PACKAGING MEDIA LAB
- A design proposal to a packaging evaluation environment for conducting consumer studies

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Abstract

This study investigates how a package evaluation environment for consumer studies that tests the commercial meeting between the consumer and the package, in a cost effective way, can be designed. To be able to give a proposal to how such a package evaluation environment can be outlined this study examines what affects the consumer in the commercial meeting with the packaging in the shelf and what kind of evaluation techniques that exist for doing consumer research, especially for evaluating package design. These studies are used to propose a few techniques for evaluating the package’s impact on the consumer in the store.

The measurable aspects of a package that was found affecting the meeting with the consumer are; the package’s appearance, the tactile perception, the shelf impact, the package’s image and buy intention towards the consumer and the in-store performance of the package. The methods proposed for evaluating these aspects together with consumers in an in-store realistic evaluation environment are; Eye-Tracking for evaluating the package’s shelf impact, a computerized questionnaire evaluating the package’s image, the tactile perception, the appearance and buy intention, and also an expert panel containing people working with packages to evaluate the package’s in-store performance.

The package evaluation environment goes under the working title *Packaging Media Lab* and in the end of this study there is a simple design proposal to how the Packaging Media Lab can be designed.
**Sammanfattning**

Målet för denna studie är att utreda, hur en förpackningsutvärderingsmiljö för konsumentstudier kan se ut, där det är möjligt att testa alla aspekter på det kommersiella mötet mellan förpackning och konsument. I denna uppsats undersöks vad som påverkar konsumenten vid det kommersiella mötet med en förpackning i butikshyllan samt vilka utvärderingsmetoder som finns för att göra konsumentundersökningar särskilt gällande förpackningsdesign. Med dessa två undersökningar som grund föreslås ett par tekniker som alla kan användas i samma utvärderingsmiljö för att utvärdera alla aspekter som påverkar det kommersiella mötet mellan förpackning och konsument i butiken.


Utvärderingsmiljön för förpackningar går under arbetsnamnet *Packaging Media Lab* och i slutet av denna uppsats finns ett förslag på hur detta förpackningslab kan designas.
Preface
This is a Master Thesis written at the Department of Information Technology at Uppsala University School of Engineering within the Master of Science program in Information Technology Engineering. My supervisor has been Iordanis Kavathatzopoulos, Senior Lecturer at the Division of Human-Computer Interaction at the Department of Information Technology.

The project is initiated by Stora Enso InnoCentre, Designstudio Värmland and The Paper Province in Karlstad, Sweden. My supervisor at Stora Enso has been Lars Sandberg, manager at InnoCentre Stora Enso Research Centre.

I would like to express my gratitude to all people that have helped me to accomplish this thesis. Special thanks to Lars Sandberg for giving me the opportunity to work on this thesis. He has given me excellent supervision during the thesis work including valuable guidance and comments. I would also like to thank Tomas Edman at Designstudio Värmland and Mats Williams at The Paper Province for providing me with suitable contact persons and valuable advises, always with a positive attitude.

Thanks also to Iordanis Kavathatzopoulos for supervision and valuable comments on my thesis work.

Thanks to Ove Eriksson, Ola Knutz, Marcus Dehlin and Antje Rosentreter at Stora Enso InnoCentre Karlstad for valuable help during my thesis work and for contributing to a pleasant working environment at InnoCentre. I would also like to thank Catharina Hasslöf, Librarian at Stora Enso Research Centre Karlstad for lots of help with finding material for this thesis.

Thanks to Henrik Nittmar and Cecilia Dahlheim at QuickWise, Siv Lindberg at STFI, Bernt Gustavsson at Konsum Värmland, Annica Aström at SIK and Johan Bouvin at Tobii Technology for the time given to me and for helpful information during my visits. I would also like to thank OBS Bergvik for letting me do consumer observations in the store.

Finally I would like to thank Johan Peterson who has supported me through the progress of this thesis, giving me valuable comments on my work and for being a positive spirit in my life.
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1 Introduction

1.1 Research question

A product’s packaging is on the shelf every day of the year, and is one of the most important things fighting for the consumer’s attention towards the product in the store. At the critical point of sale it is the package design which represents the brand. Therefore the packaging is a very important feature of the product and companies should be able to evaluate their packages together with consumers before launching a product, to evaluate the package’s visual appeal towards the consumers. Until today a package evaluation environment for consumer studies capable of evaluating the whole range of factors affecting the meeting between the package and consumer in the store is not known, although there are different techniques to evaluate diverse aspects of this meeting, but they are not collected in one place. The task is to propose how a package evaluation environment for consumer studies covering the whole range of factors affecting the meeting between the consumer and the packaging in the store, in a cost effective way, can be outlined. This investigation shall work as a base for later setting up a physical package evaluation environment, capable of conducting consumer studies. This kind of study has not been done before and the testing environment, when built for real, will be a unique package evaluation possibility. It shall be used by companies who wish to study the commercial meeting between the package and the consumers before launching the product, to ensure that the package design works at the point of sale.

1.2 Purpose

The purpose with this thesis is to give a proposal to how a package evaluation environment for consumer studies testing the commercial meeting between the consumer and the package in the store, in a cost effective way, can be designed.

1.3 Delimitations

Within this study a physical package evaluation environment is not supposed to be built, but a proposal shall be made to how a package evaluation environment can be designed, if later being built. This study is delimited to concern packaging within the consumer packaged goods sector. It is possible to extend to other types of packaged goods as well in a later stage. The evaluation of packaging shall concern the commercial meeting between consumer and package in the store, and not the consumer’s usage of the package. There are other studies and testing environments concerning packaging functionality and usability.

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1 Gidda, Satkar & Head, Siebert (1997)
2 Background

To give the reader a background to why this study is conducted and how package design is tested today this background part explains who the initiators to this study are, why the product’s packaging takes on such high importance in the store and how the package design is evaluated today, before a company launches a product.

2.1 The parties in this project

The three initiators to this project are Stora Enso, Designstudio Värmland and The Paper Province. All three companies are situated in Karlstad, Sweden. Stora Enso is an integrated paper, packaging and forest products company producing publication and fine papers, packaging boards and wood products. Designstudio Värmland is a coordinator product development- and design competence between industry, community and education in the region of Värmland. The Paper Province is a cluster of pulp and paper technology, aiming to make the region of Värmland known throughout the world as a competitive forest industry cluster.

These companies all work with packaging and design in one way or another and they were all aware of the high importance of packaging when a product meets the consumer in the store. They did not know of any cost effective package evaluation environment capable of evaluating the whole range of factors affecting the commercial meeting between the package and consumer where it was possible for companies to evaluate their packages before launching the product. They became interested in creating such a package evaluation environment and they decided to do a pre-study as a start-up for the project to see how the environment could be outlined. They also saw this project as a good opportunity to further strengthen the position of the region of Värmland as a strong paper and packaging province in Sweden. The author of this thesis was asked to do the pre-study as she studies Information Technology Engineering with focus on human-computer interaction and user studies and this project is about finding techniques by which to conduct consumer/user studies. The initiators wanted this investigation to work as a base for later setting up a real package evaluation environment. The evaluation environment goes under the working title Packaging Media Lab, relating to the communicative ability of packages which leads to the fact that a package can be referred to as media communicating with the consumer. The Packaging Media Lab will be named PML (Packaging Media Lab) in this thesis.

2.2 The importance of packaging

Why is the packaging such an important factor of a product? Why is it advisable that the packaging shall be evaluated with consumers before launching a product? These questions will be answered below with help from literature written about the subject.

For decisions made at the point of purchase, packaging takes on heightened importance relative to other communication tools because of its easy availability. The package is the
shopper’s avenue to the product because it often projects the initial impression he or she forms about a brand, its quality or value.²

In a typical supermarket there are approximately between 60 000 and 120 000 packages facing the consumer. If the consumer spends one second looking at each package it would take approximately half a day to a day to get round the store. The average shopping time is approximately 35 minutes, so therefore each brand’s packaging has to work incredibly hard to stop the consumer, to identify itself to the consumer and to identify the product. At the critical point of sale it is the package design which represents the brand. The brand’s packaging is on the shelf every day of the year, the only thing fighting for the consumer’s attention.¹ The competition arena is gradually moving from media to the point-of-purchase, making packaging more important than ever before.³

Shoppers are becoming less brand-loyal and more likely to make their decisions while standing at the shelf. Nearly 80% of the purchase decisions are made at point of sale where packaging is each product’s key spokesperson and communicator.⁴ At the point of purchase most shoppers only actively view about 50 percent of the brands within a category. The other half of the brands never get a chance to sell, because they are never seen; and a very high correlation has been found between how quickly a brand is seen and its likelihood of purchase.⁵

Effective packaging must initially brake through the clutter of a crowded retail store shelf to be seen and considered.⁴ 75% of the shoppers in grocery and drug stores do not enter the store with a written shopping list. If you can draw them to your product, you have got an excellent chance of making a sale. Research demonstrates that shoppers typically spend under 10 seconds at most grocery categories. A pack has only two to three seconds in which to make an impact. In that time, a brand must catch the consumer’s eye, communicate its message and convince the shopper that it is the optimum offer on the shelf.³ Therefore for a package to be effective, it must break through the clutter and hold attention long enough to implant the desired message.⁶

The package’s goal while exposed in-store can be summarized as to:

- Gain attention to the shelf
- Identify the product
- Identify the brand and differentiate it from competition
- Say something good about the product
- Induce consumers to buy ⁷

Seeing these goals it is easy to understand that in the self service outlets of today, the pack is the silent salesman and its use is critical within any marketing plan. Packaging

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² Underwood, Robert & Klein, Noreen (2002)
³ Rowan, Claire (2000)
⁴ Perception Research Services (a)
⁵ Young, Scott (2002)
⁶ Baker, Sheldon
⁷ Doyle, Mona (1996) p 13
can make a major contribution to a company’s profits through the simulation of sales and the reduction of costs. Therefore it is very important to evaluate the meeting between the consumer and the package before launching the product. To launch a product in a package not accepted by consumers can lead to poor product sales and negative effects on the brand. Companies committed to rigorous product testing and continuous product improvement can, in most instances, achieve product superiority over their competitors. Product superiority, in turn, helps strengthen brand share, magnifies the positive effects of all marketing activities and often allows the superior product to command a premium price relative to competitors.

2.3 Package design testing at some companies in Sweden

Before the factors affecting the meeting between the consumer and a package in-store were examined it was desirable to know how companies go about testing this meeting during the design process of a package. People responsible for product development at eight big Swedish consumer goods companies were interviewed, asked to describe their design process concerning packages and products. The results from the interviews pointed at the same conclusion stated by Stora Enso, Designstudio Värmland and The Paper Province; an environment for evaluating all aspects of the commercial meeting between the package and the consumer does not exist today, at least not in Sweden. The design process and the product testing activities were conducted differently at each company and a standard approach in the developing process of new products was not found.

The most relevant findings from the interviews are:

- The companies all turn to a design firm or/and a market research company when developing new design concepts. Many seem to have great confidence in the design firms’ ability to predict what the consumers find as good design.
- Most of the companies, but not all of them, use consumer participation during some stage of the design process. Almost every one of those utilizing consumer involvement employ focus groups and some of those use focus groups as the only way of doing consumer research before launching a new product.
- Few companies had used some kind of product shelf test although many of the companies were positive towards utilizing that kind of approach to evaluate package appearance towards consumers in the future.
- Companies use different market research techniques depending on which phase in the design process they are in. They often do qualitative studies to evaluate a couple of early design proposals to get recommendations about one or two proposals to proceed with. Later on in the process they often use quantitative studies on the remaining proposal(s) to confirm that the package attracts the consumers. They might also use either a qualitative or a quantitative study.
- Most consumer tests are conducted when a new design concept is going to be introduced and not when an existing product design is going to be slightly modified.

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8 Stewart, Bill (1997) p 1
9 Thomas, Jerry
10 See ‘4.3 Existing consumer research methods’
After giving a background to the parties initiating this project, why the packaging plays an important role in-store and what is found about how packaging research is conducted today, the methodology part will describe how the analysis has been conducted and how the results are found.
3 Methodology

To be able to fulfil the purpose of this thesis it is first examined what affects the consumer in the commercial meeting with the packaging in the shelf. Second it is explored what kind of evaluation techniques for evaluating package design that are used by companies today. These two studies are then used to propose a few techniques for evaluating the packages impact on the consumer in the store, possible to use in a package evaluation environment, covering the whole range of aspects affecting the commercial meeting between the consumer and the package in the shelf. Below is a detailed description of how the research is conducted.

3.1 Identify users

In the beginning of the study the potential users to the PML was identified, this to make it possible to decide which method to use when collecting the information needed in the study. The potential users of the PML can be seen in two ways. First one can view the consumers as the users of the PML since they are the ones that will get in direct contact with the testing environment and use the different techniques within the PML. Second one can view the companies who own the products tested as the users of the PML, it might also be a design firm or a market research company testing a product. The companies will use the results from the PML studies and they will also have an influence over how the package evaluation setting is used and which kind of study to conduct.

3.2 User behaviour

After identifying the potential users to the PML it was desirable to know how they behave today, as the consumers are shopping, and as the companies are testing their products on consumers. This to be able to use the knowledge about the consumers’ behaviour in-store when mapping the impact the package has on the consumer in-store, and the knowledge about the companies’ procedures evaluating packages on consumers to examine which methods for consumer studies that are in use today and if some method or approach towards the consumer can be used in the PML.

To learn about how the presumable PML users behave today the problem was faced as proposed when doing human-computer interaction projects, to involve the users as early as possible in the project. The methods for evaluation described in Preece’s book Human-Computer Interaction was used, about how to collect observational data (direct observations) and verbal protocols (interviews) from users. Those two evaluation methods are most suitable for gaining information about the two user groups identified. The method of direct observation is very useful early in a project when one is looking for informal feedback, and to gain a picture of the kinds of things that users do. The method allow for individual users to be directly observed doing their normal work, with the observer making notes about interesting behaviour or recording their performance in some way. Direct observations were made at a grocery store during one week day by

11 Preece, Jenny (1999) p 617
12 Preece, Jenny (1999) p 628
13 Preece, Jenny (1999) p 618
discretely observing consumers while they were shopping as it was found to be the best way of getting a picture of consumer behaviour in-store.

By making interviews with consumer products companies, design firms and market research companies information was gathered about how they test the meeting between the package and the consumer. This was made by using flexible interviews with people in charge of package design issues at the companies. Flexible interviews generally have some set topics but no set sequence and the interviewer is free to follow the interviewees’ replies and to find out about personal attitudes. This interview form was used since the package testing procedures were different at all companies which made it hard to use a more structured interview form. During the interview, which was accomplished via telephone, the companies were asked to briefly describe their package design process and also how they test the commercial meeting between the package and consumer. People responsible for product development at eight Swedish consumer goods companies were interviewed and they were free to tell as much as they wanted about the subject and to speak freely. An arbitrary choice was made of companies selling consumer goods and the ones that were found most interesting according to company size and product categories were contacted. Two design firms working with package design, and four market research companies involved in packaging development were also interviewed. Two of the market research companies were visited, QuickWise and SIK, The Swedish Institute for Food and Biotechnology, for doing interviews with them and to see how they work with package market research.

It was desirable to find out what people working with retail store settings know about consumer behaviour and if they find an environment evaluating package design useful. Bernt Gustavsson, working with category management at Konsum Värmland, was contacted and the possibility to meet him to discuss these questions was given. Category management is a planning process designed to optimize assortment and merchandising to best leverage category growth and efficiency.

### 3.3 Literature search

When the picture was clear about how the potential PML users behave today and what the need for an environment evaluating package design might be the search for literature about product testing, package design and consumer behaviour began. Information was found at the library of Stora Enso and also on the internet. A few relevant books written about the subject were found and also many articles, both in magazines and on the internet. It might be hard to treat articles found on the internet as fully trustworthy sources. The choice was made to use those internet sources that were found good and relevant for the study. The authors to the internet articles used all have relevant knowledge within the area of product testing and package design.

The literature found was divided into literature about the package’s effect on the consumer and literature concerning techniques to evaluate the meeting between the consumer and the package. Package aspects are also discussed together with my supervisor at Stora Enso, Lars Sandberg, while working with this thesis.
3.4 Analysis methodology

From the literature about the package’s impact on the meeting with the consumer and the observations made at the store, the factors affecting the commercial meeting between package and consumer were collected. They were illustrated as a map of factors with the consumer in focus, since package design evaluation is conducted from the consumers’ point of view. To be able to find package evaluation methods that could evaluate the factors of a package there was also a need to re-arrange the factors to form areas of factors that better belong together when showing the meeting between the package and the consumer from a strict evaluation point of view.

From the literature found concerning techniques to evaluate the meeting between the consumer and the package, and the interviews made with companies conducting consumer tests, the existing evaluation methods relevant for the study were collected. The package evaluation methods found were compared with the package evaluation areas formed on the illustration showing factors from an evaluation point of view. It was considered how it is possible to cover each of the package evaluation areas with an evaluation method to be able to measure all aspects of the package’s performance in-store. From that analysis a proposal of which methods to use in the PML was given. The results are inspired from the existing test methods found in the literature and from the interviews made, in combination with own ideas. Descriptions of the relevant test methods found and also homepages to the companies responsible for them were gathered, to make it possible for anyone proceeding with setting up the PML to have an overview of existing methods and to build own opinions about them, even though all those methods are not used in the PML proposal. It soon came clear that an Eye-Tracking technique (a technique described in ‘3.3 Existing consumer research methods’) might be good to use. STFI, the Swedish Pulp and Paper Research Institute, was contacted since they use an Eye-Tracker within their package print research. It was also possible to meet them to see how an Eye-Tracker works in real life. The Eye-Tracker used at STFI came from a Swedish supplier, Tobii Technology which was contacted to discuss the possibility of using Eye-Tracking in the PML setting.

At the end of the analysis the methods found were summarized in a design proposal of the PML with the proposed methods inserted.

3.5 Collecting feedback from users

At the end of the study Stora Enso, Designstudio Värmland and The Paper Province together invited potential PML users to join a workshop about the PML proposal and to discuss what the next steps are towards creating a physical PML. The potential users invited were three design firms in the region of Värmland, Bernt Gustavsson, working with category management at Konsum Värmland and Peter Landmark, in charge of marketing at Bergvik shopping centre in Karlstad. It was important to evaluate the PML proposal to get the users’ feedback since they are the ones that are going to use the system, and it is desirable to give them the best possibilities to evaluate their packages. Evaluation is concerned with gathering data about the usability of a design or product by a specific group of users for a particular activity within a specified environment or work context. Evaluation is made to find out what users want and what problems they
experience, because the more understanding designers have about the users’ needs, the better designed their products will be.\textsuperscript{14} Since the PML does not physically exist yet it was difficult to evaluate the proposal together with the other group of users, the consumers. This evaluation can be made after setting up the PML to be able to collect feedback about how user friendly the current environment is. After evaluating the PML proposal the feedback from the potential users was collected in ‘Discussion’ at the end of the report.

\textsuperscript{14} Preece, Jenny (1999) p 602-603
4 Analysis

4.1 The meeting between the package and the consumer

The factors affecting the meeting between the package and consumer were divided into impact, findability and imagery and illustrated as seen in Figure 1. This division was inspired by the market research company Harris Interactive’s tool for measuring shelf impact where impact, findability and imagery were seen as three important packaging criteria. These three divisions is suggested to capture the consumer’s first moment in front of a shelf, where it is important for the consumer to find the product on the shelf, to see the product through the competitive clutter on the shelf and thereafter the consumer feels and thinks something when finding the product. Seeing the meeting in this way puts the consumer in focus. Figure 1 illustrates that the consumer is in focus when standing in front of a shelf and three major issues are facing him or her. Within each issue there are aspects of a package that are found affecting the consumer. Each factor affecting the meeting between the package and consumer is placed in one of the three areas according to where the factors belong. Some of the factors belong in two of the areas or in all three of them as well and therefore some of the factors in Figure 1 are placed within several areas. The factors seen in Figure 1 are explained below in alphabetical order, motivating why they belong in the context of consumer meeting package.

Figure 1. The meeting between the package and consumer.

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15 Harris Interactive
4.2 What affects the meeting between consumer and package?

The factors below all affect the commercial meeting between the consumer and the package. They are illustrated in Figure 1 and described below motivating why they belong in the context of consumer meeting package.

Advertisement

Advertising creates product awareness and consumer demand. Packages are shown in advertisements to promote recognition at the point of sale.16

Associations

When making a purchase consumers work on information inside their heads. They might recognize a product and associate it with an earlier experience.17

Brand

The single most important element on a package would most likely be the brand name. The name of the brand is like the name of a person. It identifies the product, creates memorability and achieves an equity that enables the marketer to build recognition and loyalty among consumers. The brand’s identity is its signature and it signifies to the consumer that the product is reliable and worth considering for purchase.18 A brand reassures the customer that the quality of the product is going to be consistent, and that the product is good value for money.19 It also helps remind the consumer to find and purchase the product on return visits to the store. The styling of the logo or the signature of the brand name are key elements to the brand’s identity and critical in communicating a desirable message to the consumer.18

Colour

Colour has a direct impact on each brand’s “shelf-impact”, including its visibility and shop-ability.20 Humans, like other animal species, use the visual sense both to detect food and to scan it for quality of eating expectations. Colour vision evolved so that we could detect ripe fruit from its background of green leaves. This set up our colour vision to play a vital part in our food selection and appreciation.21

Colours are what the human brain perceives first.22 Human recognizes shapes and colours far more readily than graphics devices.23 On the other hand tones are more important for catching the consumer’s eye than the actual colour is.24 No single colour is “more visible” at retail than any other colour. That is because visibility is a function of colour

16 Stewart, Bill (1997) p 25-27
17 Foster, Keith (1999)
18 Doyle, Mona (1996) p 96
19 Stewart, Bill (1997) p 70
20 Perception Research Services (c)
22 Rowan, Claire (2000)
23 Stewart, Bill (1997) p 78
24 Gidda, Satkar & Head, Siebert (1997)
contrast. Colour contrast is one of the two most important determinants of shelf visibility. The other one is shelf placement. Shoppers tend to start looking at the packages that contrasts most dramatically with others on the shelf.

Colours can be used to indicate which product category the product belongs to towards the consumer. For example the colour green has during the last ten years created association in shoppers’ mind connected to the healthy choice brands. In terms of both meaning and shelf impact, colour is all about context.

Colour on a package communicates many different aspects:
- Colour can set a mood such as fun, elegance and flavour.
- Colour can help create quality perception.
- Colour can identify the colour of the product inside the package.
- Colour can assist in differentiating the products, varieties and flavours.
- Colour can identify a brand.

Competitors
Consumers are faced with a huge choice, a vast variety of brands, and thousands of messages competing for the consumers’ attention. There is a reasonable amount of competition for the consumers’ money in the stores. During the in-store observation made one could see that there are a lot of competitors within every product category, standing next to each other in the shelf offering almost exactly the same product.

Damage
Any damages on the package might affect the consumer’s perceived quality and overall perception of the product.

Environment friendliness
Environment is an important supporting issue in many purchasing decisions. Consumers feel very strongly that packages should be more eco-friendly, but the facts of shopping and living put environmental concerns into the second tier, behind performance. Environment friendliness plays a secondary role to safety, cost, freshness, quality, convenience and ease of use. On the other hand, environment friendliness might play a big role when a consumer is standing at the shelf comparing two packages that are otherwise equal when one of them are environment friendly and the other is not.

Expectations
Both advertisement and pack arouse expectations by the consumer. Expectations play a key role in any decision making and subsequent action process. Expectations arise either

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25 Young, Scott (2002)
26 Doyle, Mona (1996) p 102
27 OBS Bergvik Karlstad
29 Doyle, Mona (1996) p 169
30 Doyle, Mona (1996) p 171
31 Hutchings, John (2002) p 58
from belief alone or from sensory stimulus such as smell or visual sense. Expectations are not static and stable; they change with our individual experiences. An unfortunate event associated with a particular product will influence our expectations when we meet that, or similar, product again. Similarly, if we have been disappointed with a product for which we had high expectations, we might be less optimistic of the performance next time we meet that, or a similar, product again.\textsuperscript{32}

**Experience**
Food colour and appearance are compared with mental images formed from past experience. If something about a food environment does not correspond with our memory of wholesomeness and hygiene for instance, the product may be left on the shelf.\textsuperscript{33}

**Feel**
During the in-store observation made one could see that many consumers take the package from the shelf and examine the package more closely before deciding to buy it or not. Since the consumers then touch and feel the package, it is most likely that the feel of a package affect the consumer’s opinion about the package.\textsuperscript{27}

**Function**
Research have illustrated that package function can have a powerful effect on consumers’ responses to a product which also affects the meeting between the consumer and the package.\textsuperscript{34}

**Graphics**
Graphics have a significant part to play in product presentation.\textsuperscript{35} In many cases, the packaging graphics are almost totally responsible for communicating the company’s market strategy to the consumer.\textsuperscript{36} Concerning pictures, consumers get a more positive attitude towards the package that includes a product picture. Evidence suggests that consumers prefer realistic pictures to more abstract pictures. It is also suggested that well executed package pictures create more enjoyable aesthetic experiences for the consumer, and thus more positive overall impressions of the product.\textsuperscript{34}

**Language**
We read best when we are familiar with the language, typeface and page set-up.\textsuperscript{37} Some global brands tend to have a large number of languages on the package to be able to communicate the product information to many nationalities.\textsuperscript{38} The language in which the product information is given affects the package communication towards the consumer.\textsuperscript{39}

\textsuperscript{32} Hutchings, John (2002) p 1-3
\textsuperscript{33} Hutchings, John (2002) p 17
\textsuperscript{34} Underwood, Robert & Klein, Noreen (2002)
\textsuperscript{35} Stewart, Bill (1997) p 51
\textsuperscript{36} Doyle, Mona (1996) p 94
\textsuperscript{37} Hutchings, John (2002) p 69
\textsuperscript{38} Rowan, Claire (2000)
\textsuperscript{39} Osaka International School (b)
Material
The package material is one of the best ways to gain real differentiation from competitors and from own brand products. The package material used affects the package appearance concerning quality image and perception of environment friendliness for instance.

Number of facings
There is a direct correlation between the number of facings the package has on the shelf and its likelihood of consideration by the consumer.

Packaging outer
Packaging outer, previously used for protection during transport are now being used in-store to facilitate ease of shelf handling and can enhance or detract from the overall appearance of a pack from the shelf. A packaging outer which is possible to place directly in the shelf is a rational solution, but if the tearing part or perforation of the packaging outer works poorly it might affect the package appearance in the shelf negatively. The design of the packaging outer might also matter for individual package appearance without using the packaging outer in the shelf. If a case for fragile products looks like a case of paper towels it might be hard to find packages in the case without damages when unpacking the case in the store. Cases not specially designed to be easy to split open might result in slitting the individual packages within. See also ‘Damage’ above.

Placement in shelf
Package placement in shelf is one of the two most important factors for shelf visibility. The other one is colour contrast. Shoppers typically begin to look at a shelf, near their eye-level, at the brand that contrasts most dramatically with others on the shelf. Consumers are most likely to move to the right and downward from the first product they consider, just like they read. Therefore it is advisable to place an unknown brand immediately to the right of the visually dominant brand in the category. A bottom shelf placement will decrease visibility and the likelihood of retail consideration by up to 25%. A package shall be positioned at or below a typical person’s eye-level not to be missed. If all the sides of a package are made as attractive as the front panel it might be possible for the package to attract consumers from all different angels on the shelf even though the package is not placed in eye level in the shelf.

40 Gidda, Satkar & Head, Siebert (1997)
41 Stewart, Bill (1997) p 50
42 Doyle, Mona (1996) p 163
43 Young, Scott (2002)
45 Doyle, Mona (1996) p 80
46 Perception Research Services (b)
47 Doyle, Mona (1996) p 81
Point of sales promotion

Most companies at some point try to stimulate sales by the use of promotions in-store. These can take various forms. Some of the more common promotional devices are money off, samples, coupons and percentage of product free.\textsuperscript{48} There are several empirical evidence showing that point of purchase marketing activities influence sales and studies of consumer in-store decision making show that point of purchase marketing works due to the fact that most consumers come to the store undecided about what to buy.\textsuperscript{49}

When making in-store observation the impression was given that special offers at the shelf such as coupons where an important factor when consumers where choosing between different brands within the same product category.\textsuperscript{50}

Price

The price of a product affects the consumer when making a buying decision, but when attracting the consumer it is more about logotypes and colours than about price. Price comes into it when the consumer has to make a decision between two or three brands.\textsuperscript{40}

Price/Value perception

The consumers’ perception about the price of the product in relation to the value it brings is affected by the design of the package. Consider choosing wrong material or package form for a given product, the product may be perceived by the consumer in a way not intended by the marketer.\textsuperscript{51}

Print

The wrong print method or material (or both) used in a package might contribute to poor print performance.\textsuperscript{52} The package print quality might affect the consumers’ perceived quality and the overall perception of the product.\textsuperscript{53}

Quality perception

The perception of quality characteristics determines a consumer’s decision to purchase and repurchase a product.\textsuperscript{54}

Readability

Readability and easy comprehension of the information on a package is important for consumers when facing a package\textsuperscript{55} since legibility of words is needed to get the message across.\textsuperscript{56}

\begin{itemize}
\item \textsuperscript{48} Stewart, Bill (1997) p 36
\item \textsuperscript{49} Chandon, Pierre, Hutchinson, Wesley & Young, Scott
\item \textsuperscript{50} OBS Bergvik Karlstad
\item \textsuperscript{51} Doyle, Mona (1996) p 93
\item \textsuperscript{52} Stewart, Bill (1997) p 119
\item \textsuperscript{53} Lindberg, Siv (2004)
\item \textsuperscript{54} Resurreccion, Anna (1998) p 203
\item \textsuperscript{55} Doyle, Mona (1996) p 164
\item \textsuperscript{56} Hutchings, John (2002) p 69
\end{itemize}
Recognition
Packaging can be a valuable weapon in the battle for visibility and recognition at the point-of-sale. Consumers might recognize a product when facing it in the store and associate it with earlier experience. Distinctive product packaging that supports the brand position goes a long way toward increasing consumer recognition at retail.

Safety
Safety is an important issue for a package in the mind of the consumer. Tamper evidence is one way of ensuring the safety of the package, it makes sure that the product is protected of bacteria, ambient air and gives security that the product has not been touched or opened by anybody during shelf time. It is often used at bottle caps or jam jars for example. The package shall feel like it has not been violated or previously opened by someone else. This might be a subconscious preference by the consumer.

Shape
People tend to acquire their information primarily through pictures and visual icons. Shoppers spend approximately two-thirds of their time on the visual elements of a package, as opposed to the text. This is why package shape and appearance have such a great impact on its communication to shoppers.

Shelf position
The shelf/product placement in the store is an important factor that retailers use to try to maximize their sales since the consumers’ buying decisions are influenced by the in-store product and shelf placement. A supermarket will often put dairy products on one side, meat at the back, and fresh products on the other side of the store, so that the typical shopper can not just do a drive-by but has to make an entire circuit of the store, and be tempted to everything the supermarket has to offer.

Size
Many products are offered to the public in more than one size. Consumers buy various sizes of packages according to their lifestyles as well as their finances. Factors such as convenience, storage possibilities at home and budget aspects can influence a consumer’s choice of pack size.

Text
The words on the package identify the product and provide information about the product. The text written is an important factor in communicating the package’s message towards the consumer.

References
57 Perception Research Services (a)
58 Foster, Keith (1999)
59 Baker, Sheldon
60 Sandberg, Lars (2004)
62 Gladwell, Malcolm
63 Stewart, Bill (1997) p 153
64 Doyle, Mona (1996) p 99
The placement and positioning of messages on the label have a major influence on whether it will be read consistently.66 At the first look at a package a consumer can perceive up to three messages displayed on the package.67 The amount of time people spend with a package is not related to the amount of information on the label 57 and shoppers spend no more than five seconds glancing at a label, regardless of the number of words on the package. Adding more messages to a package will increase the likelihood that a shopper will miss any single message.66

**Texture**
The texture on a package can create a visual benefit and also a tactile quality experienced by the consumer; provide a better grip and making handling the pack a pleasure.68

**Type/Font**
We read best when we are familiar with the language, typeface, and page set-up. Legibility of words is needed to get the message across and is determined by the size and character of the letters, the spaces between them, the words they constitute and the distance between successive lines. A larger type does not necessarily increase legibility. This is because the larger the type is, the smaller is the amount of reading falling within the normal eye span and the larger is the number of eye movements and fixation pauses necessary.69

**Type of shelf**
Existing product/packaging storage requirements affects the type of shelf needed for storage and how the product will be merchandised in the store towards the consumer. Must the product be put in a fridge or frozen food case for instance?70

**Uniqueness**
A unique shape of a package can be a very powerful weapon in differentiating a brand. Differentiation of a package towards the competitors shall be immediate and intuitive. Ideally it should be visual via the look and feel of the package itself. The consumer should not have to read the label actively to find the brand’s point-of-difference.66 A unique look can help ensure that the brand receives consideration in the few seconds which shoppers spend making their decisions.57

The uniqueness of a package might be able to clearly communicate the benefits to the consumer and differentiate the product, setting the product apart from the “standard

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65 Björkvall, Anders
66 Young, Scott (2002)
67 Gidda, Satkar & Head, Siebert (1997)
68 Stewart, Bill (1997) p 50
69 Hutchings, John (2002) p 69
70 HPA Advertising
item”. The package stand-out is vital, whether it is achieved through colour, graphic design or pack shape for instance.

**Visual appeal**

The package is responsible for the visual appeal of the product within the package when exposed to consumers in-store. A consumer choosing between two similar products might choose one over the other because it has a better visual appeal than the competitor.

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71 Stewart, Bill (1997) p 41
72 Stewart, Bill (1997) p 28
73 Osaka International School (a)
4.3 Existing consumer research methods

After describing what affects the meeting between the consumer and the package in-store the evaluation methods found for making consumer research will be presented. First described are the general consumer research methods found and second the specific methods found for testing package design.

General research methods

The methods used for conducting consumer research have been examined by asking companies how they do their package testing and also by reading literature concerning market research. A few general research methods have frequently recurred and they are described below. Consumer testing can be classified into two major categories: quantitative and qualitative research.

Quantitative market research

The conduct of market research based upon interviewing a large number of people. Quantitative market research is capable of employing mathematics and statistical techniques to identify business opportunities and challenges through an examination of collected data. Generally, quantitative research is conducted using surveys, either fielded via telephone, mail, in-person, or online.74

Qualitative market research

The conduct of market research based upon interviewing a small number of people. Qualitative research is often conducted in the early stages of product development to gain an understanding of consumers' attitudes to concepts, ideas, and to acquire general feedback. Generally, qualitative research is conducted using focus groups or using one-on-one interviews.74

Focus group

A focus group is a group of personal interviews conducted among a small number of individuals at the same time, led by a moderator. Generally, focus groups are typically carried out among two to twelve individuals. Focus groups are often used for qualitative, early stage market research, whereby direct interaction with participants is required. Focus groups provide rich directional information.74 It is useful in determining ways a product can be used; words, feelings and emotions that arise when consumers talk about the products; product attributes that that consumers think are important and should be maximized in the product; and characteristics that consumers do not like and think should be minimized or eliminated from the product.75

Quantitative and qualitative research methods are used in different situations depending on what the aim of the study is. When talking to the market research company QuickWise the use of the different methods were discussed. Qualitative research is often conducted in the beginning of a development process to get an impression of what consumers think

74 InsightExpress
75 Resurreccion, Anna (1998) p 94
about an idea or design prototype or to get new ideas about a concept. Quantitative
research is often employed in the end of a development process to acquire statistical
measurement of the consumers’ opinion on a design concept or products, as a way of
verifying a new concept. Using focus groups is very popular within market research and
almost all of the companies interviewed used focus groups to evaluate package design on
consumers. When testing the commercial meeting between the consumer and the package
focus groups can be a poor forum. The method takes the consumer out of the shopping
situation and often leads to focus too much on the package aesthetics, over-thinking its
meaning.\textsuperscript{76} Consumer focus groups might not be a representative method measuring a
package’s performance in-store since the tests are not performed in a real shopping
environment or shopping situation. Evaluation conducted in an unrealistic situation might
affect the test results negatively since the results do not mirror real life.

\textbf{Monadic and Comparison Test}

Within the research methods above there are different methods for product testing. There
are two basic types of product tests: monadic tests, and comparison tests. In monadic
tests, the respondent is presented to only one design option for a product or brand, much
like a consumer would be in the real world. Responses from the people who saw design
A are later compared to those from people who saw design B or design C. Conversely,
comparison tests involve the same person evaluating design A, B and C for instance in
either a head-to-head or sequential fashion which means that one consumer might
evaluate several design options to the same product.\textsuperscript{77} Using monadic test might be
preferable since that is the most realistic situation for the consumer. Once people are
shown different packages for the same product, current vs. proposed for instance, they
begin to lose their perspective as customers and tend to focus primarily on aesthetics. In
short, they are no longer customers considering products, but “art directors” comparing
designs.\textsuperscript{78}

\textbf{Specific test methods}

Two distinct and highly interesting techniques used for evaluating package design with
consumers were found, Eye-Tracking and T-scope.

Numerous market research companies world wide developing and using their own
methods for evaluating package design were also found. Since those methods are
company specific and not accepted methods for evaluating package design they might not
be objective enough to be the best choice for the PML. An overview over those
companies and methods is given in Appendix 1 since the description of them can be used
to render ideas, and as further inspiration to the techniques proposed to the PML in a later
stage of the PML development.

\textsuperscript{76} Young, Scott (2002)
\textsuperscript{77} Surveys & Forecasts LLC
\textsuperscript{78} Young, Scott [Online]
**Eye-Tracking**

Eye-Tracking is a method utilizing laser technology to trace the path of the eye as it surveys a package or a shelf display. This method provides a diagram that shows the movement of the consumer’s eye as they move from design element to design element, from copy element to copy element on individual packages or from package to package in the competitive array of products.79

Commercial eye-tracking studies usually instruct consumers to look at photographs of for example supermarket shelves “as they would normally do”. These studies are then able to report the percentage of subjects noting the product. Other measures collected can be the percentage of consumers looking more than once at the brand.80

**How does Eye-Tracking work?**

Eye movements consist of fixations separated by rapid movements, called saccades. Eye-tracking equipment records the duration of each eye fixation and the exact coordinates of the fovea (the central 2° of vision of the visual field) during the fixation. It then maps the coordinates of the fovea to the location of each area of interest on the object, for instance individual brands on a supermarket shelf. Studies have shown that eye-tracking data provide reliable measures of attention to stimuli in complex scenes, such as brands on a supermarket shelf.80

Figure 2 below shows how a test person’s eye movements are recorded during an Eye-Tracking study on a physical object. The dots represent the eye fixations and the lines between the dots represent the path of the eye. The size of the dots represents how long a test person was looking at the element on the object. For instance it is possible to find out how fast a test person finds an object in the scene or for how long he or she looked at a certain area of the object.81

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79 Doyle, Mona (1996) p 135
80 Chandon, Pierre, Hutchinson, Wesley & Young, Scott
81 Bouvin, Johan (2004)
When visiting STFI it was possible to see their Eye-Tracker equipment and at a later stage a visit was made at the only Swedish Eye-Tracker supplier for commercial Eye-Tracking studies, the company Tobii Technology. In their Eye-Tracker product Tobii x50 no glasses, headsets or other head constraints were used which made the influence on the test person quite small. The Eye-Tracker is a small module placed between the test person and the object being studied.

There are two possibilities to do Eye-Tracking studies, either on photographs showed on a screen, or at a physical scene. When Eye-Tracking is conducted on a screen it is easy to analyse the data and the results are very accurate. If studies are made at a physical scene the calibration of the test persons’ eyes needs to be done more carefully than when looking at a screen. It is important that every test person is looking at the very same physical scene and setting for the results to be as accurate as possible. The physical scene needs to be recorded with a camera. In both cases it is possible to statistically analyse the results from all users. In the analyse software developed by Tobii Technology it is possible to define areas of interest at the scene being studied to be able to analyse how people looked at exactly that area of interest.81

Another example of how the results from an Eye-Tracking study can look like is shown in Figure 3 below. The areas at the object shown that caught most attention from the test persons are displayed in colours. This type of analysis is called “hot spot visualization” and results from numerous test persons can be visualized in this same picture.81
When using an Eye-Tracker there are constraints on the test person’s freedom of head movement and gaze angles. It is also advisable that the test person is sitting down during the study for the eye movements to be measurable. These constrains in combination with a calibration process needed before the study might make the test person fully focused on that a test is being conducted. This might affect the test results and therefore one shall try to minimize the equipment’s influence on the test person and make him or her not to concentrate on that there is a test going on. Within Eye-Tracking the clear trend is to make the equipment and calibration process as invisible as possible towards the consumer, to affect the consumer as little as possible in the test-situation.

Tobii Technology is the only Swedish company working with Eye-Tracking for commercial purposes. A few other companies working with Eye-Tracking as market research method are also found in other countries. These companies are collected together with their Eye-tracking description and internet site address in Appendix 2, since the information concerns the same method giving details about the different suppliers, which might not be interesting to write inside the report. Tobii could be the most interesting company since it is a Swedish company, but the information about the other Eye-Tracking companies might be interesting as well to be able to render ideas for the PML.
**T-scope**

The T-scope technique is a methodology where individual packages, or packages shown in a competitive array, are exposed to the consumer at various short time intervals to test for shelf impact, brand and product recognition and findability of various package-design alternatives. At each exposure level package recognition and communication are explored in an interview.\(^\text{82}\) The name T-scope is an abbreviation for tachistoscope which is the name of the equipment used.

By controlling the length of exposure to photographs of the chosen product’s packs or the retail shelf, the respondent is prevented from extracting all the information from the image. This simulates a situation of approximately short attention on a package which occurs when a consumer scans a shelf in-store as there are numerous packages facing the consumer.\(^\text{83}\)

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\(^{82}\) Doyle, Mona (1996) p 134  
\(^{83}\) Lomax, Wendy & Todd, Sarah
4.4 Evaluating the meeting between the package and the consumer

After having identified which factors affect the meeting between the consumer and the package from a consumer point of view and also having identified some existing test methods for evaluating package performance, it is now possible to use the information gathered about existing test methods onto the illustration of factors affecting the meeting between the consumer and the package.

It is necessary to test the different factors in Figure 1 in different ways since they stand for diverse features of a package. The factors concerning in-store performance of a package, for instance, cannot be measured in the same way as the factors responsible for package appearance, since they are responsible for separate aspects in a package. There are many factors affecting the meeting between the package and the consumer, and it is not possible to use one evaluation method for every single one as the PML shall be a cost-effective evaluation environment. Therefore, the factors from Figure 1 that are measurable in the same way are grouped together, the area is given a name, and an evaluation method for that group of factors influencing the meeting between the package and consumer is proposed. The areas are showed in Figure 4 and the factors are the same as in Figure 1, only rearranged in specific measurable areas to show the meeting between the consumer and the package from an evaluation point of view. The different areas identified are a package’s appearance, the tactile perception, the package’s communicated image, the buy intention, the in-store performance, and the package’s shelf impact. Each area and how it might be evaluated is described below.
Figure 4. Evaluating the meeting between the consumer and the package.

**Appearance**

The factors placed within ‘Appearance’ belong to an own area responsible for the appearance of the package since those factors together represent the package’s look towards the consumer.

A questionnaire for evaluating package appearance is proposed to be used given that all factors within the area are dissimilar although all of them contribute to package appearance. Compare for instance ‘Size’ and ‘Language’, both factors contribute to the appearance of a package although they are very dissimilar. A good way of including all desired factors when evaluating package appearance is to make a questionnaire containing questions about each of the factors within the appearance area one would like to test. A questionnaire will be able to evaluate all factors, even the ones that are highly dissimilar. The questionnaire must refer to either a package prototype or an image of the package tested available for the consumer, to be capable of measure the package’s appearance.

In view of the fact that the PML shall be as cost effective as possible it might be most appropriate to use a computer based questionnaire where consumers are able to answer questions about the package. This setting is cost effective because it does not need one or several persons interviewing the respondents. The computer based questionnaire can be
handled by the consumers without continuous support from personnel. The questionnaire software might analyse the results directly, meaning that no researcher needs to waste their time to fill in the consumer answers in a computerized form after conducting a research which is also contributing to a cost effective solution. It can also be good to obtain more information about the consumers’ opinion than “yes” and “no” answers so therefore it shall be possible for the respondent to write relatively long answers and motivate their answers.

**Evaluation proposal:** Computer based questionnaire

**Tactile perception**
The factors within the ‘Tactile perception’ area create the tactile perception of a test package, responsible for the consumers’ perception of touching the package. The factors in ‘Tactile perception’ form an own area within ‘Appearance’ as those factors affect the appearance of the package, as well as the tactile aspects. These aspects can be tested separately.

If the test package is available as a physical prototype and not only a simulated 3D design the tactile perception can be evaluated. A prototype makes it possible for the consumer to grab the package and physically experience it. This is best made by exposing the package prototype in a competitive array in a real shelf setting and ask the consumer to “shop” the product or category. It is then possible for the consumer to pick the package of the shelf and then give feedback about the tactile perception of the package. The feedback can be collected by using a computerized questionnaire and the consumer might be able to feel the package also meanwhile responding the questionnaire. It is suggested that the tactile perception of a package is measured together with the questions about package appearance in the computerized questionnaire.

If the company testing the product have not yet reached the prototype phase in the product development the tactile perception test is not possible to accomplish since there is no physical prototype to evaluate.

**Evaluation proposal:** Computer based questionnaire

**Image**
A package arouses lots of feelings by the consumer involving for instance experience, expectations and associations. These factors are tightly drawn to the appearance of the package since it is the look of the package that give rise to these feelings. The factors placed within ‘Image’ are those factors that are most responsible for the feelings the consumer gets when he or she meets the package in the store, probably evoked by earlier occurrence, and what image the package communicates to the consumer.

The image factors might be hard to measure since they are unconscious to a certain extent and also highly individual. They can probably only be given in words by each consumer when being asked the right questions. Consequently it is proposed that the image factors of a package are being examined by using a questionnaire, given that this method makes the individual and profound information needed available from each respondent.
Questions about the package image can be posed in the same computerized questionnaire as the questions about appearance, tactile perception and buy intention.

Further it is proposed that a T-scope technique is being added to the questionnaire, showing pictures of the package in the shelf, or individual pictures of the package, in very short time intervals that gradually will increase. Combining showing the test package in different time intervals using a T-scope with consumer depth interviews is a good way to examine brand recognition and package communication and to evaluate a package’s communicated image together with consumers. After each exposure the test person is asked a few questions about what he/she saw on the picture, posed in the computer based questionnaire.

A Swedish supplier of the T-scope technique is not yet found, but on the other hand a separate T-scope technique would not need to be bought. The same effect as the T-scope technique will give might be reached by utilizing a computer program showing pictures of the package in short time intervals on a computer screen. This program might be inserted in the computer based questionnaire and questions might be posed to the respondent after each exposure.

**Evaluation proposal:** T-scope technique inserted in computer based questionnaire

**Buy intention**

The price of a product and the price/value perception are factors that jointly can be evaluated since them both concern pricing aspects. They form their own test area as they are the two factors that most clearly can be drawn to the consumer’s buy intention due to the price factor, although all factors in the illustration shown in Figure 4 are responsible for some aspect of the consumer’s buy intention.

The company QuickWise uses a questionnaire when testing buy intention of a product or package towards the consumers. When visiting QuickWise the chance was given to see how they work with questionnaires, covering for instance buy intention. Questionnaires are a good way of getting the consumers’ opinion about the price level of the product and how much that kind of product might be worth paying for. It is possible to compare design concepts and to examine if one concept looks more expensive than the other for instance. Questions to be posed might be:

- Would you buy this product for a price of X SEK in a store close to you?
- What is cheap and expensive for the product?

It is suggested that testing buy intention of the package is made by asking a few questions about buy intention in the computerized questionnaire also evaluating package appearance and tactile perception.

**Evaluation proposal:** Computer based questionnaire

**In-store performance**

The factors within the in-store performance area are aspects in a package that belong to the in-store performance of a package since they all affect how the package is exposed in the store when facing the consumer.
During the initial interviews with the Swedish companies about how they work with designing their products and packages it was found that the opinions from the people handling the products in the store are not being taken care of at many companies when developing new products and packages. When talking to Bernt Gustavsson, working with category management at Konsum Värmland it became clear that store personnel and people working with category management has a lot of knowledge about how products are best placed in a store and which package design that works in the shelf and which do not for instance. Examples of knowledge store personnel might have can be how high and how wide a package can be to fit into the shelves used for that product category, how easy to handle the product will be for the in-store staff or if the package can be stored in an optimal way towards the consumer. This expertise can be valuable when testing package performance since the factors affecting the exposure of the package in-store also affects the meeting between the package and the consumer. The better the product is exposed in the store the better are the chances for good sale. No one knows more about how the package performs in the shelf than the people working with lots of packages every day.

It is suggested that the in-store factors of a package are evaluated by utilizing a group of people working with packages every day in-store and also people working with category management. This group of people shall operate as an expert panel evaluating how the package will work in-store. The package performance discussion can be outlined as a focus group session giving the company testing the package feedback to how their package will work in all aspects of in-store performance. Using a focus group is more suitable in this situation than when evaluating package design with consumers since the store personnel is not about to consider how appealing the package is when shopping, just how it will work in the shelf. That is not as reliant on creating a realistic “shopping experience” to the expert panel as it is to the consumers. A moderator leading the focus group and analyzing the answers is needed.

When the expert panel is about to discuss a package they shall have access to real shelves to be able to physically test the packages placement in the shelf. They might also use different shelf types to make sure that the package works in all necessary ways in-store.

**Evaluation proposal:** Expertise panel/Focus group

**Shelf impact**

The visual appeal and the uniqueness of a package in combination with factors affecting packaging appearance belong together in one area as shown in the illustration in Figure 4. Jointly they contribute to the shelf impact and the findability of a package in the shelf. One of the most important features in a package it its ability to catch the consumer’s eyes. A brand must break through retail clutter before it can even be considered for purchase. Therefore, a comprehensive study must measure shelf impact of the package.84

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84 Young, Scott [Online]
Shelf impact is best measured using Eye-Tracking equipment since this technique allows for the consumer to watch a real retail shelf or a picture of a retail shelf meanwhile the eye movements are being recorded. In that way it is possible to determine whether the consumer notices a package in the retail shelf among the competitors or not, and if the package is among the first being detected. Eye-Tracking is a behavioural measure that documents what people actually see, as opposed to what they say or claim. Specifically, it is not reliant upon recall of products or messages, which is often biased by familiarity. For example, if someone sees a soft drink shelf, they are very likely to “guess” afterwards that Coca-Cola and Pepsi were on that shelf, even if they were not.\(^{85}\) This is why it is preferable to use Eye-Tracking for shelf impact measurement instead of using other methods. The other methods described in ‘Appendix 1’ base their results on what the consumers think they see instead of what they really see.

The package visibility in the shelf is best measured when presenting the product in the context of its retail environment because products appear side-by-side with competitors in the real life and retail presentation is all about differentiation. Assessing a brand’s packaging or merchandising in isolation misses this critical element and thus sacrifices much of the realism and value of the study.\(^{86}\) For that reason it is suggested that the package shelf impact shall be measured using Eye-Tracking on pictures or in real life shelf setting together with competitors. For conducting Eye-Tracking studies one person is needed to work as a test leader, to tell the test person what to do and to ensure that the test is executed properly and will be able to deliver a result possible to analyse.

**Eye-Tracking on photographs**

Using Eye-Tracking on pictures shown at a screen is the easiest way of doing Eye-Tracking studies and gives the best chance of getting the most accurate results.\(^{87}\) The pictures can be shown on a large screen making the scene more realistic to the consumer than if shown on an ordinary computer screen. Before the study starts the test persons eyes needs to be calibrated. The persons are asked to look at few dots on the screen before the study might start. Figure 5 is a simple illustration showing how the Eye-Tracking study can be set up using a screen setting.

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\(^{85}\) Perception Research Services (d)
\(^{86}\) Doyle, Mona (1996) p 134
\(^{87}\) Bouvin, Johan (2004)
**Eye-Tracking at a physical scene**

Eye-Tracking studies conducted at real shelf settings make the “shopping-experience” more realistic to the consumer than when looking at photographs on a screen although the constraints on the scene and the need for preparation are more complicated and highly important for the results to be accurate when using a physical scene. The shelf containing the package tested might first be covered by a curtain possible to use as a calibration area, asking the test person to look at a few dots on the curtain while calibrating the Eye-Tracker. The test person might be taken into the PML from one direction being asked to sit down to do a calibration. After calibration the test person might be lead out of the PML again or being asked to answer the questions within the computerized questionnaire available in another section at the PML. If the test person is being lead out of the PML he or she might thereafter be lead in again from another entrance or coming back from the questionnaire section, and then being asked to sit down in front of the Eye-Tracker. The calibration from before is still accurate and the curtain in front of the test shelf is being removed; the test might start. The test person is lead out before the study starts and then lead in again through another entrance, or is asked to use the computerized questionnaire, to be taken out of the conscious “test-situation” after calibration, to make the situation more “shopping-realistic” when doing the test. Figure 6 shows a simple illustration to how the Eye-Tracking study can be set up using a physical shelf.

![Figure 6. Eye-Tracking study on a physical scene.](image-url)

All equipment needed, such as a computer and the analysis tools, except the Eye-Tracker and the camera filming the scene (if a physical scene is being studied), might be placed in an observer room in connection to the PML. The Eye-Tracker is a small module and can be built into a table for instance in the PML room, this to make the testing environment influence on the test person as little as possible. For the test person not to be disturbed, the test leader can conduct the test from the observer room, leaving the test person alone in the PML. The analysis of the Eye-Tracking studies can later be conducted on a computer in the observer room. A one-way glass wall between the observer room and the PML might be a good solution, making it possible for the test leader to see and communicate with the test person and to lead the test without disturbing the test by being visible.
The choice between using Eye-Tracking on a screen or on a physical scene is dependent on economical constraints due to different equipment needed or different amount of time for preparation, as well as how reliable the results must be and how reliable one would like the test person’s shopping experience to be. For evaluating package appearance Eye-Tracking can also be used on a single package to watch how the consumer looks at the package. It can be analysed whether consumers notice different parts of the package or not, for instance a brand name or some text.

**Evaluation proposal:** Eye-Tracking

**The PML environment**

The commercial meeting between the consumer and the package takes place in the store. To be able to evaluate this meeting and deliver reliable results from the test it is important to make the test environment as in-store realistic as possible. Therefore creating the PML in connection to a grocery store is a good idea. Respondents might be chosen from the consumers already in the store shopping groceries. The step from shopping to evaluating a test package in an in-store seeming evaluation environment might not be so far in the mind of the consumer, which enhances the chance of reliable results. Another advantage of creating the PML in connection to a grocery store is that it is an easy way to recruit the right test persons with a minimal cost since the consumers are already in the area. The PML might be situated in a separate room within a grocery store or outside the entrance of the store.

The best PML setting is in connection to an existing grocery store and shall be designed in the same style as the interior in the store. Ordinary shelves containing the ordinary grocery products within the current product category will increase the realistic feeling in the PML. Especially when evaluating a package’s shelf impact it is important to make the package environment as realistic as possible and therefore it is good to expose the package in company with its competitors in a shelf. For that reason it is good to use real shelves and real surrounding objects when evaluating a package. Traditional test methods, not evaluating packages among its competitors, force the consumer to look at new marketing ideas. This sidesteps the process in the store of needing to attract the consumer's attention and there is no measure of how the idea performs in a cluttered, competitive environment. Even if a product’s shelf impact is measured using Eye-Tracking on pictures taken of the product standing on a real shelf among its competitors instead of using Eye-Tracking directly on the shelf setting, these pictures might be taken of the real shelves used in the PML. Instead of having to arrange a real shelf in a real store for every package evaluated, that might be a difficult task; the shelf can be arranged as desired still using a real shelf and real competitor products when standing in the PML.

There is a shopping centre outside Karlstad called Bergvik containing about 60 different stores and among those there are two big grocery stores, ICA Maxi and OBS. It might be preferable to place the PML in connection to Bergvik and the grocery stores. The PML idea was discussed together with Peter Landmark, in charge of marketing at the centre.

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88 Englert, Lucianne
He was positive about placing the PML in connection to the shopping centre which might ease the decision of where the PML shall be situated. A question that might rise is how representative the respondents will be for Sweden, or for Europe, if the PML is placed at a shopping centre in Karlstad. Is the population in Karlstad with surroundings representative for the Swedish population? For the results from the PML to be considered reliable it might be a good idea to first prove that the population in Karlstad is representative enough for the Swedish population, by doing some kind of survey. This to be able to attract companies to use the PML placed in Karlstad.

**PML design proposal**

It is desirable to create a PML in connection to Bergvik shopping centre and to invite people shopping at the centre to join an evaluation study. The PML shall be as in-store realistic as possible containing in-store interior and real packages and shelves to invoke the feeling by the consumers that they are going shopping when they are evaluating a package. This environment will be unique for testing package design together with consumers. The PML can be a room in size of 7 * 10 metres containing different techniques for testing package design.

In Figure 7 a simple design proposal graphically describes the proposal to the PML setting including the techniques to be used within, to give the readers to this report an understanding to how the PML is imagined to look like.
Eye-Tracking

As number one one can see the Eye-Tracking section of the PML testing the shelf impact of a package, where Eye-Tracking is either conducted on photographs of the package on a screen or at the real shelves at the upper wall of the PML. One might use different kinds of shelf settings containing real products as well as point-of-sale promotion shelves to make the PML as “in-store-realistic” as possible. The room on the left is the observer room containing the equipment for Eye-Tracking that not has to be inside the PML. It is also a room where the test leader is situated during the Eye-Tracking studies not to disturb the respondent. The wall between the observer room and the PML is a one way glass wall through which the test leader can observe the respondent. The left entrance is the one the test person first enters and the right one is the one he or she enters after having done the calibration, to do the Eye-Tracking study. By entering the PML from a different point of view than when doing the calibration one can let loose of the feeling of testing and enhance the shopping experience by the test person.
Computer based questionnaire
After conducting the Eye-Tracking study the test person is asked to enter the computer based questionnaire section, seen as number two in Figure 7. On a computer screen the respondent is showed pictures of the test package in short time intervals in combination with the questionnaire posing questions after each exposure. The respondent shall answer the questions posed by typing his or her answers into the computer based questionnaire. This will evaluate the packages communicated image towards the consumer. In next step the respondent is asked to go to one of the retail shelves and to pick a certain package. The respondent then returns to the questionnaire to answer questions about the tactile perception of the package. The respondent is then asked to answer a few questions about the appearance of the package and also questions about his or her buy intention to that particular product.

Expertise panel/Focus group
Section number three is a place for the package in-store performance expertise panel to meet and to conduct a focus group discussion about the package performance in-store, lead by a moderator. The expertise panel can use the setting in the PML, the real shelves for instance, to physically evaluate a package’s performance in a store.

A cost effective setting?
The Eye-Tracking technique proposed costs about 21 000 €. This sum together with buying a computer and creating a computer based questionnaire including a T-scope technique will be expensive costs in the start-up of the PML. On the other hand these techniques will able to conduct many tests in the future with just slightly modifications before every test. The cost for conducting a focus group is only depending on the kind of compensation given to the participants. The PML only needs one person in charge of every test, conducting the Eye-Tracking study, supporting the respondent when answering the questionnaire and moderating the focus group. This makes the PML setting a cost effective way of testing package design when dividing the costs on all tests conducted in the future. The start-up cost might be expensive but the cost for maintaining the PML will be comparatively small.
5 Result

This thesis examines what affects the consumer in the commercial meeting with the packaging in the shelf. It is also explored what kind of evaluation techniques there are for doing consumer research, especially within the package design area for evaluating package design. These studies are then used to propose a few techniques for evaluating the package’s impact on the consumer in the store, to be used in a package evaluation environment, covering the whole range of aspects affecting the commercial meeting between the consumer and the package. The package evaluation environment is called the Packaging Media Lab (PML).

The results produced in the analysis part, which is the methods proposed to use in the PML, are best depicted when showing their use graphically as in Figure 8.

The PML shall be created in connection to Bergvik shopping centre in Karlstad where the respondents shall be chosen from the people shopping in the centre. The PML shall be as in-store realistic as possible containing in-store interior and real packages and shelves to invoke the feeling by the consumers that they are going shopping. Inside the PML a few
different techniques shall be used for testing the meeting between the package and the consumer.

**Eye-Tracking (1)**
In section one an Eye-Tracking technique is used for evaluating the package’s *shelf impact*. The evaluation can be conducted either on a real retail shelf where the test package is placed among its competitors or on photographs displayed on a screen of the package in a retail shelf among competitors.

**Computer based questionnaire (2)**
A questionnaire posing questions to the consumer about different aspects of a package is placed in section two. The questionnaire shall first show pictures of the package in short time intervals and thereafter ask questions about a package’s communicated *image* to the consumer. Next step is for the consumer to pick up the test package in a real shelf and afterwards questions are being posed about the *tactile perception* of a package. The questionnaire shall also contain questions about the *appearance* of the package and the consumers *buy intention*.

**In-store expert panel (3)**
In section three an expertise panel of people working with packages shall evaluate the test package’s *in-store performance*. The discussion shall be conducted as a focus group and the panel shall have access to evaluate the in-store performance of a package using physical shelves.

In ‘Discussion’ further research needed before a physical PML can be set up is discussed. The feedback from the potential users to the PML that came up during the workshop held to discuss the PML proposal is also collected in ‘Discussion’.
6 Discussion

Before building a physical Packaging Media Lab based on this study some issues shall be stressed and there are a few issues that need to be further investigated. Those issues together with the considerations from the workshop held at the end of this study are described below.

6.1 Feedback from users

At the end of the study the potential PML users were invited to a workshop about the PML proposal so we could discuss the proposal together with them, to get feedback about it and to discuss how it can be made better from the potential users’ point of view. The people invited were Bernt Gustavsson, working with category management at Konsum Värmland, Peter Landmark, in charge of marketing at Bergvik shopping centre in Karlstad and people representing three design firms in Karlstad. All these people have different background but they all work with packages in one way or another. Below the most important findings from our workshop are described, held at the 26th of August 2004.

When the PML proposal was presented the first impression from all the users invited was very positive. They found the PML to be a unique way of testing package design that should be ready to use as soon as possible. They did not know of any other evaluation environment in Sweden capable of evaluating package design in this way.

The interest of working with product placement in-store and in the shelves grows steadily and therefore the PML is a step in the right direction. It is a cheap way of testing package design instead of buying very expensive packaging machines, start the production and later realize that the package design did not work in-store. Packaging design is becoming more and more important today. In English consumer goods stores the product promotions are very strictly controlled. This makes the packaging even more important, as the only thing that can fight for the consumers’ attention in-store. This is a development that will also reach Sweden according to the participants of the workshop and therefore testing package design will be even more important in the future.

The placement of the PML in connection to Bergvik shopping centre was considered to be very good since the step from shopping to evaluating packages in an environment that looks like a store is not as far as it may be in other evaluation methods used today. In other methods the consumer might be asked to come to an empty room in connection to a store or to a shopping street to evaluate a package and answer a few questions. That situation makes the consumer highly aware of that a test is being conducted and the package is not evaluated in its real environment. When evaluating packages in an environment that looks like a store, placed next to a store where the consumers are shopping, the respondents would most likely not have the same awareness that a test is being conducted due to the realistic test situation. The PML will contribute to a more realistic situation than what is possible today when conducting consumer research according to the participants of the workshop. They also stressed the fact that the environment must be as attractive as possible to be able to invite customers but also big
brand owners to the PML and to convince them that it is a trustworthy package evaluation environment.

The design firms sometimes use focus groups for evaluating package design and they came to the same conclusion as stated earlier in this thesis, focus groups are a poor forum for evaluating package design with consumers since the results are not based on a realistic evaluation situation. But still, focus groups are widely used today.

Peter Landmark at Bergvik shopping centre gave the possibility to set up the PML at Bergvik shopping centre. As a start up the PML can be built into a temporary building outside the shopping centre while waiting for a premium hall placement inside the shopping centre.

Other important issues that the users discussed was that the real shelf settings in the PML shall be able to manage all kinds of goods, even frozen products or products in need of being exposed in a freezer. Doing Eye-Tracking studies in a real shelf seemed to be the most interesting method to use instead of conducting Eye-Tracking studies on photographs. One extension to the methods proposed can be to use Body-Tracking, which is a technique that measures how people move. It might be interesting to know how customers move in-store and how they behave. It would also be interesting to be able to see what product a consumer chooses, not only what he or she sees in the shelf.

All the potential users joining the workshop thought the PML was a good and unique idea as well as a good design proposal as a base for further research. They were all asked to consider how they would like the PML design to be according to their individual needs. They believed that this possibility would further strengthen the region of Värmland in the position of being a strong paper and packaging province in Sweden.

The next step towards a physical PML has already been taken since the feedback from the workshop was very positive. Designstudio Värmland and The Paper Province has started to develop a PML project plan and a budget. They have also started to discuss how the PML will be financed and who might be future PML partners. They are looking for a person capable of working as a project leader for the development of the PML as well as conducting studies in the PML.

6.2 Important issues within the laboratory research

Monadic vs. comparison tests

Monadic tests (described in ‘4.3 Existing consumer research methods’) are preferable to be used instead of comparison tests when evaluating package design with consumers. This means that one test person shall only be able to evaluate one design concept. Letting one person evaluate one package design concept is closer to real life than having the same person evaluating different design concepts for the same package, since that situation never occurs in the store.
The equipment’s influence on the consumer
To make the laboratory environment and the test methods as realistic as possible towards the consumer it is important to observe that the test methods shall have as little influence on the consumers shopping experience in the laboratory as possible.

6.3 Further research

Laboratory location
A suitable location for setting up the laboratory must be decided upon and a possible hall for the laboratory must be found on the location preferred. Having the laboratory in connection to Bergvik shopping centre is desirable.

Research expertise
Research expertise is needed to evaluate how the test methods shall be conducted. For instance, how the questionnaire shall be designed and how the respondents shall be chosen. The number of respondents suitable to each test shall also be decided by one research expert as well as if it is preferable to conduct a qualitative or quantitative research. This is dependent on how the company wishes to carry out the research on their package. The research expertise shall also be able to analyse the results from the different tests accomplished, lead the Eye-Tracking study, moderate discussions with the in-store expert panel and present the results to the company responsible for the package.

Where this study ends one person is needed to develop the PML, start up the physical PML and lead the studies. It is advisable that this person has a market research background, able to handle all the aspects above and later on being the person conducting the studies.

Questionnaire design
The questionnaire must be designed by a market research company or by some one specialized in consumer research and computer based surveys. This person or company must be accessible every time a new product is to be tested to be able to make a new questionnaire according to the needs of the company testing the current product. QuickWise is a Swedish market research company doing surveys on the internet. It might be possible to use them as a partner to the PML for designing computerized questionnaires when a new package is being tested, as they possess knowledge within survey design and computerized surveys. The company in charge of the computer based questionnaire might also be in charge of implementing a T-scope technique into the questionnaire.

Eye-Tracking equipment
Eye-Tracking equipment that suits the needs of the laboratory must be found. A decision of weather to use Eye-Tracking on real shelves or on photographs on a screen (or both) must be discussed with the parties involved. The contact with the Swedish Eye-Tracking supplier Tobii Technology is initiated and it is suggested that these discussions are intensified to move closer towards a physical laboratory.
In-store expertise panel

It is necessary to decide what kind of people that would be preferable to have in an expertise panel evaluating in-store performance of a package and get in contact with those persons to ask if they are interested in participating in this project. If the laboratory is situated at Bergvik shopping centre a few people working at OBS Bergvik and ICA Maxi might be engaged together with people working with category management at the both grocery groups.

Further development

The PML proposal given is an easy way of establishing a physical PML as soon as possible since the techniques proposed all exist today (Eye-Tracking, T-scope, computer based questionnaire and focus groups). When the PML has been running for a while and one can see that the concept works, it is possible to further develop the methods within the PML and even develop own methods for package design evaluation. This to create an even more unique evaluation environment. The aspects of the meeting between the consumer and the package that might be further developed in the future are the ones where conventional general test methods are proposed to be conducted, such as questionnaire and focus groups. New methods for evaluating a package’s tactile perception, buy intention and in-store performance might therefore be developed. The package’s shelf impact, image and to some extent also the appearance of a package is evaluated using Eye-Tracking and T-scope, which are methods defined for evaluating package design. Therefore those methods can be suitable for evaluating package design in the future as well.
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**Observations**

OBS Bergvik Karlstad, In-store observation, at 12.30-18.00 PM on the 13th of May 2004
8 Appendices

Appendix 1

Suppliers of package design evaluation methods
This is an overview over methods used by market research companies measuring package performance towards the consumer. The descriptions of the methods are quoted from the companies’ homepages. Therefore the information might render only positive words about the methods.

Company: ACNielsen (USA, also operates in Sweden)
Homepage: www.acnielsen.com
ACNielsen packs@work is a packaging testing research system that provides a cost-effective solution using computer aided graphics that simulate a 3D model of packaging design using either a prototype or packs created using Computer Aided Design. packs@work can help diagnosing whether the new packaging out-performs the existing design and how the current packaging performs against competition. packs@work uses the ACNielsen 4-dimensional approach, E.P.I.C., to comprehensively evaluate the efficacy of packaging towards the consumers:
Empathy, Do they like the pack? Does the pack make the brand more relevant to them?
Persuasion, Are they more likely to buy the brand? Does it reinforce commitment?
Impact, Does the pack cut through the retail clutter?
Communication, Is the pack communicating the desired imagery? Is it communicating functionality? Is it creating brand linkage?

Company: add+impact® (Australia)
Homepage: www.addimpact.net
add+impact® Packaging Check evaluates the effectiveness of the packaging and whether the packaging is congruent with the brand's positioning and advertising. It can also be used to choose between two or more packaging alternatives. The method can be used in Sweden through LUI and TEMO.

Company: Allison Research Technology (USA)
Homepage: www.artechnology.com
Allison Research Technology is one of the world leaders in the development of multimedia and virtual reality tools for market research in all aspects of consumer goods and services. Virtual Shopping is a method for providing a computer generated simulation of the consumer experience, realistically view products and packaging through computer simulations of “picking them from the shelf”, rotating them and reading labels, price and usage instructions.

Company: Decision Analyst (USA)
Homepage: www.decisionanalyst.com
Custom/Ad Hoc Packaging Research
A packaging research service founded on three parts:
**Package Communication,**
Depth interviews are typically used to explore package communication issues. The test package is shown at different time exposures using a tachistoscope. At each exposure level package recognition and communication are examined. The consumer’s reactions to every detail of package graphics and copy are explored in the interview. The purpose of this research is to learn how to improve brand recognition and package communication.

**Shelf Impact,**
Representative displays of the test package in a competitive environment are built. The shelf is photographed from consumer perspective angles and the photographs are shown to the test panel at various time exposures with the tachistoscope. The respondents are questioned about what they see and what they understand, as the length-of-time exposure increases. This methodology helps determine the visibility (or attention value) of a test package, relative to competitive packages.

**Simulated display,**
Matched samples of consumers are instructed to “shop” a representative display of a product category with all major competitive brands assembled. Their brand decisions, and the reason for those decisions, are explored in post-shopping interviews. Simulated display allows measurement of a package’s trial potential.

**Company:** FUSE (Australia)
**Homepage:** www.fuse.com.au
Uses different methods to measure different aspects of package performance:

- **Monadic Evaluation,** Presents fully interactive concepts to gather feedback and deliver key insights to consumer preferences. Presents product as 3D stimulus with possibilities to interact with the product and see product details.
- **Paired Comparison,** Quick data collection of comparative preferences of any number of concepts. Respondents select on “stand-out” impact and visual appeal presenting a set of realistic front facings.
- **Competitor Comparison,** Head-to-head comparison of new concept against existing competitors of any number of concepts. Uses the same setting as in paired comparison including competitors as well.

**Company:** Harris Interactive (USA)
**Homepage:** www.harrisinteractive.com
*Shelf Impact* is an online packaging evaluation analysis, using timed-exposure technology to assess a package’s shelf presence. It allows marketers to assess shelf-related metrics such as package impact and package findability. Shelf Impact employs a series of highly refined study protocols to measure which packages consumers will notice in the blink of an eye and which ones they can quickly locate. In addition to focusing on timed-exposure metrics, Shelf Impact is built to assess traditional package metrics such as imagery and purchase interest.

**Company:** Ipsos-Insight (USA)
**Homepage:** www.ipsos-insight.com
*Ipsos Pack Evolution* is a quantitative package testing tool that measures shelf impact, persuasion, brand equity and package diagnostics online. Consumers approach the shelf
from a distance and then move in for a closer look. Ipsos Pack Evolution studies are conducted online using panelists from Ipsos' US Online Panel. Each respondent is exposed to digital images of the current or the test package within a true-to-life shelf setting, including competitors. Respondents are queried on impact, persuasion and effect on brand equity, as well as other diagnostics that will help the client decide which, if any, alternative package design meets action standards.

**Company:** Movement (Sweden)  
**Homepage:** www.movement.nu  
The company is an expert in understanding the buying process of consumers. Their research is focused on how the consumer is acting when shopping. Movement does experimental studies for testing package development and product plant in store. They also do shopping studies.

**Company:** SIK (Sweden)  
**Homepage:** www.sik.se  
SIK is an industrial research institute. SIK conducts strategic and applied research for industry and in the form of joint industrial projects. SIK offers services within sensory and flavour evaluation of food products as well as packages. Sensory design is about designing products that appeal to the customers through their senses. SIK is conducting sensory analysis through consumer tests and analytical tests. SIK either make quantitative or qualitative consumer tests. The tests can be made at a store, at the consumer’s home or in a laboratory. In the analytical tests a specially-trained test panel is used to describe and objectively measure the sensory characteristics of ingredients and products.

**Company:** QuickWise (Sweden)  
**Homepage:** www.quickwise.se  
Quickwise is a research company doing online market research within the areas of product, name and packaging development, brand development, customer development and market communications. They carry out rapid and cost-effective consumer surveys online with the help of mobile phones and the Internet. When testing package design the respondents are exposed to alternatives in standard 2D or 3D web graphics. Respondents often view different packaging suggestions and settings in combination with answering a questionnaire. Using this technique, the clients are able to get solid feedback the very same day to aid their decisive decisions.
Appendix 2

Suppliers of Eye-Tracking equipment

This is an overview over suppliers of Eye-Tracking equipment that are found during the study. The descriptions of the Eye-Trackers are quoted from the companies’ internet sites and therefore the information might render only positive words about the methods.

**Company:** Applied Science Laboratories (USA)
Homepage: www.a-s-l.com
*501-O Outdoor OPT,* The model is a complete eye tracking system for use in situations where the subject can wear lightweight, head mounted optics and must have unrestricted freedom of movement. The optics are mounted in an adjustable headband.

**Company:** Eyelab (USA)
Homepage: eyelab.msu.edu
*ISCAN portable mobile eye tracker.* Used for studying scene perception in the real environment.

**Company:** EyeTracking, Inc (USA)
Homepage: www.eyetracking.com
ETI offers testing of live package and shelf displays or simulations. Proprietary software developed by ETI allows users to view a simulated shelf display, select a package off the shelf and rotate it to view all sides. Analyses include how the consumer scans the shelf, what packages are noticed when and for how long, and how the target package is viewed.

**Company:** Perception Research Services (partner with http://www.profakt.com/ in München) (mainly USA, possible in Germany)
Homepage: www.prsresearch.com
*PRS Eye-Tracking* shows each target consumer a series of store scenes and product categories/displays that may be encountered while shopping. The person may view each scene (projected on a large screen via LCD) at his or her own pace, spending as much time as desired, as though shopping or reading. No headsets, glasses or head constraints of any kind are used in the PRS Eye-Tracking process. Scenes shown are nearly life-size, not on a computer monitor.

**Company:** SensoMotoric Instruments (Germany/USA)
Homepage: www.smi.de
*iView X HED,* The system uses lightweight head mounted cameras on a bicycle helmet which capture images of the subject’s eye and field of view. The scene video recording can be saved for post analysis. Typical applications can be points-of-sales.

**Company:** Tobii Technology (Sweden)
Homepage: www.tobii.se
*Tobii 1750* provides a high quality eye tracking integrated into a monitor without interfering at all with the user environment of the test subject. It is also easy to use and
fully automatic. *Tobii x50* is based on the same eye-tracking hardware and software as the Tobii 1750. However, it is not integrated into a monitor. It can be attached to any other monitor or used to perform eye-tracking relative to a physical scene, a TV or a projection screen.