketing and the emphasis is being placed much more on post-purchase issues of product use and disposal. (Peattie, Environmental Marketing Management meeting the green challenge,85)

According to Peattie (Environmental Marketing Management meeting the green challenge,87) desire for more information about the relationship between products and the environment is a key element of green consumption. Green consumers will even often actively pursue information about how environmentally friendly a product or service is and exposure to green information sources most definitely appears to influence consumer purchasing decisions.

For green consumption there are several levels of alternative purchase behaviors compared to what marketing theory has tended to assume that where a need is translated into a want and is backed by the power of to purchase, then a purchase will be the result. Green consumption may include purchase behaviors such as non-purchase, borrowing, hiring, leasing, buying second-hand, Buying alternative products and brands and lifespan-based purchasing. Non-purchase can result to the potential customer to repair the old product so there is no need for a new one or for example making the product by them selves. Borrowing, hiring or leasing is a green alternative to purchasing for example cars, books and specialist clothing have had a long tradition as a hire segment. Also new growth hire segments such as toy libraries, tools and baby equipment are becoming more popular. Buying second-hand product a green consumer can satisfy his or her needs without causing the consumption of more natural resources. Also new growth segments in second-hand buying are emerging. Green consumers might trade-down technology to meet their needs for transportation to work with bicycles rather than cars, and their need for cleaning in the kitchen with vinegar or baking soda instead of kitchen cleanser, this is what is meant by alternative products. Buying alternative brands is a consumer behavior that has created the most interest in the early phase of environmental marketing, the switching of consumer purchase to alternative green brands. Lifespan-based purchasing is a particular form of brand switching. This trend involves buying high quality goods with a longer potential lifespan, usually backed up by a lifetime guarantee. There are also green consumers that go green when their usual brand produces a green product variant.

These brand-loyal consumers keep the faith with existing brands. (Peattie, Environmental Marketing Management meeting the green challenge,88)

The purchase decision is what is crucial to marketers. According to Peattie (Environmental Marketing Management meeting the green challenge,89) consumers will consider where to buy, how much to buy and when to buy during their purchase decision making. For example a green consumer may decide to purchase but at a reduced level, in an attempt to consume less. The timing is also crucial in green purchasing as consumers may wait until claims for improved eco-performance are validated by an official green label or an organization. Green consumers may also delay their purchase until an environmentally improved alternative is available.

Green consumers post-purchase behavior can differentiate them from the 'normal' consumer. A green consumer may continue to use the product but in a different way or they may reuse part or all of the product in context of other needs and wants. Green consumers will also pay attention to the product disposal and will try and dispose the product safely and when possible usefully. Packaging material and recyclability also effect green consumers purchase decision. After the purchase green consumers tend to often give increased attention to the care and maintenance of consumer durables in an attempt to increase their lifespan, this effects the purchase decision when there is for example an alternative that is designed for easy care and maintenance. (Peattie, Environmental Marketing Management meeting the green challenge,89)

Demographics are often a key determinant of intent to buy specific products in conventional marketing. However in green marketing empowerment or the consumer's feelings of being able to act on environmental issues seems to determine the willingness to purchase environmentally friendly products more than demographics. After all consumers might be concerned about a specific environmental issue and may have the time and money to act on it but if they

believe they can not make a difference they are likely not to act. Research has shown that the most accurate predictor of an individual's willingness to pay a higher price for renewable energy is not education or income but membership in – or prior contributions to – environmental groups. For example including both urban professionals and rural families the supporters of such utility "green pricing" programs are surprisingly diverse.

According to Peattie (Environmental Marketing Management meeting the green challenge,85) it is in many ways misleading to attempt to categorize or generalize the green consumer. It is perhaps impossible to try and categorize a green consumer the same definite way that a consumer might me categorized as male, female, Hispanic, teenage etc. A green consumer might be categorized green based on his or hers car ownership but at the same time perceived as a grey simply by owning a car.
(Environmental Marketing Management meeting the green challenge,85)

Levels of concern and feelings of empowerment vary among the population. Roper Starch worldwide, Green Gauge, 1996 has created five segments of "environmentally friendly" consumers. These segments have been traced since 1990 and are based on U.S consumers. The five segments are as follows. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 20)

True-Blues represent 10 per cent of the population and they represent and live strong environmental beliefs. These people believe that they can personally make a difference in healing the environmental ills. They are politically and socially active dedicating time and effort to environmentally safe practices and attempting to influence others to do so as well. True-blues are six times more apt to contribute money to environmental organizations and over four times more likely to boycott products or services made by companies that are not environmentally responsible. Almost one third of true-blues hold executive or professional jobs and are likely to be white females living in the Midwest or South of the U.S. This group is the most

educated of the five groups. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 22)

The Greenbacks represent only about five percent of the U.S population and are named as Greenbacks because of their willingness to pay extra for environmentally preferable products. These people say that they will pay up to 22 percent more for green. They fee busy to challenge their lifestyles but worry about the environment and support environmentalism. Greenbacks aren't generally politically active but green purchasing within this group is very high. They are more likely than the average American to purchase any number of green products for example products and packages made from recycled material or that can be refilled. They are also twice as likely to boycott products from companies they see as environmentally irresponsible. Greenbacks are likely to be living in Midwest and West in the U.S, they usually have white collar jobs are young and well educated married white males. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 23)

One third of the U.S population is classified as Sprouts who are willing to take part in environmental activities from time to time but only when little effort is needed. Recycling is their main activity. They sometimes read labels of greenness but less often than the True-blues and Greenbacks. Sprouts and Greenbacks tend to have similar median incomes, Sprouts generally won't choose a environmentally friendly product if it is more expensive than others on offer. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 23)
If they do however choose the green product or service they are only willing to pay up to 4 percent extra. Sprouts are distributed evenly across the U.S , are well educated and only under two thirds of them are married. They have the highest median age amongst these five groups. Sprouts are a group that can go either way on environmental issues, although with more education these people are often the source for new Greenbacks and True-blues. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 28)

Fifteen percent of the U.S population is Grousers who believe that individuals don't play any significant part in protecting the environment. They feel that government and large corporations are the ones to bear responsibility on green matters. Due to confusion and lack of information about 45 percent of Grousers recycle cans and bottles to comply with local laws rather than to contribute to a better environment. Grousers claim to be too busy and use excuses such as green products cost too much, don't work as well and it is hard to get involved. Their attitude is that everything they do is inconsequential in the whole scheme of things and that it is someone else's problem. With a somewhat higher proportion of African-American members Grousers are similar to the national average. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 28)

Basic Browns represent 37 percent of the population and are not tuned or turned on to the environment. They do not believe in the seriousness of environmental problems and don't even make excuses for their behavior, they just don't care. Because Basic browns are so indifferent it makes them less than half as likely as the average American to recycle and only one percent boycott products for environmental reasons even though the national average is eleven percent. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 28)
Three percent of Basic brown buy recycled goods compared to 18 percent nationally. Basic browns have the lowest median income, are the largest of the five groups, live disproportionately in the South and have the lowest level of education. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 29)

Based on the Roper research environmental behavior varies significantly across these segments, so it needs to be considered that not all categories of products or individual brands are affected equally by consumer's environmental concerns. Because of the social influence of the True-blues how ever suggests that their types of behavior can be expected from a much bigger group of consumers in the future. There are hence opportunities for marketers who can win over these influential True-blues.

(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 29)

According to Jaqueline A.Ottman (Green marketing,29) not all deep green activists are alike. To further segment them into three groups mirroring the major types of environmental issues and causes is possible. These three groups are Planet Passionates, Health Fanatics and Animal Lovers. Planet Passionates focus on issues relating to land, air and water with goals of keeping the environment clean for recreational purposes and of protecting wildlife. These people recycle cans and bottles and avoid over packaged products. They clean up bays and rivers and boycott tropical hardwood. Health consequences of environmental problems are the Health Fanatics main concern. They worry about the long-term impact on their children's health of pesticides on fruit, are concerned about genetic defects from radiation and toxic waste and about getting cancer from too much exposure to the sun. Health Fanatics are frequent users of natural-food stores. They buy bottled water and eat organic foods. As hinted by their name the Animal Lovers, third major group of deep greens they protect the animal rights. Animal Lovers check to see if products are 'cruelty-free' and they are likely to be vegetarians. They also are known to boycott tuna and fur and their favorite causes seem to include manatees and spotted owls.
(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 31)
Ottman (Green marketing,31) also states that Although green consumers express their environmental concerns in individual ways, they are motivated by universal needs. New purchasing strategies with implications for the way products are developed and marketed are created as a result of these needs.
(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 31)

Like the Baby Boomers Green consumers reflect a deeply felt need to feel that they can, at least in some small way, make a difference. A desire for control and corresponding need to alleviate guilt are the reasons from which this need stems from. Environmental ills which consumers could do something about but don't makes the consumers feel especially guilty. Consumers have acknowledged the

role of their own consumption in despoiling the environment. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 37)

Ottman (Green marketing,39) suggests that consumers desire to alleviate guilt manifests it self in indirect ways. For example new mothers might continue to use disposable diapers knowing they will end up in a land fill. However to compensate this behavior they may go out of their way to recycle the family's cans, bottles and newspapers to help offset the space in the landfill taken up by the diaper. Compensatory behavior like this suggests that each consumer has a unique repertoire of activities and trade-offs they are willing to make to help out the planet.

The environmental repertoire of people likely reflects factors such as age, lifestyle, income and particular environmental interests and concerns as well as geographic location, including access to recycling and other after-use or disposal options. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 40)

According to Ottman (green marketing, 40) consumers feelings of guilt and eco-inadequacy have not been assuaged since the early 1990's and a lengthening list of environmentally driven activities and purchasing continues to fill the gaps. Taking measures around the house and purchasing green products give environmentally concerned consumers a psychic lift by helping them align their beliefs with their actions. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 40) These positive feelings about being green should definitely benefit the sales of new environmental innovations.

However products representing unfamiliar and brand new technologies are constantly being launched onto store shelves. Only eight percent of consumers claim to know a lot about environmental issues, this number seems to be growing though. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 41) This means that even the most environmentally enthused consumers need to be educated on why some types of products represent more environmental benefits

than others. Providing this type of information and education still seems to be the biggest opportunity to expand the market to mainstream consumers. A profusion of labels, claims, eco-seals and images on products and packaging , along with inconsistent media stories, often just confuse and frustrate consumers. (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 41) It seems that one part of winning consumers over is consistent information about the environmental issues and clear communication with the products and services.

2.2.2 Designed to be green

“ Environmental product issues are varied and complex. They span every phase of product’s life cycle, and include a plethora of sub-issues, such as conservation of natural resources like water and land, energy efficiency, and protection of natural habitats and endangered species. Upgrading products and packaging to minimize environmental impact can be tricky. What may appear to be an environmental benefit may actually result in little or no added value to the environment. Sometimes, the presumed greening of one attribute can actually increase overall environmental impact.” (Green marketing, opportunity for innovation, J.A.Ottman, 1998, 57)

To help tackle these issues there is a tool called LCI Life Cycle Inventory. The process that quantifies the use of resources, energy and emissions to the environment associated with a product throughout its life cycle is the first step in conducting a full life cycle analysis of a product. The first step accounts for the environmental impact of production and manufacturing, raw-material procurement, distribution, packaging and in-use right through to after-use and disposal.

The LCI was first developed to help reduce the amount of energy used for distributing and developing products during the 1970s. The LCI is very useful for:

- In existing products and their alternatives to compare the costs that are associated with energy and resource usage and environmental emissions.
- In identification of significant areas for reducing waste and energy use.
- When looking for possible alternative ways to manufacture or package products LCI helps in comparing energy and resource usage and environmental emissions.

(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 59)

LCI's can be conducted by an industry sector to enable it to identify areas where improvements could be made, in environmental terms. The LCI can alternatively be intended to provide environmental data for the government or for the public. As all products have some impact on the environment the aim is to identify those which are most harmful using more resources, causing more pollution or generating more waste than others. Even for products of which environmental burdens are relatively low, the LCI should help to identify the stages in production processes which cause or have the potential to cause pollution, as well as which have a heavy metal or energy demand. The breaking down of the manufacturing process into such fine detail can also be an aid to identifying the use of scarce resources and showing where more sustainable product could be substituted. (http://www.gdrc.org/uem/lca/life-cycle.html)

However according to J.A.Ottman (Green marketing, opportunity for innovation, J.A. Ottman, 1998, 61) life cycle inventory as presently developed focuses on the raw-material requirements, by-products, waste and emissions associated

with producing a product. It can not easily differentiate between alternative technologies for addressing the same consumer need. Many environmental concerns are not addressed by LCI. LCI must be augmented with holistic evaluation of a products or services total environmental impact. What must be considered separately and can not be evaluated by the quantitative approach of LCI are: renewable or sustainable resource use, habitat destruction, biodiversity depletion, odors, visual pollution, noise pollution, toxicity, biodegradability and other issues that are of concern to environmentalists and consumers.

Also in recent years, a number of major companies have used LCI in their marketing and advertising, in order to support claims that their products are 'environmentally superior' against the rivals. Companies should be careful about using Life Cycle Inventory as a marketing tool as many of the claims made by the companies have been successfully challenged by environmental groups.

(http://www.gdrc.org/uem/lca/life-cycle.html)

Table 13

Green product development issues

GREEN PRODUCT DEVELOPMENT ISSUES
Raw materials acquisition and processing:
- Conservation of natural resources like water land and air
- Protection of natural habitats and endangered species
- Waste minimization and pollution prevention, especially the use and release of toxins
- Transportation
- Use of renewable resources; sustainable use of resources
- Use of recycled materials
- Energy consumption
Manufacturing and distribution issues:
- Minimal use of materials
- Toxic use/release
- By-product/waste generation and handling
- Energy consumption
- Water use
- Emissions to air, land and water
Product use and packaging issues:
- Energy efficiency
- Conservation of natural resources such as water required for the use of the product
- Consumer health and environmental safety

After use/Disposal issues:
- Recyclability; ease of reuse, remanufacture, and repair
- Durability
- Biodegradability/compostability
- Safety when incinerated or landfilled

(Green marketing, opportunity for innovation, J.A.Ottman, 1998, 58)

3 METHODOLOGY

3.1 Research method

The research design is the overall plan for relating the conceptual research problem to the practicable research. Empirical research is conducted to answer or enlighten research questions. (Ghauri & Gronhaug, 2002, 47.) Research problems are infinite and they come in many forms. Three main types of research designs can be identified based on the problem structure: *exploratory, descriptive* and *causal (explanatory)*. Exploratory design is practicable when the research problem is not clearly understood and structured, and its scope is not clear. This type of research requires flexibility as the study might change its direction depending on the findings. Descriptive research is used for structured and well understood problems. Some background information should exist in the beinning and data is collected to support it. In causal research the scrutinized problems are structured. The researcher is confronted with 'cause-and-effect' problems and the main tasks are to isolate causes, and tell whether and to what extend causes result in effects. (Ghauri & Gronhaug, 2002, 48-50). In this thesis exploratory research is used due to its investigative nature and the unstructured research dilemma. The exploratory research can provide remarkable insight that will help to map the investigated companies into different strategical groups.

When conducting a study, two types of data can be used: *primary* and *secondary*. Secondary data means information that has been collected by somebody else and, in most of the cases, for a different reason. Secondary data can provide relevant background information, help to formulate or re-formulate the research questions, and also answer the research questions partially or even completely. Secondary data helps on deciding which research method to use, and on evaluating and comparing the results of the study at hand. At the same time, secondary data is usually collected for a different

purpose, thus it may not directly serve the particular research problem at hand. Therefore it is justifiable to use also primary data. (Ghauri & Gronhaug, 2002, 76-81).

In this particual thesis numerous books, Internet sources, printed and electronic artcles and studies have been used as secondary data sources. The topics have varied from, for instance, innovation management theories to environmental marketing and data analysis. The secondary data is used in order to provide the necessary background information on the topic, to clarify concepts, and to understand and define what type of primary data ought to be collected in order answer the set research questions.

Primary data is collected by the researched for the particular research problem at hand. There are several ways of collecting primary data, the most common being observations, experiments, surveys or questionnaires, and interviews. The advantage of the primary data is obviously that it is collected to serve the particular research problem at hand. The most notable problems are related to the high cost, poor accessibility, and reliability and applicability. Primary data collection is more challenging than using secondary data hence the researcher must bear the responsibility of using proper tools, procedures and methods of analysis. (Ghauri & Gronhaug, 2002, 81-82).

After deciding on the research questions and research design, it is relevant to choose the research method. By research methods is meant the systematic, focused and orderly data collection for the purpose of obtaining information to solve or answer the research problems or questions. Methods can be either *qualitative* or *quantitative.* Quantitative research methods refer to research methods that are dealing with numbers and anything that is measurable, and the outcomes are often presented as statistics, i.e. in tables or graphs, for instance. It is a very logical and critical approach, which often focuses on hypothesis testing. Even though it provides accurate, fact-based analysis, it is

often very generic and distant from the data. Qualitative research, on the other hand, has an explorative orientation and it focuses on understanding the research dilemma from the respondent's or informant's point of view. Qualitative research is a mixture of the rational, explorative and intuitive, and hence provides an insider viewpoint on the research topic at hand. Qualitative methods are flexible and unstructured, and generally most useful for inductive and exploratory research. (Ghauri & Gronhaug, 2002, 85-88). In qualitative research the purpose is seldom to arrive at statistically valid conclusions, but rather to understand, gain insights and create explanations (Ghauri & Gronhaug, 2002, 120-121).

The data analysis is a process of dissecting data, and bringing order, structure and meaning to the mass of collected data. Some divide the data into two categories, *quantitative* and *qualitative.* The qualitative data endeavours to understand and gain insight into phenomena. Qualitative data is applicable when the research problems are unstructured, and flexible, qualitative research methods are applied. Qualitative data is used in this particular study thus it will be described in more detail, but please see table 14 for further clarification on the differences between quantitative and qualitative data. Interpretation plays a key role particularly in qualitative research, because they are needed to arrive at understanding. (Ghauri & Gronhaug, 2002, 137). As the qualitative research, and the interpretations and conclusions of it, are not based on hard facts like numbers, the validity must be emphasizes. According to Ghauri & Gronhaug (2002, 139) the following four types of validity are often emphasized in qualitative research:

- Descriptive
- Interpretative
- Theoretical

- Generalizable

Descriptive validity refers to the degree to which the actual description holds true, whereas Interprative validity is about how good the interpretation is. Theoretical validity refers to the adequacy of the suggested theory on explanation, and generalizable validity looks into what extent the findings from a study can be generalized to other settings.

Table 14

Quantitative and qualitative data

Quantitative and qualitative data	
Quantitave data	**Qualitative data**
Based on meanings derived	Based on meanings expressed
Collection results in numerical and standardized data	Collection results in non-standardized data requiring classification into categories
Analysis conducted through the use of diagrams and statistics	Analysis conducted through the use of conceptualization
Source: Ghauri and Gronhaug, 2002, 137.	

3.2 Research Procedures

We decided to interview selected small or medium size Finnish company to gain in depth understanding of how environmental innovations are created and utilized as an asset for creating the company's identity, emphasizing the brand, and creating competitive advantage. Focus was on product creation and development, and marketing. We studied which small and medium size companies with environmentally friendly and innovative products existed within

our reach, as we wanted to visit the companies to understand how they operate and execute the green innovation strategy. After the premiliminary study we chose to proceed with Durat, as they suited the purpose the best.

We approached them with a survey covering the basic information, as we wanted to ensure that they were the right choise. The survey was followed by two intervies to gain more in depth knowledge and to build on the basic information gathered with the survey.

4 EMPIRICAL STUDY

4.1 Background information on the selected company, Durat

Durat's slogan "recycled to last" describes the company very well: In the early 90's the company set out to develop a new sustainable material and Durat was born. They combined the innovative material with design and thus formed a beautiful marriage between recycling and design. They are one of the world's oldest solid surface manufactures designing and manufacturing a broad range of unique products made out of ecological solid surface material which contains 30-50% recycled post industrial plastics and are 100% recyclable.

Durat's offering includes numerous colour variants, and colours can also be customized to order. Easy maintenance and hard wearing properties make it optimal for various interiors and purposes, for example for kitchens, bathrooms and public spaces. In addition to traditional solid surfaces Durat can also be used for exclusive design products like sinks, bath tubs, stools, shower trays and tables.

Ecologically speaking Durat is a prime example of making good use of waste materials: Durat collects post industrial plastic waste from its partner network around Finland and Sweden minimizing the amount of raw material ending up in wastelands. Using waste material is a very substantial and concrete way to

lessen consumption and stress on nature. In addition to using recycled material Durat has also made its own products 100% recyclable. Durat collects and re-uses all excess pieces generated in production, and also modifies and recycles old Durat products. Products are also designed to be long lasting, durable, and easily repaired, hence sustainable on their own.

The company is privately held and located in Rymättylä near Turku, Finland.

4.2 Analysis based on the case study

4.2.1 Product innovation

The story of Durat started in 1990 when the company was still called Tonester. There seemed to have been a market need for a domestic solid surface material. Tonester had the capability to produce the material out of resin and sand, and that's how Durat saw delight. However, the textutre and looks were further developed by adding plastic waste to it. They collect post industrial plastic waste from all-over Finland and Sweden, but currently they do not collect plastic waste directly from consumers. Finland has a long history of environmental awareness, and therefore sustainability and recycleability grew in importance during the product development phase as they realized how well they could utilize waste. They have continuously worked on improving the ratio of plastic waste in the material, and hence the product has become even more environmentally friendly over time, with green and sustainable values strongly embedded.

Further pruduct development has concentrated on colours and design. First Durat produced sheets of the material which were used as custom surfaces in kitchens, bathrooms, reception desks and table tops. Over the years the design and usability have evolved a great deal as the collection has been diversified to custom baths and basins, stools and bins among other. Some of the development is derives from close collaboration with architects.

Current focus is on colours: Durat is constantly developing more of them, even though the current collection already consists of an impressive number of choices. Focus is also on developing more environmentally friendly dies. At presenet, Durat mass is produced using 30-50% recycled materials but the ambitious goal is to get closer to 100%. New colours for instance contain particles of Durat material, which is the way forward.

4.2.2 Marketplace

Approximately half of Durat's products are sold in the domestic market and half is exported. Durat products are sold internationally in various countries: United States of America, Netherlands, United Kingdom, Ireland, France, Germany and Spain are the most important countries currently, but United Arab Emirates, Russia and Asia, China and India particularly, are growing in importance.

Competition has been strong from the beginning, but Durat is unique due to the recyclability. The most well-known competitor is Corian by DuPont but also Avonite Surfaces, Staron by Samsung and LG's HI-MACs are operating on the same market. Durat differentiates from competitors by colour variants, sustainability and design. They have their own product range and also customize to order. Competitition has increased over the years, but they have managed to retain their strong position in their own niche by relying on sustainability, extensive number of colour variants, and unique design.

Durat's clientele consists of both private people and other businesses the split being roughly 50/50. They do immense collaboration, for instance, with architects, designers, carpenters, fabricators, develpers, contractors and kitchen furnishing companies. In general, their customers are very loyal and

they have collaborated with many professionals for years receiving valuable end user feedback from their established network.

Customers in different locations value their products for different reasons: Sustainability and usability are clear competitive advantages in markets like the United Kingdom, Scandinavia, Ireland and the United States of America. On the other hand, in Germany, France, Russia, United Arab Emirates and Asia customers are more focused on the design and customization opportunities.

Due to Durat's unique features, sustainability and recyclability, the products are relative highly priced compared to competitors. Price is clearly a challenge in markets like Russia where sustainability is not widely considered as added value. In Europe and the US pricing is competitive but transportation is clearly a challenge since the company is located in Rymättylä, Finland. Both the raw materials and manufacturing are expensive and hence the products are made to order. Developing environmentally friendly products is expensive, and therefore cost competitiveness is difficult to reach. Also increased competition has caused price erosion. Environmental awareness has grown especially in the west but simultaneously the markets that currently have best purchasing power are not equally environmentally consicious, which is restraining the growth.

4.2.3 Sustainability and the future

Durat is determined to continue on the selected path of developing and selling environmentally friendly products. They have clear targets on several fronts: Firstly, they will continue to work on increasing the use of plastic waste in the solid surface material. They have stated the ambitious target to be 100% in the future whereas the current share of recycled materials is 30%. Secondly they

are continuously developing dyes that consist of less harmful chemicals, while in parallel they are collecting more and more of the chemical waste and re-using it in their production.

What have not been in the frontline so far are logistics, manufacturing, and supply chain operations. Many of Durat's products are big in size, as well as heavy. Therefore logistics is a great challenge for them: How to transport the products to end customers with minimal impact on the environment without jeopardizing on time deliveries, and quality. Currently Durat uses wooden crates, and products are transported to customers by road or sea. Their manufacturing sites location in Rymättylä, Finland, is also quite challenging. Even bigger problem is recollecting the used Durat products for recycling: Currently that don't have a channel to do this, which means that hardly any of the Durat products are actually recycled despite the feature. As a result, in reality only one of the opportunities for acting sustainably is being fulfilled. They do collect the plastic waste from other manufacturers but they do not collect the old Durat products for recycling from their clientele. The reasons lies in logistics and volume: Durat products are made to last, and therefore lifecycle of the products is very long. They do not have a vast enough partner network either to collect the used products from end users. Additionally, transporting the used products back to Rymättylä, Finland, for re-use would be both difficult and expensive while simultaneously eroding the environmental friendliness.

They have not focused on green manufacturing either. They have relied on the product's sustainability as an adequate feature, and simultaneously not taken the environmental friendliness further, for instance, in their choise for electricity supplier. It seems like Durat emphasizes the ecological advantages only when they see the clear benefit of it, but it does not seem to be their core value or a strong integral part of the company's identity, that woud be present in everything that they do.

5 CONCLUSIONS

To produce environmentally friendly innovations and to gain competitive advantage through green marketing in todays fast paced and globalized world is definitely not an easy task. It is however an enormous opportunity when exploited in the right way. Based on the case study Durat's product could be considered an environmental innovation as at the core of their business is creating products from recycled material. But even though Durat markets their products to be recyclable even after the use, it was found that the recycling can only happen at Durats production facilities. Seeing that Durat is selling their products internationally and does not offer such after sales service as for example Nokia offers with drop off points of used mobile devices for recycling, one could conclude that in the end Durat is not such a green business. That being said there still remains the open question as what really constitutes as a green environmentally friendly product. Is it enough and acceptable to market a product as environmentally friendly if only for example the raw material is 'green' but the supply chain is not. And in the end as long as the production, supply chain and marketing of a certain product creates any kind of waste and harm to the environment is it possible to label any product environmentally friendly?

It was also found that even though Durat's products could be considered green innovations, Durat is not opting to use the green aspect in their marketing. Durat's customer is more often an other business than an individual consumer. And what seems to attract Durat's customers the most is not the recycling and the green aspects but the design and differentiation of their products.

As an outcome and conclusion of the case study and research on innovation management and green marketing three main areas were identified that would possibly be the most important ones when trying to successfully gain competitive advantage with a innovative green product. A theory could be suggested that identifies three areas to pay attention to when attempting to launch a green innovation. The three areas are green innovation, market and marketing. That however is not to say that other aspects such as IT or HR

forexample can be completely ignored. Naturally all other aspects of a company need to be handled properly for it to be successful. As the first area green innovation; the product life cycle needs to be as environmentally healthy as possible including the production, supply chain and the end of life procedures. Secondly the market to which the product is aimed at needs to be chosen wisely and it is crucial to select correctly between the red and blue ocean strategies. And thirdly the marketing needs to pay first attention to identifying the real green consumer, and then directing marketing efforts towards reaching the desired target audience. With these three areas it is found based on the research conducted that a given company can reach the best chance at succeeding in todays rapid global environment that includes the green challenge.

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Survey and Interview of Durat

Survey for Bachelor Thesis by Jonna Heinonen and Kirsti Tuominen

Environmental innovation management and new product development

Durat – Recycled to Last

Section 1 – Product Innovation

1. Where did the idea for this kind of product/material come from (e.g. from a market need or from a technological invention enabling this type of production), and for what kinds of end products was the material originally created for?

   Evertyhing begun in 1990, when the company was still called Tonester. There was a market need for a domestic solid surface material. Tonester had the capability to produce the material out of resin and sand - sustainability came afterwards. Post-industrial waste is collected from all over Finland and Sweden – currently not directly from consumers. Finland as a country and market area is important regarding the sustainability since it has a history of envitronmental awareness.

2. How was the material first developed and how it has been further developed since?

   Tonester had the ability to produce the material out of resin and sand but texture and looks were developed further by adding plastic waste to it. At the same time it became recyclable and hence environmentally friendly. Further development has concentrated on colours and design.

3. How has the exploitation of the innovative material developed over the years? Have new, for instance, product or manufacturing, innovations stemmed from the original material innovation?

First Durat produced sheets of the material which were used as custom surfaces in kitchens, bathrooms, reception desks and table tops. Over the years the design and usability have evolved a great deal as the collection has been diversified to custom baths and basins, stools and bins among other. Some of the development is derives from close collaboration with architects.

Current focus is on colours: Durat is constantly developing more of them, even though the current collection already consists of an impressive number of choices. Focus is also on developing more environmentally friendly dies.

At presenet, Durat mass is produced using 30-50% recycled materials but the ambitious goal is to get closer to 100%. New colours for instance contain particles of Durat material, which is the way forward.

4. Are there any plans for expand to other products or procedures using the current innovative knowledge and know-how?

The development continues in the three aforementioned areas: recyclability, colours and design.

Section 2 – Marketplace

5. In which countries you have sales at the moment and how has the internationalization developed over the years? What are the countries that Durat plans to expand into next?

Share of domestic market is approximately 50%. Internationally Durat is sold in various countries – mainly in the USA, Netherlands, United Kingdom, Ireland, France, Germany and Spain. The next focus areas are United Arab Emirates, Russia, Asia (China & India in particular).

6. Was there any direct competition in the beginning or was Durat the first in its kind?

There are several similar products on the market but Durat is unique due to the recyclability. The most well-known competitor is Corian by DuPont but also Avonite Surfaces, Staron by Samsung and LG's HI-MACs are operating on the same market.

Durat's competes with colour variants, sustainability and design. They have their own product range and also do customized products.

7. How has the competition situation developed over the years and what is the situation now?

More competition, but their own niche has served well (sustainability & design).

8. What is the demographic of the customer base?

The clientele consists of both private people and other businesses the split being roughly 50/50: architects, designers, carpenters, fabricators, develpers, contractors, kitchen furnishing companies, and private people.

9. Are your customers loyal or does the customer base change frequently?

Both. With many designers and architects long term collaboration.

10. Are the customers generally more interested in design products or environmentally friendly products? E.g is the design factor of the product an added benefit to a green product or the other way around?

In Europe and Americas customers are environmentally conscious people who value sustainability and aesthetics. In Russia, United Arab Emirates and Asian countries focus is on design and functional qualities, and not on recyclability.

11. How are the products positioned in the market?

In the United Kingdom, Scandinavia, Ireland and the USA Durat's competitive advantage is clearly sustainability and usability. In Germany, France, Russia, United Arab Emirates and Asian countries focus is on looks.

12. What is the pricing strategy and what is the target customer segment used in marketing strategy?

The pricing is rather high and not very competitive for instance in Russia where the sustainability is not considered as added value. In Europe and the US pricing is competitive but transportation is clearly a challenge since the company is located in Rymättylä, Finland. Both the raw materials and manufacturing are expensive and hence the products are made to order.

Section 3 – Environment

13. What was the environmental value of the product in the beginning and how has the growing environmental awareness changed the value of the product in the consumers' eyes?

Increased competition has caused price erosion. Environmental awareness has grown especially in the west but simultaneously the markets that currently have best purchasing power are not equally environmentally consicious.

14. Is the whole company and its operating methods ‘environmentally friendly’, e.g. packaging, transportation methods, manufacturing, energy sources etc.?

Transportation is always either by road or sea and wooden crates are used. More and more of the chemicals that are used in the production are collected and re-used.