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Consumers' Opportunities of and Interest in Purchasing Green Electronic Products

- an Analysis of Consumers' and Retailers' Efforts to Promote Less Polluting Electronic Products

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Table of contents

Foreword

This study was initiated by the Danish product panel for electronic products under the Danish Environmental Protection Agency from early 2001 to mid-2002. The study and report were realised by a project group consisting of:

Mette Lise Jensen and Stig Yding Sørensen, CASA
Anders Schmidt and Morten Grinderslev, dk-TEKNIK & MILJØ
Ulf Hjelmar, Gallup

CASA and Gallup conducted the survey on consumer awareness, attitudes and behaviour, while dk-TEKNIK surveyed retailer activities.

The project was followed by a steering group consisting of:

Jette Baade, Danish IT Industry Association
Anders Mehlsen, TDC
Jeppe Juul, Active Consumers - Denmark
Thomas Roland, Danish Consumer Council
Nis Peter Nissen, Green Information Center
Ulla Lieberkind, Ministry of Economic and Business Affairs
Jørgen Jakobsen, Danish EPA

The consumer electronics retailers' organisation proved unable to sit on the steering group, but subsequently had the opportunity to comment on the report.

The project group would like to thank the steering group for its positive involvement and constructive contributions to the survey and the report.

The survey was realised through a grant from the Cleaner Products Support Programme, etc.

1 Summary and conclusions

1.1 Background and objective

The Danish EPA wished to examine the status of sales of "green" electronic products on the private consumer market. How do consumers feel about making environmental demands when purchasing electronic products and what opportunities do shops give consumers to make environmental demands on the products in purchasing situations?

Previous studies have uncovered the opportunities and barriers facing public procurers in making environmental demands in relation to procurement of electronic products[1] . Thus, this study is a parallel survey, but it focuses on the private consumer market instead of public procurers.

Consumers are an important engine for promoting less environmentally hazardous products under the Product-Oriented Environmental Initiative. A basic question in this study is whether the environment and energy consumption even enter into consumers' considerations when they buy electronic products.

Recent years have seen much talk of "a political consumer", one who is able - by virtue of the items he/she chooses to put in the shopping trolley - to influence the development of innovative products. The concept of the political consumer presupposes that consumers make an active choice to buy products based on quality criteria linked to production conditions "behind" the products, e.g. animal welfare, ethics, working conditions or the environment.

To promote the development and production of cleaner products, consumers must be willing to pose new requirements and demand new product types. But consumer willingness alone is insufficient. Consumers must also find green alternatives on the shelves, so that they have a choice. How conspicuous these alternatives are to consumers ties in with the actual range of items displayed on the shop shelves, the availability of information and guidance and marketing of the products. This calls for conscious strategies and attitudes on the part of retailers, so that they will also pose environmental requirements back along the chain of suppliers.

1.1.1 Objectives

This project aims to study the interactions between consumers and suppliers in the context of developing and marketing "green" electronic products.

The study is to highlight the interrelations between consumers and retailers and their perceptions of each other, as well as the possibilities of turning environmental considerations into a competitive parameter in the purchase and sale of electronic products.

[1] Green electronics in public procurement. Work Report no. 15, Danish EPA, 2001.

1.2 The study

The project encompasses three sub-surveys:

1. A quantitative consumer survey where 701 consumers answered a questionnaire to furnish information on their attitudes and behaviour when purchasing electronic products.

2. A qualitative consumer survey where a total of 17 consumers took part in focus group meetings primarily centred on consumers' desires for labelling schemes for green electronic products.

3. A qualitative supplier survey where 10 suppliers were interviewed on their experience of consumer demands, their company's environmental strategy and the interplay between producers, retailers and consumers.

The project was realised from 1 March 2001 to 1 February 2002.

1.2.1 Definition of electronic products

The project focuses on consumer electronic products, which this study defines as three main types of products:

- Mobile phones
- Stereo/television equipment
- PCs and accessories

1.3 Conclusions

The survey reveals a positive consumer attitude to posing environmental requirements to purchasing electronic products. Many consumers (25-40%) respond that they attach great importance to the environment and energy when they buy electronic products.

This is inconsistent with retailers' experience. According to them, consumers do not demand green electronic products. The retailer survey shows that the environment is not a part of retailers' agendas, which they explain is due to the tough price competition on the market for electronic products. A few had set up an environmental policy, but only one of them had established environmental requirements directly related to products.

According to the retailers, they do not consciously offer alternatives of environment-friendly electronic products because consumers do not demand them, and until they start doing so, retailers will not be active in the area.

There may be at least two explanations of the disparities between consumers' answers and retailers' experience of consumer behaviour in purchasing situations.

1. Consumers reply more positively than they actually act. Good intentions evaporate when consumers find themselves in the purchasing situation. Other consumer surveys show a corresponding difference between consumer attitudes and actions. The positive interpretation sees the responses

as indications that consumers are willing to consider environmental issues when they purchase electronic products.

2. The retailers interviewed have no direct contact with customers. Information may be lost as it travels from the shop assistant to the head purchaser in the retailer chain. Consumers' questions concerning environmental aspects are presumably diffuse and imprecisely worded, since they lack the knowledge and tools to make clear demands. Presumably, diffuse questions from customers are more difficult to channel through the retailer chain than clear-cut questions.

Consumers are willing but lack information

Apparently, consumers show a strong desire to consider the environment in buying electronic products. The positive attitude to considering environmental aspects in the purchase of electronic products registers slightly higher with women than with men. Thus, 59% of the men are willing to make environmental allowances, if products carry environmental information, against 68% of the women.

Women's being more prepared to make environmental allowances than men contrasts with the fact that men make up two-thirds of those responsible for purchasing electronic products, and women one-third.

Consumers' lack of knowledge on the subject prevents them from translating their willingness into actual action when they purchase. Fifty percent of consumers are unaware of whether PCs or stereo/television equipment cause environmental problems. About one-third reply no to the question of whether the production, use or disposal of electronic products causes environmental problems. In addition to knowledge on the environmental impact of electronic products, consumers need more environmental labelling and information to navigate them through a purchase.

Even though consumers are interested in including environmental considerations in their product choice, many other factors go into the process. The respondents primarily mention prices, followed by technical aspects, quality and design. Among these factors, consumers attach lowest importance to the environmental aspects parameter.

Consumers say they will pay for environmental considerations

One-third of consumers are willing to pay more for a product that is less adverse to the environment, and more women than men are willing to do so.

The focus group interviews revealed the high degree to which electronic products are life-style products. Consumers want the products to fulfil far more than practical functions. Consumers set great store in design, and are willing to pay more for an attractive product. Likewise, some consumers are willing to pay extra to obtain a "green" product.

The participants of both focus groups suggest the introduction of a scrapping reward for electronic products, payable when end-of-life products are returned to retailers. This initiative should promote collection and reuse of scrapped electronic products.

Many motives underlying environmental considerations
Focus group interviews with consumers show that many factors can motivate consumers to consider the environment when they buy electronic products.

- Environmental considerations as an added quality of the product
- Environmental considerations as a health aspect
- Environmental (and energy) considerations as a money-saving factor

The consumers interviewed believe that the environment should be an integral quality parameter of a product, in the sense that the environment is an integrated parameter on an equal footing with other aspects. They state that they would not buy an electronic product for its environmental properties alone. Other parameters such as quality, functionality and price should still be competitive. Thus, a high environmental standard cannot supersede any of the traditional product requirements, but can supplement them. Other consumers describe environmental considerations as a way of enhancing product quality, thus adding to its value at the personal level. To some consumers, this personal value of a product can grow through exposure in their surroundings, e.g. if the television in the living room carries a visible eco-label. Thus, environmental considerations give an intangible or symbolic value to the product.

Consumers weight the health impact of their consumption heavily, and they also perceive environment-conscious consumption as a type of self-protection. They would be willing to make the product content of chemical substances a major consideration, if they knew that electronic products could evaporate chemical substances during use. But the focus group interviews show that very few consumers are aware of this aspect.

Lastly, consumers perceive environmental considerations most concretely as a factor that will save them money if they buy products with low energy consumption. Energy consumption is the environmental parameter rated as most important by consumers. Many consumers state that their purchases of low-energy products are spurred less by ideology, than by a wish to save on their own power bills. Others believe it to be a general social responsibility for citizens to save on energy.

Consumers pose requirements to environmental information
Consumers want verified environmental information. They have no confidence in environmental information supplied from producers without being verified. The consumers interviewed responded positively to the concept of a simple environmental declaration (see example in Appendix D), which communicates a few, selected environmental parameters to consumers. But if environmental declarations cannot be verified, consumers prefer the official eco-labels.

The questionnaires also confirm that consumers attach great importance to eco-labels' being verified by the authorities. Ninety-four percent of consumers attach high or some importance to it.

Eco-labels and environmental information on the actual product represent only one channel of information to consumers. Thus, the questionnaire shows that 30% of consumers obtain their information on products through newspapers and adverts, while 20% find their information in special interest maga-

zines on electronic products. Finally, about 15% of consumers find information on the Internet and 11% in consumer magazines.

The figures illustrate that consumers also use "general information from their surroundings" on products as the basis for their purchase decision and as a supplement to the product information conveyed in the purchasing situations. "General information from the surroundings" impacts greatly on the purchase of electronic products as many consumers perceive the purchase of electronic products as a major investment, e.g. when they buy PCs, televisions and stereos. Consumers explain that there is usually a correlation between the price of the product and the time they spend on investigating the product and its alternatives.

Retailers also lack knowledge
The retailers knew very little about electronic products having a less adverse impact. More than 50% stated that they were unaware of any environmental aspect of consequence to electronic products other than energy consumption. To this should be added that several retailers stated that electronic products have no other significant environmental problems and therefore no activities need to be targeted at the area.

This study shows that precisely retailers and shop assistants are significant sources of consumer information. Thus, 58% of consumers receive information from the shops before they buy an electronic product.

Retailers do not compete on environmental aspects
The general picture emerging showed that the environment as such is not yet an item on the retailers' agendas. They state the fierce price competition on the electronic products market as one of the reasons. A few had set up an environmental policy, but only one of them set out environmental requirements directly related to products.

None of the retailers purposefully offer or market environment-friendly electronic products. However, they do offer electronic products carrying ecolabels or energy labels such as TCO 95/TCO 99, Energy Star or the Danish Energy Arrow, but this is more or less coincidental.

Retailers expect consumers and producers to make the next move
According to the retailers, they do not consciously offer alternatives of environment-friendly electronic products because consumers do not demand them, and until they start doing so, retailers will not be active in the area.

Generally, the retailers believe that producers will develop products in a way that ensures a lowering of the environmental load of individual electronic products.

To elaborate on this main conclusion, the chapters on the two sub-studies contain more comprehensive conclusions.

1.4 Recommendations

Today, the situation on the electronic products market is at a deadlock, with neither consumers (according to retailers) nor retailers showing any initiative in promoting the sale of less environmentally hazardous products. According to the retailers, consumers do not demand less hazardous electronic products.

On the other hand, retailers are reluctant to make their own efforts to market less environmentally hazardous electronic products, before consumers demand them.

Several producers focus on the environment in some way, but this fact is rarely communicated to retailers and even more rarely passed on to customers.

This situation leaves a picture of a market where environmental innovation is occurring, as many producers focus on the environmental dimension of their products, but without retailers or consumers getting or obtaining more information about it.

1.4.1 Retailers must become more active

The tough price competition limits retailers' possibilities and especially their desire to participate in promoting less environmentally hazardous electronic products. Consequently, success hinges on the retailers' role being relatively cost neutral. Retailers are recommended to start competing on the environmental aspects of their products. The environmental parameters of products must be underlined in adverts and shops. Retailers should strengthen their roles as an important information link to consumers on environmental matters, e.g. communicating environmental aspects of products by handling out information material in sales situations and through participating in information campaigns.

Such activities could benefit from involving shop assistants actively, because they constitute a crucial link for providing environmental advice to consumers. Environmental competence development of shop assistants and development of simple information tools should be prioritised.

Further, retailers are recommended to start demanding environmental data and documentation from their suppliers.

Retailers should urge producers to use the environmental and energy labelling schemes relevant for electronic products, e.g. the Swan, the Flower and the Energy Arrow. All interviewees recognise the Energy Arrow from a television campaign, but no one has seen it on products in shops.

All retailers in the survey stated that the Danish electronic products market is very small seen by international standards, and that their chances of posing requirements to products are next to nothing. Consequently, we recommend that retailers strive - via the Danish trade associations - to persuade the European and international trade organisations to pose environmental requirements to producers. The relevant Danish trade associations are, e.g., the Trade Association for Radio and Stereo Equipment (now closed down), the Trade Organisation Consumer Electronics and the Danish Commerce and Services.

1.4.2 Consumers need information on several levels

Consumers must start demanding less environmentally hazardous electronic products and require documentation for environmental aspects of the products. This study shows that consumers are willing, but that their willingness needs to be turned into practice. To persuade consumers to do so, they must be made aware of why it is essential and what questions they should ask. This

can be realised through general environmental information to consumers through the sources they use to find product information: newspapers, adverts, the Internet, special interest magazines and consumer magazines.

Since consumers may have many motives for purchasing green electronic products, information needs to be multi-facetted. Arguments can emphasise the facts that green electronic products are a quality parameter, that they are healthier and that they save money.

In addition, consumers are asking for environmental product information that they can use in purchasing situations. Consumers want comparable and reliable environmental information on environmental product qualities. Many consumers in the survey are familiar with the Swan label, and an evident possibility is to expand the use of the label to cover electronic products in Denmark.

As the Swan is not widely used for electronic products in Denmark, we recommend that work continues on developing a simplified environmental declaration. Consumers are positive about the idea of a simplified environmental declaration, as it would help them base their choice on the environmental qualities they find most important, e.g. chemical substances, energy consumption or reusability. Consumers want information in the simplified environmental declaration to be verified.

Segmenting consumers
On the basis of their responses in the questionnaire, consumers break down into four consumer types:

The converted - the consumers who are already positive to the environment, both in terms of electronic products and other consumer areas.

The convertible - the consumers who are, just under the surface, positive to the environmental aspect of electronic products.

The accessible - the consumers who are less environmentally positive than the convertibles, but who may with some persuasion become green consumers of electronic products.

The inaccessible - the consumers who are less positive to the environment and nothing indicates that this will change, neither for electronic products nor for other consumer areas.

The respondents distribute on the segments as follows:

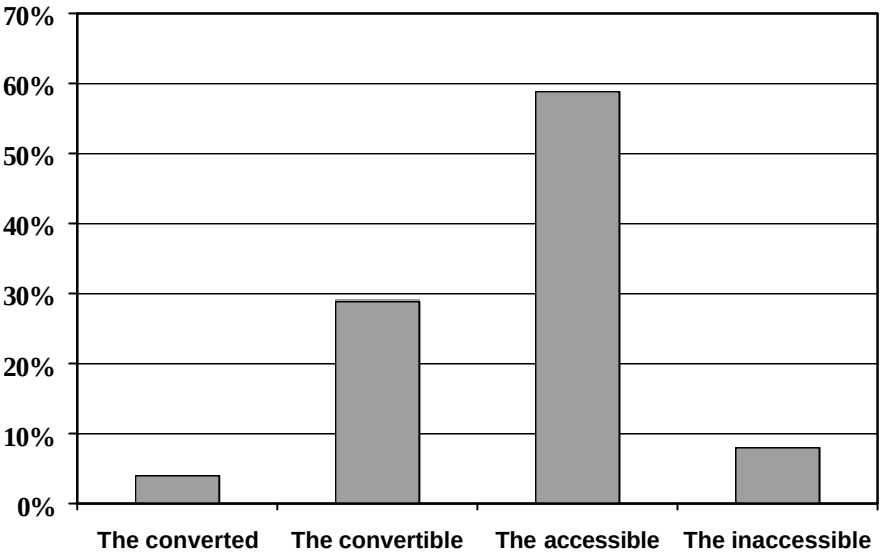


Table 1.1: Segmentation of 701 consumers who filled in the questionnaire on the environment and electronic products.

The four groups differ in terms of attitudes, education and income. The greener they are, the higher their educations and incomes. In contrast, they do not differ in terms of age, housing or rural/urban living.

A strategic use of the segmentation analyses could be to target an information strategy at the two middle groups. The first group only needs slight persuasion - they are already green consumers. Activities targeted at the two middle segments may convert them into environmentally aware consumers. The last group is difficult to influence in terms of environmental consciousness.

1.4.3 The authorities may start a positive spiral on the market

If the market for less environmentally hazardous electronic products is to grow or - more exactly - arise, somebody needs above all to be interested. Since retailers do not market nor consumers outright demand less environmentally hazardous electronic products, the authorities have to facilitate the process. This can be effected through two main types of activities:

- The authorities need to set the framework for communicating product-oriented environmental information from producer to consumers via the retail link, e.g. through eco-labels and environmental declarations.

- In general, the authorities must inform consumers on the environmental impact of production, use and disposal of electronic products. More general, problem-oriented information should be accessible to consumers before, during and after the purchase.

Product-oriented information: Eco-labels and environmental declarations
Various systems exist to communicate information on environmental aspects of electronic products. Eco-labels and environmental declarations constitute one type of information system.

A work report from the Danish EPA[2] presented a simple environmental declaration of consumer electronics. The declaration contains information on energy consumption in both operation and standby, states whether the product contains halogenated compounds or heavy metals and also gives a percentage for potential recycling.

The declaration concludes with advice on how to use the information.

The Danish IT Industry Association (ITB) has developed its own system for environmental declaration jointly with sister organisations in the Nordic countries. Depending on the product type, the ITB declaration provides information on design, batteries, energy consumption, ergonomics, noise, emissions, electrical safety, material consumption, reuse, packaging and environmental policy. Thus, for products carrying the ITB declaration, most relevant information is easily accessible, even though it is not verified by an independent body. ITB's existing environmental declaration was designed for professional purchasers and is therefore very complex and difficult for normal consumers to use. If it is to become useful to private consumers, it must be simplified with fewer environmental data. ITB is currently working towards this end.

As to the eco-labels the Swan and the Flower, criteria exist today for certain electronic products, e.g. PCs, printers, copiers and televisions, but shops are not abounding with eco-labelled products.

Thus, a significant challenge lies in marketing more energy and eco-labelled products. Producers must be urged to use the labels for their products, and retailers must be urged to make the products visible in shops and train their staff to inform customers about the significance of the labels.

If we do not want to promote the use of the Swan or the Flower among producers, we need other label schemes.

Some consumers would like to see more detailed environmental information than the yes/no statement communicated in an eco-label. This is why a simple environmental declaration may be a possibility. An environmental declaration must be based on a few, selected environmental qualities and should be verified if it is to attain credibility among consumers.

Problem-oriented information: General information material
If consumers are to be persuaded to use the environmental information on products, they have to know that the product's environmental aspects are interesting before they purchase it. To date, the environment only exists on the periphery of consumers' consciousness when they purchase electronic products.

This is why both consumers and shop assistants need general information on the environmental impact of production, use and disposal of electronic products. Consumers are vaguely aware that electronic products cause environmental problems, but that is often the limit of their knowledge. Shop assistants' knowledge on environmental aspects is also scanty, but retailers can obtain information, if they demand it from the supplier chain.

[2] Work Report from the Danish EPA no. 16, 2001. Report on environmental declaration on consumer electronic products – from knowledge to action.

The advantages of taking environmental considerations in relation to electronic product purchasing need to be conveyed at several different information levels, as consumers have varying motives for their environmental consciousness. Further, product types are inherently different. The main messages that need to be conveyed concern energy and eco-labels on the products, energy consumption, undesired chemical substances, recyclability/dismountability and packaging-return schemes. This environmental data benefits both consumers and shop assistants.

Consumers want information on the advantages of purchasing a product produced on the basis of environmental considerations. An information campaign could provide data on the actual differences between conventional electronic products and "green" electronic products labelled with either the Swan or the Flower. Conditions impacting directly on consumers are most immediately interesting, e.g. energy savings or chemical substance evaporation in the use phase.

Many information routes to consumers
Consumers have access to a wide range of information routes other than the information supplied in purchasing situations. Even though the survey shows that the information consumers find in shops is pivotal, they also use other sources of information. Consequently, the information consumers get from their general surroundings must be utilised to communicate the environmental conditions of electronic products. Environmental impact can be communicated via newspapers, adverts, special interest magazines and consumer magazines. This is actually where consumers seek product data before purchasing electronic products.

This type of information reaches consumers before they arrive at the actual purchasing situation, and is therefore an essential basis for allowing them to prepare environmental questions in advance.

Thus, environmental information to consumers must consist of several building blocks.

- Development and dissemination of eco-labelling on products. Information that consumers typically use in purchasing situations.

- Environmental information from shop assistants in purchasing situations. Environmental matters should be included on a par with other purchasing criteria. Thus, shop assistants must have knowledge on environmental aspects at a level similar to other aspects of the product.

- General consumer information on environmental impact of electronic products through other sources, e.g. newspapers, product tests and the Internet. Information that consumers pick up before they purchase and that may help put the environment on consumers' agendas.

2 Results of questionnaire

2.1 Objective of questionnaire

The questionnaire aimed at

- determining whether consumers pose environmental requirements when purchasing electronic products. If so, what are the requirements?
- examining where consumers seek information when purchasing electronic products
- determining consumer readiness to make an effort for green electronic products
- determining consumer awareness of and requirements for eco-labels
- dividing consumers according to how environmentally conscious they are in their thoughts and actions

The consumer questionnaire was divided into two parts. One part concerned consumer experience in purchasing mobile phones. Another part dealt with the purchase of stereo/television equipment and computer equipment. Finally, the questionnaire contained a range of questions on consumer attitudes to green consumption in general, on consumers' purchasing behaviour in relation to eco-labelled/organic products and on their motivation for making an extra effort to obtain green products.

The questionnaire was forwarded to 1,000 consumers that Gallup was already in contact with via its omnibus surveys. The consumers receiving the questionnaire had defined themselves as the person in the household responsible for purchasing electronic products.

After three weeks the consumers who had not submitted the questionnaire received a reminder. The response rate ended up at 70%.

2.2 Main conclusions of questionnaire

The questionnaire respondents are the environment-positive consumers. Compared to other surveys, the respondents know a great deal about eco-labels and are keen to make environmental considerations. The questionnaire analysis must be interpreted in this light.

Based on the consumer survey, we conclude that a consumer potential exists for green demand of electronic products, but the demand will not arise on its own. It requires activities targeted at consumers, retailers and producers alike.

The survey proves that consumers are very willing to take environmental considerations in electronic products purchasing, but lack knowledge on the environmental impact of electronic products. Fifty percent of consumers are unaware of whether PCs or stereo/television equipment cause environmental problems. About 33% reply no to the question of whether environmental problems arise in connection with production, use or disposal of electronic

products. Only every fifth consumer believes that production, use or disposal of mobile phones is associated with environmental problems.

Expressed in percentage, a good number of consumers (about 25-40%) put weight on environmental aspects in electronic products purchasing. Greatest importance is attached to energy consumption, followed by the content of lead and other heavy metals. As to heavy metals, the result is probably more an expression of consumers' *wish* to pay attention to such conditions rather than an expression of an articulated demand in the purchasing situation.

Experience from other consumer surveys shows that consumers often reply more positively than they actually act. In this context, the positive aspect is that consumers feel they would like to avoid heavy metals. Translating this feeling into active action presupposes various conditions and measures.

Another explanation could be that the retailer representatives interviewed are too removed from customers and shop assistants. In their position, they probably fail to pick up on consumers' questions on environmental and energy-related subjects.

When environmental considerations cost

In addition to making environmental allowances, 33% of consumers are also willing to pay extra for a product taking environmental considerations. However, the answer is free of charge in the questionnaire, but evidences an attitude of being prepared to support the less polluting products.

One-third of consumers will not pay more for environmental considerations. However, they would probably be interested in information on energy consumption, as that aspect would not necessarily cost more. Actually, it could make the product cheaper than more energy-consuming products.

Requirements to environmental information

Consumers want environmental information on products to be simple and clear, comparable from product to product and verified by the authorities.

The questionnaire did not ask directly about various labelling schemes; in terms of methodology this proved impossible to do properly through a questionnaire. The focus group interviews with consumers elaborated on the subject. Previous discussions have focused on the time Ecolabelling Denmark spends on granting an eco-label and the special problem in the electronic products sector of rapid product development. In that context, it is interesting to note how consumers weight the importance of obtaining the latest model. Figures show that about one-third of consumers attach great or very great importance to obtaining the latest model. The criterion "latest model" is not a low-ranking parameter compared to the other purchasing criteria listed.

Consumers' search for information

Consumers' primary information sources are adverts, shops, family and friends and newspapers. If we want environmental information on electronic products to reach consumers, it would be obvious to use shops and newspapers.

How consumers seek information in shops and from shop assistants is especially interesting. Purchase of electronic products often necessitates service from a shop assistant, and this represents a key point of information ex-

change. If shop assistants' qualifications are enhanced and they have the correct information and tools at their disposal, they are an obvious channel for communicating environmental matters to consumers.

About 10-15% of consumers use consumer magazines, e.g. "Tænk og Test", which opens a channel for communicating results on product environmental qualities.

A similar number uses the Internet to find information, but young people are underrepresented in the survey, which may impact on this figure.

Survey consumer perception
The questionnaire puts rational questions to the consumers on their behaviour in buying electronic products. The questionnaire aims to determine consumer behaviour through various concrete questions on their behaviour relating to their latest purchases of electronic products. Likewise, the questionnaire seeks to ascertain consumers' environmental awareness through a range of questions on their attitudes. Despite these aspects, the contours of a very aware consumer emerge from this study. This contrasts with the fact that consumer choice is often characterised by irrational and arbitrary behaviour. More factors than the questionnaire could reveal determine consumer behaviour, and we are aware that this should figure in the interpretation of consumer behaviour.

As this is often a basic problem in a questionnaire survey, the survey design included two consumer focus groups, one in Copenhagen and one in Herning. Experience showed that discussions in the focus group challenged the rational consumer picture, replacing it with a much less politically correct and rational consumer behaviour. The conflict areas of green consumption were the subjects covered, and the groups discussed motives for an environmentally aware consumption pattern.

2.3 Who responded to the questionnaire?

Of the 1,000 questionnaires forwarded, we received 701 replies. 427 of these were filled in by men (61%) and 274 by women (39%). The person responsible for the household purchase of electronic products was asked to complete the questionnaire. The figures reflect the gender difference related to purchase of electronic products.

Other surveys show that purchase of electronic products is a male-dominated area but also that recent years have seen women making headway in the area[3].

Distribution on age and sex appears from the table below.

	Number	Percentage
Number of completed questionnaires	701	100%
Male respondents	427	61%
Female respondents	274	39%
15-24 years (total both genders)	5	0,7%
25-39 years (total both genders)	224	32%
40-59 years (total both genders)	293	42%
+ 60 years (total both genders)	108	15%

Table 2.1

[3] Green Marketing of Consumer Electronic Products II, Stevels, Agema and Hoedemaker. No publishing year.

Unfortunately, only 5 of the very young consumers aged 15-24 completed the questionnaire. This is probably because we asked the person responsible for the household purchase of electronic products to fill in the questionnaire. This means that only the young people having left home replied. Unfortunately, young consumers are underrepresented in the material. It is unfortunate because they are tomorrow's consumers and because in many ways their consumer behaviour differ from older consumers'.

In the subsequent analysis, readers need to keep in mind that it primarily covers consumers over 24.

2.4 Purchase of mobile phones

Have you purchased a mobile phone within the last 3-4 years?

	Yes	*No*	No. of respondents
Total	**74%**	**26%**	**693**
Men	76%	24%	422
Women	70%	30%	271
15-24 years (both genders)	100%	0%	5
25-39 years (both genders)	73%	27%	223
40-59 years (both genders)	77%	23%	289
+ 60 years (both genders)	53%	47%	105

Table 2.2 Based on 693 replies

Almost three out of four consumers have purchased a mobile phone in the last 3-4 years - most of them men, 321 against 190 women (this ratio is not included in the table).

2.4.1 Information sources for purchase of mobile phones

The respondents replying affirmatively to having purchased a mobile phone within the last 3-4 years subsequently answered a range of more detailed questions on the purchase. The results are based on 472 answers.

Where did you find information on the mobile phone before you bought it?

	Much information	Some information	No information
From family and friends	22%	41%	38%
From colleagues	12%	26%	62%
From shops	20%	44%	36%
From adverts	30%	45%	24%
From consumer magazines (e.g. "Tænk og Test")	3%	12%	85%
From special interest magazines on electronic products	4%	10%	86%
From newspapers	10%	40%	50%
From the Internet: webpages with price comparisons	5%	10%	85%
From the Internet: webpages on product information	6%	10%	84%

Table 2.3 Based on 472 replies

Consumers' primary information sources for mobile phone purchase are:

- adverts (75% obtain some or much information from this source)
- shops (64% obtain some or much information from this source)

- family and friends (63% obtain some or much information from this source)
- newspapers (50 % obtain some or much information from this source)

A large share does not seek information on mobile phones before making the purchase.

When the figures are cross-analysed with gender difference, no major difference emerges. To some extent, women use shops, friends and family slightly more as information sources, while men primarily account for the use of the Internet and magazines.

2.4.2 What is important when consumers buy mobile phones?

The project aimed to determine the status of the environment when consumers purchase mobile phones. The environment is up against several competing parameters in purchasing situations, and we therefore asked about a wide range of purchasing criteria, including the environment.

The criteria are listed in order of their importance to consumers. The greatest importance appears by totalling "very high importance" and "high importance".

How much importance did you attach to the following when you chose mobile phone?

	Very high importance	High importance	Some importance	No importance	*Total*
Quality	34 %	44 %	18 %	4 %	100 %
Price	39 %	33 %	22 %	6 %	100 %
Recharge time and talktime	23 %	40 %	27 %	10 %	100 %
Subscription offer	32 %	27 %	23 %	17 %	99 %
Size	20 %	35 %	37 %	7 %	99 %
Functions	17 %	31 %	31 %	21 %	100 %
Brand/manufacturer	16 %	28 %	32 %	25 %	100 %
Telecommunication supplier	19 %	21 %	31%	29 %	100 %
Service at purchase	11 %	26 %	40 %	23 %	99 %
Service after purchase	11 %	26 %	39 %	25 %	101 %
Design and colours	9 %	26 %	32 %	33 %	100 %
Energy consumption	9 %	20 %	32 %	39 %	100%
Latest model	7 %	18 %	34 %	41 %	100 %
Possibility of returning batteries to retailer	8 %	12 %	18 %	62 %	100 %
Information on environment-friendly use and disposal of mobile phone	8 %	11 %	19 %	62 %	100 %
Possibilities of reuse	5 %	10 %	17 %	69 %	101 %
Content of lead and other heavy metals	6 %	9 %	22 %	64 %	100 %
Possibility of returning mobile phone to retailer when it is discarded	6 %	8 %	12 %	74 %	100 %
Standard accessories	3 %	8 %	40 %	49 %	100 %

Table 2.4 Based on 496 to 505 replies

In interpreting the significance consumers attach to the various parameters, it is more important to compare them than to consider the actual percentages for each parameter.

Price and quality are the two top priorities for purchase decisions.

Energy is the *environmental* criterion carrying greatest importance to consumers. Perhaps this ties in with the very high priority recharge time and talktime take on consumers' lists (range third), and energy consumption is seen as related to those conditions.

The question on energy consumption may be difficult to answer in relation to mobile phones, as they do not directly consume energy, but rather via battery recharge.

Consumers give environment-related issues the lowest priority of all criteria (except for "standard accessories").

Expressed in percentage, a good number of consumers (about 25-40%) give weight to environmental aspects in electronic products purchasing. The result is probably more an expression of consumers' *wish* to pay attention to such conditions rather than an expression of an articulated demand in the purchasing situation.

Experience from other consumer surveys shows that consumers often reply more positively than they actually act. In this context, the positive aspect is that consumers feel they would like to avoid heavy metals. Translating this feeling into active action presupposes various conditions and measures.

2.4.3 The environment and mobile phones - consumer knowledge and motivation

Are you aware of environmental problems in relation to production, use or disposal of mobile phones?

	Total	*Men*	*Women*
Yes	**22%**	23%	20%
No	**19%**	23%	11%
Don't know	**59%**	53%	69%
Total %	**100%**	99%	100%
No. of respondents	**507**	318	189

Table 2.5

More than 50% of consumers answer "don't know" to the general question on environmental problems and mobile phones. The reply indicates a great need for information on the environmental impact of electronic products.

More women than men answer "don't know", and more men than women do *not* associate mobile phones with environmental problems.

Overall, the numbers of consumers *associating no* environmental problems with mobile phones equal the numbers of consumers *associating* environmental problems with mobile phones.

In the group of women, twice as many tie environmental problems to mobile phones as those that do not.

If information on the environmental load of mobile phones were available, would you include it in your considerations when you buy mobile phones in the future?

	Total	*Men*	*Women*
Yes, even though the product becomes more expensive	**33%**	32%	36%
Yes, if the product is priced as others	**33%**	30%	38%
Perhaps, depends on price difference	**26%**	31%	18%
No, even though price is the same	**1%**	1%	2%
Don't know	**6%**	6%	6%
No. of respondents	**500**	315	185

Table 2.6

This question divides the consumers into three almost equal groups.

- One-third of the consumers are prepared to consider the environment even at a higher price
- One-third will not pay more for environmental considerations
- One-third is undecided (answers perhaps or don't know)

Women are more inclined to pay for environmental considerations than men. More men than women answer that it would depend on the price difference.

Chapter 4 elaborates on the question of consumers' willingness to pay more.

2.5 Purchase of stereo/television and computer equipment

Which of the following types of stereo/television equipment did you buy within the last 3-4 years?

Product	Percentage having bought	Number having bought
Television	45%	342
Video recorder	34%	239
Stereo system	29%	206
CD player	19%	138
Car stereo	18%	128
Loudspeakers	17%	118
Playstation	15%	108
Portable CD player	15%	106
Portable stereo system	11%	80
DVD player	9%	61
MP3 player	1%	6

Table 2.7 Based on 701 replies

	Percentage	*Number*
Bought none of the products	13%	93

Table 2.8 Based on 701 replies

Many consumers purchased more than one of the products within the last 3-4 years. On average, each consumer purchased 2.2. of the above products.

Thirteen percent did *not* buy one of the above products in the relevant period. Consequently, they did not answer the following questions on purchase and environmental considerations. Nothing definite can be said about the age composition of this group. It consists of very young, middle-aged and older consumers, but with a slight overrepresentation of the very young and the old.

Which of the following types of IT equipment did you buy within the last 3-4 years?

Product	Percentage having bought	Number having bought
PC	53%	373
Printer	40%	287
Display	35%	249
Scanner	21%	151
Nothing	18%	125
Other equipment	9%	67
Digital camera	8%	55

Table 2.9 Based on 701 replies

More than 50% of consumers purchased a PC within the last 3-4 years. On average, the consumers bought 1.7 of the above products in the period.

The following text describes the stereo/television and computer results collectively, as they share a range of common characteristics. Generally, the environmental problems are the same, and the products are sold in the same places. Thus, the following answers cover both stereo/television and computer equipment.

Consumers were asked to state which product they bought most recently and then on the basis of this experience answer the questions. The most recent purchase distributes as follows:

2.5.1 Information sources for purchase of stereo/television and computer equipment

Where did you find information on the product before you bought it?

	Much information	Some information	No information
From family and friends	19%	25%	56%
From colleagues	8%	19%	73%
From shops	25%	33%	42%
From adverts	19%	34%	47%
From consumer magazines (e.g. “Tænk og Test”)	2%	9%	89%
From special interest magazines on electronic products	7%	13%	80%
From newspapers	6%	23%	71%
From the Internet: webpages with price comparisons	7%	7%	85%
From the Internet: webpages on product information	8%	8%	84%

Table 2.10 Based on 444 to 464 replies

The question has a low response rate, probably because the consumers who did not seek information before the purchase skipped the question rather than respond negatively to all the options. On that assumption, about 20% of the consumers do not seek information about the product before purchasing.

Consumers’ primary information sources in purchase of stereo/television and computer equipment are:

- shops (58% obtain some or much information from this source)
- adverts (53% obtain some or much information from this source)
- family and friends (44% obtain some or much information from this source)

The consumers do not use the Internet to any great extent to seek information on prices and products. The figures might look different, if more young people had completed the questionnaire.

2.5.2 What matters to consumer when they buy stereo/television and computer equipment?

How much importance did you attach to the following when you bought stereo/television or computer equipment?

	Very high importance	High importance	Some importance	No importance	Not relevant
Technical quality, e.g. sound/image quality	37%	37%	18%	3%	6%
Price	28%	37%	28%	4%	3%
User friendliness	26%	39%	24%	8%	3%
Durability	24%	40%	22%	11%	3%
Service after purchase	16%	27%	31%	20%	5%
Brand/manufacturer	21%	22%	31%	19%	7%
Service in purchasing situation	13%	26%	30%	23%	7%
PC speed	22%	19%	10%	6%	44%
Latest model	12%	24%	29%	27%	9%
Design	12%	20%	32%	27%	9%
Free programs/accessories	11%	21%	22%	19%	28%
Noise level	9%	19%	22%	22%	27%
Upgrading possibilities	9%	19%	17%	29%	26%
Energy consumed in operation or standby	8%	18%	24%	44%	6%
Insurance possibilities	6%	10%	20%	49%	15%
Screen radiation	5%	10%	15%	39%	30%
Content of lead and other heavy metals	5%	6%	14%	64%	11%
Possibility of returning product to retailer	5%	6%	10%	67%	11%
Content of chemical substances	5%	6%	8%	67%	14%
PVC content	4%	5%	12%	67%	12%
Reuse	4%	6%	15%	64%	11%

Table 2.11 Based on 473 to 499 replies

The criteria are listed in order of their importance to consumers. The highest importance was established by totalling “very high importance” and “high importance”.

As mentioned in the section on mobile phones, the survey was designed to list a wide range of purchasing criteria, so that the consumers could visualise the many other considerations with which requirements have to interact in a purchasing situation. The result shows that consumers give heavy weight to technical and functional requirements for products. The consumers attach lowest importance to environmental and energy aspects. As to the environment and energy, consumers are most interested in energy.

Half the respondents (50%) reply that energy consumption is important in purchasing situations. The survey was made just before the launch of the second round of an intensive campaign for the Energy Arrow in Denmark.

In contrast, 44% reply that energy has no importance. The figures could be seen as an expression of insufficient product information on energy consumption, which would make it difficult for consumers to make energy consumption part of their decision basis when they purchase new electronic products.

As mentioned for mobile phones, the list should be interpreted in a relative context and not on the basis of the exact percentages.

The differing weights consumers give requirements should be seen as an expression of the options available to consider in a purchasing situation. If neither the manufacturer nor the retailer provides information on chemical substances, consumers will have a hard time giving such aspects weight. Thus, the list of consumer-weighted requirements is largely identical to the aspects on which retailers compete and communicate.

Consumers give relatively high weight to the possibilities of upgrading. Seen from an environmental angle, this is positive, as it prolongs the PC lifetime.

2.5.3 Environmental aspects of stereo/television and computer equipment - consumer awareness and motivation

Are you aware of environmental problems in relation to production, use or disposal of stereo/television or computer equipment?

	Total	*Men*	*Women*
Yes	28%	26%	32%
No	21%	26%	12%
Don't know	51%	48%	56%
No. of respondents	501	329	172

Table 2.12

About 50% of consumers are unaware of whether environmental problems exist in relation to the production, use and disposal of stereo/television or computer equipment. In round figures, the remaining 50% distribute between respondents believing problems exist and respondents believing no problems exist.

More women than men believe that environmental problems exist (based on percentages).

Compared with mobile phones, a few more consumers are aware that stereo/television and computer equipment occasion environmental problems.

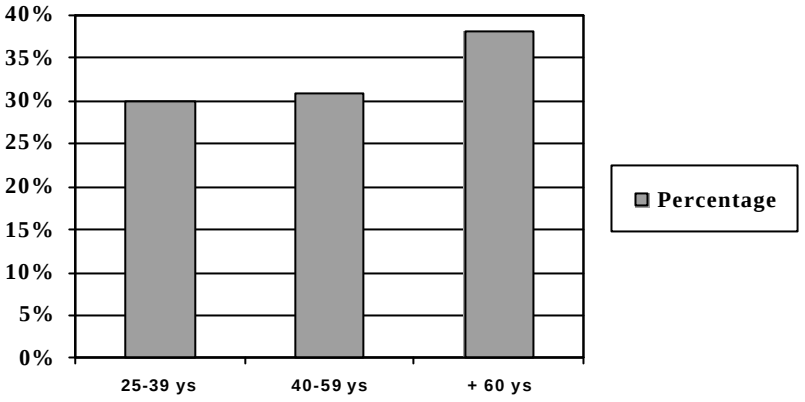
If information on the environmental load of stereo/television and computer equipment were available, would you include it in your considerations when you buy equipment in the future?

	Total	Men	Women
Yes, even though the product becomes more expensive	**31%**	29%	34%
Yes, if the product is priced as others	**31%**	30%	34%
Perhaps, depends on price difference	**30%**	33%	25%
No, even though price is the same	**2%**	2%	2%
Don't know	**6%**	6%	5%
No. of respondents	**504**	330	174

Table 2.13

As to mobile phones, the respondents divide into three groups:

- One-third of the consumers will pay more for environmental considerations.
- One-third will take environmental considerations if they cost nothing extra.
- One-third is undecided; it depends on the price.



What characterised consumers prepared to pay extra for environmental considerations?

Age

No age group significantly evinces a greater willingness to pay than any other.

As the survey only includes three replies to this question from the age group 15-24 years, the results are too insubstantial for conclusions. The other age groups show an even distribution in willingness to pay more, although slightly more older people tend to be willing to pay for environmental considerations.

Table 2.14 Age distribution of consumers willing to pay more for environmental considerations.

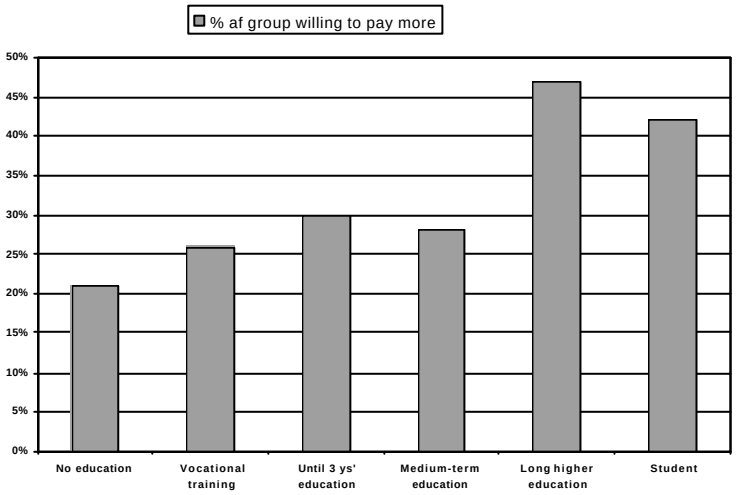


Table 2.15 Educational distribution of consumers willing to pay more for environmental considerations.

Education

When we cross-analyse replies with educational level, it turns out that the longer the education respondents have, the more willing they are to pay more for environmental considerations.

Income

When we cross-analyse the interrelation between income and willingness to pay more, it turns out that there is *no* interdependence with consumers' net monthly disposable income. In households having disposable incomes of DKK 0-6,000, households having DKK 6,000-12,000 and households having more than DKK 12,000, largely the same part of the group is prepared to pay more, i.e. 29%, 32% and 28%.

The segmentation analysis in chapter 4 discusses the relation between financial latitude and consumers' general environmental awareness more closely. The result shows that the greener consumers are, the more financial latitude exists in the household.

2.6 General consumer behaviour

To characterise consumers in the context of their general consumer behaviour, the questionnaire contains a few general consumer questions. In addition to being used to segmenting consumers, the most interesting questions will be summarised here. The questions relate not only to electronic products, but also to purchase of expensive products priced above DKK 1,000.

What is the importance of these aspects, when you purchase expensive products?

	Great importance	Some importance	No importance	Don't know
that the product affects the environment as little as possible	22%	56%	15%	7%
that the product saves me money when I use it, e.g. lower power consumption	48%	46%	5%	1%
that the product has a long lifetime	67%	31%	1%	0
that the product does not represent a risk to my own and my family's health, e.g. radiation or chemicals	64%	29%	4%	3%
that the product can easily be repaired	45%	46%	8%	1%

Table 2.16. Based on 693 responses

All five statements relate to an environmental, energy or health dimension that may impact on the purchase of electronic products. The answers also reveal that consumers generally believe that they are very environmentally aware when they purchase expensive products.

The answers further reveal that finances, health and energy mean more to consumers than the environment does.

How much do you agree with the following statement about your behaviour as consumer

	Agree highly or agree	Neither agree nor disagree	Disagree completely or disagree
I study various products thoroughly, before I make expensive purchases	74%	22%	5%
I often buy spontaneously without studying the market before a purchase	24%	20%	57%
I don't mind paying a little extra when I shop, if that means less impact on the environment	40%	44%	16%
When I select shops, my first priority is that products are cheap. It means less whether eco-labelled or organic products are available	38%	28%	34%
I very rarely buy eco-labelled or organic products	35%	23%	42%
I don't notice whether the product carries an eco-label or not	31%	24%	45%
If an eco-labelled or organic product is sold out, I postpone my purchase	12%	27%	61%
If an eco-labelled or organic product is sold out, I buy a product without a label.	59%	28%	13%

Table 2.17

The questions are included in the questionnaire to draw a general picture of consumer behaviour and to obtain an impression of how much environmental considerations mean to them.

The emergent picture of consumer behaviour shows that 75% of the consumers see themselves as thorough in seeking information before they buy expensive products. Since the questionnaire does not define the contents of "thorough", the figure is an expression of the consumers' view of their own thoroughness. It may cover use of test results as well as browsing in shops immediately prior to the purchase. Whatever it covers, the consumers' perception of their own thoroughness paves the way for information communication on the environment and electronic products.

In general, 40% are willing to pay a little extra for environmental considerations. This figure is slightly higher than the figure for those answering affirmatively to the same question in the specific context of electronic products, i.e. 32%.

About one-third of consumers primarily choose shops on the basis of product price. One-third does not know, and one-third wants the shop to offer eco-labelled products.

About one-third of consumers rarely or never buy eco-labelled or organic products. Between 33% and 50% of consumers often buy eco-labelled or organic products.

Twelve percent of consumers are prepared to wait for a product to obtain a green variant. Thirteen percent of the respondents are also willing to go a little further to obtain an eco-labelled product. They represent the hard core of green consumers who are prepared to find green products in another shop if they are sold out.

The overall perception of respondents' behaviour is that many of them are conscious or green consumers. There is widespread willingness to pay more for products and many have experience in purchasing eco-labelled or organic

products. Either the greenest consumers returned the questionnaire or many of the respondents gave "free" answers.

2.6.1 Attitudes to "green" consumption

The following questions are to establish general consumer attitudes to environment-conscious consumption and consumers' views on their influence. A number of the questions spring from statements on consumption and the environment encountered by consumer researchers or others in consumer interviews.

Several statements are directly derived from Bente Halkier's typologisation of young consumers and their statements on the environment in everyday life[4].

How much do you agree with the following statements on the environment and consumption?

	Agree highly or agree	Neither agree nor disagree	Disagree/ Disagree completely
Individual consumers can contribute to solving environmental problems	87%	11%	2%
We must ban hazardous products to lower the environmental load	72%	23%	6%
It is difficult for citizens to influence the environment positively through their consumption	22%	23%	55%
Eco-labels are unreliable because verification of the labels is poor	38%	41%	21%
I would be willing to pay an additional 15% for my daily products if it improves the environment	34%	33%	33%
The solution of environmental problems is chiefly the responsibility of the central government	27%	30%	43%
Environment-conscious consumption leads to better health	75%	20%	4%
It is boring to be an environment-conscious consumer	13%	36%	50%
The so-called environment-conscious consumer is often an unrealistic urbanite	21%	32%	47%
It is useless to take environmental considerations when no one else does	17%	18%	65%
I know I should be more environment-conscious, but it is too much trouble	46%	27%	27%
I know I should be more environment-conscious, but it is too expensive	47%	30%	24%

Table 2.18 Based on 695 replies

Belief in consumer influence

The respondents are very confident that consumers can make an environmental difference through conscious consumption. Eighty-seven percent agree that consumers can contribute to solving environmental problems.

Regulatory measures such as bans of environmentally hazardous products also garner major support, even though the question is actually a counter-question to consumer-based efforts (72% are in favour of banning hazardous products).

[4] Bente Halkier: The environment in everyday life. Consumers' experience with environmental considerations in everyday life. Published by Forlaget Sociologi 1999.

Forty-three percent do *not* believe that environmental problems are primarily a central government responsibility, and 65% disagree on the statement that it is no use, unless others join in.

Eco-labels
Thirty-eight percent believe that eco-labels are unreliable, because they are too poorly verified. The question does not mention any specific eco-label (officially recognised labels or private labelling schemes), which may explain the widespread distrust. Other surveys of the official eco-labels reveal a 5% distrust in the Swan and 15% in the Flower[5].

The next sections take a closer look at attitudes on eco-labels.

Health
In the consumers' minds, the environment and health are closely connected. Seventy-five percent believe that environment-conscious consumption leads to improved health.

The will to do more
Consumers signal a will to do more for the environment. Forty-six percent believe that they should do more, but it is too much trouble, and 46% would like to be more environment conscious, but find it too expensive.

In general, about 33% of consumers ticked off neither agree or disagree in answer to many of the questions. This is understandable, as the questions are complex and difficult to answer with a single tick. However, it falls outside the scope of this project to go into more detail on the questions.

Due to their complexity, the results should be interpreted with care. The questions behind the consumers' replies can be seen from many different angles.

2.7 Awareness of eco-labels

Which of the following labelling schemes are you familiar with?

	Know	Don't know	No. of respondents
The red Ø label	93%	7%	693
The Varefakta label	91%	9%	691
The energy label (A label)	75%	25%	685
The Nordic Swan label	74%	26%	688
Energy Star	45%	55%	678
EU Flower	43%	57%	685
Energy Arrow	20%	80%	673
TCO 99	11%	89%	676
Blauer Engel	7%	93%	676
The Danish IT Industry Association's environmental declaration	7%	93%	665

Table 2.19 Ranked according to best-known labels

Next to each question, the energy or eco-label was shown (in black/white graphics)

For several labels, awareness registers higher than in other similar surveys. Other awareness surveys show that 41% of consumers know the Swan, and

[5] Evaluating the eco-label campaign. Danish EPA, June 2001.

16% the Flower[6]. The surveys are not directly comparable, as Ecolabelling Denmark/the Danish EPA test for qualified awareness, i.e. consumers must identify the label as an eco-label without aid.

Thus, there is a significant difference in knowing a label and recognising it (aided recall). This study did not test for qualified awareness, but only consumers' recognition of labels, aided recall.

The red organic label for foods and the Varefakta label are the two labels consumers are most familiar with (93% and 91%). In third place lies the A label for household appliances, etc. The high awareness can be explained by the scheme being mandatory, so that all appliances, etc., carry a label. Consumers largely become familiar with the labels by seeing them in purchasing situations. Thus, there is a wide disparity between consumer awareness of the Swan (74%) and the Flower (43%) even though both labels have been promoted in various information campaigns.

Every fifth consumer in this study recognises the Energy Arrow
The Danish Electricity Saving Trust regularly tests consumer awareness of the Energy Arrow. Unaided, 15% of the consumers recognise the Energy Arrow (September before the Energy Arrow campaign), while 52% at the same point in time recognise the Energy Arrow when they are aided[7]. The large difference illustrates how various survey methodologies impact on the result.

Consumers are relatively familiar with the Energy Star. This is probably because the label is widely used on PC displays, both externally and in the start phase of the PC, and because the label has been on the market in Denmark for almost 10 years. In contrast, far fewer are familiar with the TCO label, even though it is on almost all displays. This is probably because it has not been communicated to the Danish market.

2.8 Consumer wishes for environmental information on electronic products

	Great importance	Some importance	No importance	Don't know
Environmental information must be simple and easy to understand	80%	18%	2%	1%
All environmental aspects should be described	41%	45%	10%	4%
Environmental information should be verified by the authorities	67%	27%	3%	3%
Environmental information should be comparable from product to product	65%	28%	3%	4%
Environmental information should show whether the product is in the top of its class	55%	37%	6%	2%

Table 2.20

Consumers generally want a labelling scheme to meet many different and sometimes contradictory requirements. Environmental information should both be simple and easy to understand, as well as describe all environmental aspects.

[6] Stated by Ecolabelling Denmark. The figures are from March 2001.
[7] Tests made by the Danish Electricity Saving Trust September - November 2001. Based on ongoing weekly measurements with interviews of 100 people.

However, the requirement that all environmental aspects should be described gets the lowest rating.

There is very unequivocal support for having the labels verified by authorities.

It is difficult to add nuances and perspectives to questions on consumer requirements for environmental information, as all requirements entail consequences that do not appear from the questionnaire. A disadvantage of an eco-labelled IT product may be that the latest product on the market does not carry the label, because the labelling procedure takes time.

To add details to consumers' requirements for eco-labels, two focus group meetings with consumers were held to discuss various experience with and requirements for labelling schemes. The results of the focus group meetings appear in chapter 4.

3 Four consumer types

3.1 Segmenting consumers

The following consumer segmenting is inspired by Gallup's experience with the Conversion Model, which is able to form a picture of consumers' brand loyalty. The model operates with customers and non-customers of a certain brand or retailer. In the group of customers or "users", consumers are classified according to commitment - i.e. their degrees of allegiance to a given brand.

In this study, the challenge lay in translating the model into a description of consumer loyalty to the environment instead of to a given brand.

In an attempt to divide consumers according to environmental loyalty, they were separated into four groups.

The converted - the consumers who are already positive to the environment, both in terms of electronic products and other consumer areas.

The convertible - the consumers who are, just under the surface, positive to the environmental aspect of electronic products.

The accessible - the consumers who are less environmentally positive than the convertibles, but who may with some persuasion become green consumers of electronic products.

The inaccessible - the consumers who are less positive to the environment and where nothing indicates that this will change, neither for electronic products nor for other consumer areas.

The respondents distribute on the segments as follows:

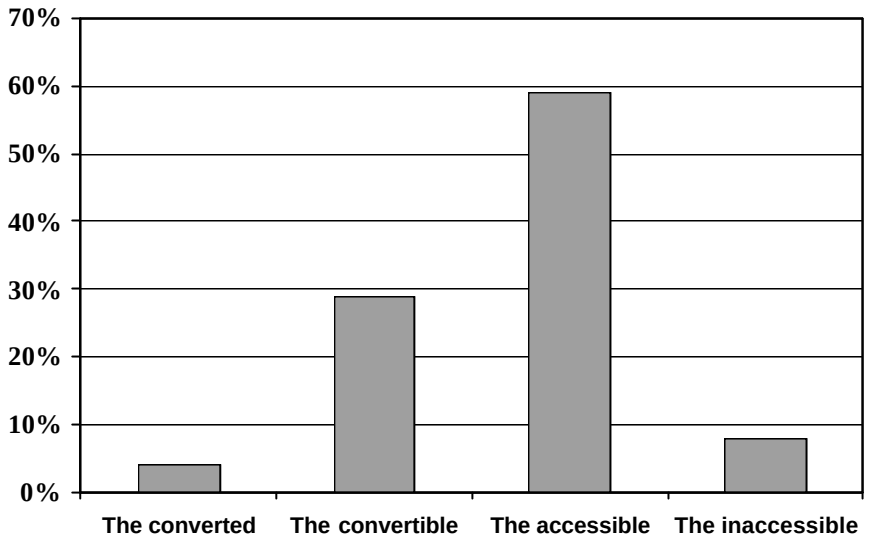


Table 3.1. Division of consumers into segments

3.2 Strategic use of segmenting analysis

The segments are interesting for an information strategy. If we want to launch a positive spiral of sale and development of green products, consumers have to demand green electronic products. The survey shows that consumers lack knowledge on the environmental impacts of electronic products.

Information to consumers could be targeted at the segments. The two middle segments, especially, can be shifted in a more environmentally positive direction.

The *converted* are already convinced green consumers. Most of all, they need producers to use already available eco-labels and make green products visible. They are then ready to buy the products and already do so as far as possible. The small number of converted consumers (4%) should be interpreted in the light of the opportunities producers and retailers offer consumers to be environmentally conscious.

The *convertible* form an obvious group to stimulate in demanding green electronic products. They already buy green in other product areas and do not mind paying a little extra for the products. They are also prepared to become green electronic products consumers. As potential consumers of green electronic products, they need information on the environmental impact of electronic products and on the environmental requirements that are most relevant for the consumer to pose.

After the converted, this group is the most aware of energy and eco-labels. Eighty-five percent of the convertible are familiar with the Swan label, and 22% with the Energy Arrow. Overall, they trust the eco-labels.

Almost half (48%) are prepared to take environmental considerations, even though the product becomes more expensive. Another 32% are willing to make environmental considerations if the product costs the same.

Likewise, the *accessible* are a key target for information. The members of this group can be influenced to become greener in their product choices, but they may also become less green and thus inaccessible if they are not positively influenced.

Their attitudes are predominantly positive to environmental considerations, but they are not as willing to pay for it as the two previous groups. Even so, 26% of the group are prepared to pay more for environmental considerations, and 34% will take environmental considerations if the price is the same. Energy-related environmental requirements entailing financial benefits to consumers would probably appeal to this group.

This group believes less in consumers' possibilities of making a difference, and perceives the central government to be primarily responsible for reducing environmental problems.

The accessible group's inferior awareness of the environment and eco-labels is poorer than the convertible's, but even so 71% of the segment know the Swan label. The Energy Arrow is familiar to only half as many as the converted (19%). The group has less confidence in eco-labels than the two previous segments; 42% of the group rate the eco-labels as unreliable.

The *inaccessible* do not give weight to green purchasing, neither in purchasing electronic products nor other products. They are unwilling to pay more for less polluting products, and everyone in this group sees the solution of environmental problems as the central government's responsibility.

Only 10% trust the eco-labels, and this group's awareness of eco-labels is the lowest of the four segments.

They are a group of consumers needing more than information to change their behaviour.

3.2.1 Possible follow-up on this study

Following an environmental initiative or campaign focusing on electronic products, it would be interesting to see if the segments have shifted, for instance, whether consumers' brand awareness has grown or whether their perception of environmental problems relating to electronic products has changed. A few central questions could be picked out and repeated, thus providing an indication of whether consumers have shifted.

3.3 What characterises the segments?

Generally, the four segments show that the longer the education the respondents in the segments have, the more positive their attitudes to environmental aspects are. This also applies to household incomes. The higher the income, the more environmentally positive.

A certain difference can be traced in the segments' political affiliations. On the other hand, the types of dwelling are largely the same in the four segments. Nor do the segments' distribution between town and country differ significantly.

The following describes the segment characteristics.

3.3.1 The converted

Gender and age
In this segmenting analysis the converted only count 25 people or 4% of the total group. Thus, the data basis for this group is slim.

The converted segment contains an almost equal number of men and women, 52% and 48%. Thus, the women are overrepresented compared to the total number of replies, where 39% are women. A large share of the converted are aged between 40 and 59 years.

Age	*Number*	*Percentage*
15-24 years	0	0%
25-39 years	7	28%
40-59 years	13	52%
+ 60 years	5	20%

Table 3.2 Based on 25 replies

Education and income
The converted are well-educated. Only very few of them have no education. One-third of the consumers in this group have a medium-long education. Seventeen percent have completed a higher education, and 17% are under education. Of the four segments, the converted are the consumers with the longest educations.

The converted is also the segment with the largest household incomes and the largest disposable incomes for daily consumption when all regular expenses are paid.

Political position
The converted differ from the average consumers in that more vote for the Social Democratic Party (44% of the converted against 19% in the total group). A far lower number of the converted vote for the Liberal Party than the average of consumers in this study, i.e. 4% against 26%. Note that the low number of respondents gives rise to great uncertainty in the political distribution.

Party	*The converted* Number	Percentage	*Average* for all respon-dents
Social Democratic Party	11	44%	19%
Danish Social-Liberal Party	1	4%	3%
Conservative Party	3	12%	8%
Centre Democrats	0	0	2%
Socialist People's Party	1	4%	8%
Danish People's Party	2	8%	8%
Christian People's Party	1	4%	1%
Danish Liberal Party	1	4%	26%
Unity List	1	4%	3%
Other parties/no party	2	8%	0
Undecided about party/don't want to vote/would vote blank/don't have the right to vote	2	8%	22%
Total	25	100%	100%

Table 3.3

Dwelling
The converted do not differ significantly from the other consumers in their choice of dwelling. Neither is there a significant difference between town and country in the four segments. Only slightly fewer of the converted live in the country, while more live in towns with 5,000 - 99,000 inhabitants.

3.3.2 The convertible

Gender and age
The convertible number 204 respondents, corresponding to 29% of the total group. Fifty-four percent are men, 46% are women. Thus, this group has proportionally more women than the total group, where women account for 39%.

The convertible distribute on age as follows:

Age	*Number*	*Percentage*
15-24 years	2	1%
25-39 years	66	35%
40-59 years	100	52%
+ 60 years	23	12%

Table 3.4 Based on 191 replies

which is very close to the age distribution of the total group.

Education and income
In terms of education, the convertible form the group most similar to the total group. The distribution only differs by a few percent. The convertible is the group with the second highest household incomes.

Political position
The convertible resemble the average consumers in terms of the party they vote for.

Party	*The convertible* Number	Percentage	*Average* for all respondents
Social Democratic Party	40	20%	19%
Danish Social-Liberal Party	9	4%	3%
Conservative Party	9	4%	8%
Centre Democrats	2	1%	2%
Socialist People's Party	23	11%	8%
Danish People's Party	9	4%	8%
Christian People's Party	2	1%	1%
Danish Liberal Party	55	27%	26%
Unity List	8	4%	3%
Other parties/no party	0	0	0
Undecided about party/don't want to vote/would vote blank/don't have the right to vote	45	22%	22%
Total	202	98%	100%

Table 3.5

Dwelling
The convertible do not differ significantly from the other consumers in their choice of dwelling (no table). Neither is there any significant distribution between town and country compared to the total group of respondents. Only slightly more convertible consumers live in major towns, while fewer live in towns with less than 5,000 inhabitants.

3.3.3 The accessible

Gender and age
The accessible number 64% men and 36% women, which virtually mirrors the distribution seen in the total group of respondents (61% and 39%).

In terms of age, the group breaks down as follows:

Age	*Number*	*Percentage*
15-24 years	2	1%
25-39 years	135	37%
40-59 years	162	44%
+ 60 years	66	18%

Table 3.6 Based on 365 replies

Education and income
The accessible group shows a slight tendency of having an above average number of vocationally trained, and fewer with a higher education.

The accessible are closest to the total group in terms of disposable household income surplus for daily use. In terms of household income, the group comes third of the four segments.

Political position
A few less than the average vote for the Social Democratic Party, while slightly more vote for the Liberal Party or the Conservative Party.

Party	The accessible Number	Percentage	Average for all respon-dents
Social Democratic Party	72	17%	19%
Danish Social-Liberal Party	8	2%	3%
Conservative Party	36	9%	8%
Centre Democrats	10	2%	2%
Socialist People's Party	29	7%	8%
Danish People's Party	34	8%	8%
Christian People's Party	7	2%	1%
Danish Liberal Party	117	28%	26%
Unity List	8	2%	3%
Other parties/no party	1	0%	0
Undecided about party/don't want to vote/would vote blank/don't have the right to vote	93	22%	22%
Total	420	99%	100%

Table 3.7

Dwelling
The dwellings of the accessible reflect the average. Half of them live in houses, 11% in semidetached housing, 7% in rural housing and 30% in blocks of flats. The remainder lives in other types of dwellings.

3.3.4 The inaccessible

Gender and age
The inaccessible consist of 65% men and 35% women, or a slight overrepresentation of men compared to the total group.

Compared to the average, the group has fewer in the age group 40-59 years, with more of them in the group +60 years.

In terms of age, the group breaks down as follows:

Age	*Number*	*Percentage*
15-24 years	1	2%
25-39 years	16	33%
40-59 years	18	37%
+ 60 years	14	29%

Table 3.8 Based on 49 replies

Education and income
The inaccessible have a larger number of respondents with no education past mandatory school attendance, but also more with a higher education than in the average.

The inaccessible are the group among the four segments with the lowest household incomes.

Political position
Compared to the total group, slightly fewer of the inaccessible vote for the Liberal Party. In contrast, more vote for the Danish People's Party (18% against 8% in the total group).

Party	*The inaccessible* Number	Percentage	*Average* for all respon-dents
Social Democratic Party	10	18%	19%
Danish Social-Liberal Party	2	4%	3%
Conservative Party	6	11%	8%
Centre Democrats	0	0	2%
Socialist People's Party	3	5%	8%
Danish People's Party	10	18%	8%
Christian People's Party	0	0	1%
Danish Liberal Party	11	20%	26%
Unity List	1	2%	3%
Other parties/no party	0	0	0
Undecided about party/don't want to vote/would vote blank/don't have the right to vote	13	23%	22%
Total			100%

Table 3.9

Dwelling

Slightly more of the inaccessible live in houses compared to the other three groups. Fewer live in semidetached housing and blocks of flats.

4 Focus group interviews with consumers

The project organised two focus group meetings of consumers - one in Copenhagen and one in Herning. Participants had completed the previously described questionnaire on electronic products and the environment. The participants were then selected on the basis of the segment they belong to, once the segmenting analysis was done. The project wanted to interview consumers that are neither very conscious nor very sceptical about the environment, i.e. the middle group in terms of environmental consciousness. For this reason the interviewees were selected from the categories “the accessible” or “ the convertible”.

The purpose of the focus group meetings was:

1. to gain insight into consumer behaviour when they buy electronic products
2. to gain insight into consumer attitudes to green electronic products
3. to gain insight into consumer wishes for eco-labelling of electronic products

The meetings ran for 2.5 hours with about one hour earmarked for discussing general experience in posing requirements about the environment and energy consumption, knowledge on environmental matters as well as retailers’ and shop assistants’ ability to provide information. After a break, the group spent an hour on discussing strengths and weaknesses of various eco-labels/declarations.

Participants at both meetings were very involved in the discussions, showing a keen interest in debating the issues.

In the following analysis, the results of the two focus group meetings are collated into one analysis, as the attitudes and statements expressed at the two meetings were highly uniform. When the analysis refers to attitudes or statements mentioned in only one of the groups, a note follows in parentheses.

The focus group meeting in Herning numbered 9 consumers with these profiles:

Woman, 47, home helper and trained sandwich maid
Woman, 23, customer advisor
Woman, 53, social educator
Man, 42, landscape architect
Man, 71, pensioner, former plant foreman
Man, 53, registrar, MA
Man, 52, teacher and assistant principal
Man, 42, IT consultant
Man, 54, plumber

The focus group meeting in Copenhagen numbered 8 consumers with these profiles:

Woman, 30, student of medicine
Woman, 37, sociologist and project manager
Woman, 65, voluntary early retiree
Woman, 66, pensioner
Man, 32, systems consultant (IT), M. Sc. (elect. eng.)
Man, 34, technical consultant
Man, 48, senior postman
Man, 53, unemployed mechanic

Both meetings lacked representation of young people aged 15-24, the reason being that participants were selected from among the consumers who filled in the questionnaire. Only one of the 17 consumers in the focus group was aged 15-24.

4.1 How are electronic products bought?

All participants in the focus group meetings had bought one or more electronic products in recent years. Most of them prepare their purchase thoroughly, e.g. collect information from consumer and test magazines and compare capability and prices. Several participants said that they read "Tænk og Test" at their workplaces. Other information tools include product brochures and retailers' and shop assistants' information. The extent of preparation also depends on the product price:

> *"The more expensive a product I'm buying, the more I go into details before the purchase. If the product is less expensive, e.g. a video recorder I bought costing DKK 1,000, it's not as important. That won't make a significant impact on the family's finances."*

Several participants say that a buy can be very spontaneous, especially if the product is on sale. In such cases, alternatives are not studied; the buy is made on the spot.

The participants have differing opinions about when a broken product should be replaced and how much time should be spent on surveying the market. One family lived without stereo equipment for a year, others buy a new one on the day the old one breaks down. Thus, consumers' endurance for not having a functioning product sets the framework for their information seeking.

Consumers express poor trust in shop assistants' abilities. "Shop assistants say what consumers want to hear" is the verdict. They know nothing about the environment and energy. If consumers ask questions about aspects the shop assistants know nothing about, the typical answer is that "it's in the pipeline", explained one consumer. Several participants have experienced getting faulty information from shop assistants or seen other customers get the wrong advice.

Another problem lies in obtaining contact with a shop assistant. Consumers would like shop assistants to be better prepared to give consumer guidance in purchasing of electronic products. This is true for both general technical information and information on the environment.

4.2 What is important in the choice of electronic products?

All participants say that the price greatly decides which product they buy. Several participants underline that the brand is important to them. This is equally true for purchase of both PCs, televisions and mobile phones. Further, several participants explain that through the years, design has become more important to them, and that they are ready to pay more for a nice design. This is especially true for products put in living rooms, i.e. televisions and stereo equipment. Thus, design is not as important for purchase of PCs and accessories.

The vast majority of participants are prepared to pay more for a product that looks good in their view. Even though they claim that the price is decisive, they are still willing to pay more, both for brand and for design.

4.2.1 Environmental requirements for purchasing electronic products

The environment is not an aspect that the interviewed consumers consider greatly in purchasing situations.

> *"I must admit that even though I make environmental requirements in many other spheres, I don't give it any thought when I buy such electronic products. But I would be prepared to do so if the environment was a point of focus."*

Energy is the environment-related criterion capturing the participants greatest attention. Participants describe it more as a form of attention expressed when they use the appliances at home than attention they focus on a purchasing situation. Many switch off power to the appliances at the outlet to save on stand-by energy consumption. One participant always switches off power to the PC at the outlet, because the display cannot be completely switched off; another always switches off television and stereo equipment at the outlet. A third participant explains that the retailer told him video recorders must never be switched off at the outlet. On the other hand, he is one of the few participants who consciously considered the environment in purchasing the product.

The participants say their behaviour has been influenced by the campaign to lower stand-by energy consumption. All participants noticed the campaign, but none of them have seen the Energy Arrow in the shops or on any products, even though they know the label from the campaign. In general, consumers experience information on power consumption as being difficult to obtain, and that other parameters quickly come to dominate the purchasing situation.

> *"The last television I bought uses 4 Watts in stand-by mode compared to the old TV, which used about 2 Watts. I was aware of the difference, but then again I didn't care, because I wanted the good sound rendition in the TV, and that costs energy."*

Participants agree that the attention paid to energy consumption is rooted in the possibility of saving money. When, on the other hand, it comes to paying more for taking environmental considerations, the participants are much less willing.

> *"All of us who are getting older and have a financial surplus can certainly make environmental demands and pay a little extra for products. It's easy for us to brag. But all the young people can't afford the extra cost of products, so I don't*

believe it's that usual to do something extra for the environment. It's too expensive."

As to disposal of electronic products, several participants have experience in disposing of electronic products scrap from their places of work. The large volumes handled there have helped them see the problem, and many of them mention how this has made them consider the massive amounts that must also be flowing out of homes. One participant explains how an advert for recyclable PCs showing mountains of electronic products scrap made her aware of the problem.

In both groups, the participants suggest the introduction of a scrapping reward for electronic products, similar to the one used for cars. Participants suggest amounts in the range of DKK 50-100, which might spur consumers to return appliances to the retailers. This would ensure increased recycling.

In this debate, several consumers questioned whether an environmental problem even exists in relation to the scrapped PCs.

Durability and lifetime are aspects carrying great importance, and participants underline that long durability is also significant to the environment. Several participants mention that they do not mind paying a little extra for good quality or for a product that lasts longer. This is also the argument used in favour of buying products with a "real" design.

The participants also describe how people help each other to ensure a longer lifetime for an appliance. When an appliance breaks down or needs upgrading, owners enlist the help of colleagues or friend having either the expertise or the necessary spare parts. The Herning group, especially mentions this aspect, while it is not mentioned in Copenhagen.

Other than the aspects cited - energy, disposal and lifetime - the consumers have considered no other environmental aspects of electronic products. One participant mentioned that through his work as a safety representative he knows that many chemical substances may evaporate from PCs, thus representing a hazard to health and safety.

All participants call for more information on the environmental load of electronic products. This is true for information through both retailers and other channels.

"It's very confusing to be a consumer. There're so many things to consider and not even the authorities are completely sure how dangerous it is. And when we're talking about products made at the other end of the world, it becomes really difficult."

Both groups mention the significance of critical consumer information on products, e.g. the information on rainwear made from PVC, which has just persuaded several retailers to withdraw it from the market. Participants believe that critical consumer television shows are important for consumers, retailers and producers, and they see them as a way of regulating the hazardous products on the market.

One participant mentions that for consumers to become interested, they need to benefit directly. It could be a "here and now effect", e.g. lowered energy consumption, or a health effect.

The participants discussed in detail what it would take to make consumers environmental-conscious in this area. One participant believes that if Denmark wants a consumer response in a specific area, we must have what was described as “a general no-no”. The purchase must be one the neighbours look down on, and the environmental benefit should appeal to a collective sense of conscience. Otherwise, it will not work.

4.2.2 View of own influence

Participants in the Herning group all agreed that environmental requirements had to come from the consumers. They believed that consumers have great influence on what can be bought in shops and can be instrumental in influencing producers. Retailers just have to become aware that there is a market for such products.

The Copenhagen group was more sceptical. Several of them believed that any health-impairing substances should be banned. Many from this group supported a solution calling for bans and state regulation. They did not believe that consumers could realise such a task through political consumption, because the consequences of various chemical substances in production, use and disposal are impossible to grasp.

4.3 Consumer wishes for environmental information

At the meetings, the focus group participants were shown four examples of labels used in the environment and energy sector.

1. The official eco-labels, the Swan and the Flower
2. The Energy Arrow
3. Proposal of simple environmental declaration (from the Danish EPA work report no. 16, 2001).
4. The A label scheme for household appliances

As agreed with the Danish IT Industry Association, its environmental declaration was not discussed at the focus group meetings, since it is not targeted at private consumers.

4.3.1 Attitudes to a simple environmental declaration

The groups were very supportive of and interested in the simple environmental declaration, which was exactly what many of them wanted: Short informative and relevant data on the environmental qualities of a product. The environmental declaration was seen as a good alternative to the eco-labels, which many found too superficial in their communication, as consumers were not told on what the labels are based.

One critical comment stated that it was difficult to prioritise the five information categories in the simple declaration. How should halogenated compounds be weighted compared to reuse? Consumers may find it difficult to relate to words they can hardly pronounce and whose meaning is beyond them.

Others believed that the strength of the declaration was that consumers could on their own weight the aspect most important to them.

There was broad consensus that the environmental declaration should contain a maximum of five data categories, or it would become pointless.

As to the selection of criteria, another participant said:

> *"It's important that we don't overdo anything. We need to select the aspects that actually have major environmental impacts. Not all those things that are used in small amounts."*

Both focus groups put forward suggestions to combine environmental declarations with colour codes or the A scheme, so that consumers wanting the simplified statements can still find them in the declaration. If data were placed in an interval, e.g. category A or B, the consumer could easily see where the product stands compared to other similar products.

> *"It must be very simple for the consumer to understand it. It should be designed as an icon or something with a colour scheme. Something very easy to understand and very simple."*

Even though the groups were very interested in the environmental declaration, many saw it as an overriding problem if the scheme was unverified by the authorities. For most participants, this verification is so important that they would prefer a verified eco-label, even though the environmental declaration design was rated highly.

4.3.2 Attitudes to eco-labels

All participants were familiar with the Swan label but not the Flower.

Irrespective of authority verification or not, some consumers were *not* in favour of an environmental declaration; they would prefer the yes/no information inherent in an eco-label. Consumers already find it very complicated to buy electronic products, so the environmental considerations should be as easy to comprehend as possible. Other participants argued that we should use the schemes already existing and not constantly invent new labels.

Others criticised the fact that as consumers we do not know what we are getting for our money when we buy Swan-labelled products. How do they differ from conventional products? Participants suggested that producers could provide information on this aspect, e.g. with the user manuals and other loads of paper that normally come with an electronic product.

Another type of information suggested by both groups was the idea of attaching a small, short brochure to the product together with the eco-label. That would allow the interested consumer to study the brochure in connection with the purchase and use it to supplement the eco-label.

The information accompanying the eco-label would allow the consumer to find out about environmental aspects prior to the purchase and enable the environmental advantages to figure in the purchasing decision - in contrast to the previously mentioned information in the user manual, which would help the consumer after the purchase.

The participants mentioned that the detailed information could be used for eco-labelled, energy-labelled and environmentally declared products.

Today it is a problem that producers have to wait to obtain the eco-label, because then consumers cannot always buy the latest product on the market. This prompted the question of how much this means to the consumer. There were no unambiguous answers. Some believed that they would not choose eco-labelled products if they were not the latest model, but others never bought the latest product anyway, and it would make no difference to them. The participants for whom the latest model did not matter outnumbered the others.

As to price, the groups discussed how much more participants would be prepared to pay for eco-labelled products, e.g. with the Swan. For purchases around DKK 3,000, one participant mentioned DKK 100-200 as a reasonable extra price, and the other participants agreed. In addition, participants mentioned that a single parameter cannot be viewed separately from the other product quality parameters, e.g. function and technology, which all agreed would probably determine the choice of product in the end.

Participants underlined the advantage of eco-labels attached to the product, since that would both provide a signal and convey symbolic values to the consumers after the purchase.

"You have to be proud of buying eco-labelled products. The label should be attached to the video recorder front, so that everyone can see you've considered the environment. It must be trendy like organic food. But we probably need a big change of attitudes compared to today, where nobody thinks about the environment when they buy such things."

4.3.3 Attitudes to energy labels

All participants knew the A-label scheme, and many of them had tried to buy A-labelled products. The participants' attitudes to energy-label schemes are that energy is a very interesting aspect to consumers, because they see subsequent savings on their power bills. But participants would like information on other environmental impacts of a product.

"We don't know what's behind the A label. And a fridge may be made from all kinds of harmful substances. There's no information about that."

As to the mandatory element of the A label scheme, the participants agreed that it boosts consumers' possibility of using the label when the scheme is mandatory. They believe that a scheme where information can be compared will function best if most products on the market carry the label. Nobody believed that the producers would use an eco-label or an environmental declaration voluntarily.

The Energy Arrow
Almost all participants had seen the Energy Arrow in the television campaign. As to the penetration of the Energy Arrow, the groups agreed unanimously that the Energy Arrow is not displayed prominently enough in shops. No one had seen it on any product but only knew it from campaigns. Again, the groups underlined the importance of finding it on all or most products, if consumers are to use it for choosing between several products.

The participants had many questions about the Energy Arrow. Does it cover both the stand-by and the operational consumption? Which products can use the arrow? The general attitude was that the label was too simplified. The

participants liked the A-label scheme better, because it puts the products in categories.

The groups suggested that a campaign subsidy be given to low energy-consuming PCs similar to the campaign for A-labelled fridges, where consumers got a DKK 500 discount on A-labelled products.

4.3.4 Attitudes to verification of eco-labels

Participants consider it a must that the authorities or an independent body verify the label scheme used. In general, the participants had no trust in the producers' information, unless it was verified by another body. However, one participant stated that producers dare not cheat, "just think what would happen if the consumer programmes caught them red-handed". However, the groups did not agree on this, as several believed that it would be difficult for others to verify how much of a product can be reused.

If the choice stands between a non-verified environmental declaration or a verified eco-label, the participants would prefer the verified eco-label. Thus, the verification requirement is more essential than the information design, even though the design of the simplified environmental declaration gained support.

Sub-conclusion
Consumers explain that the price is decisive when they purchase electronic products, but even so they are willing to pay a higher price for a given brand and a good design. Since consumers have enough financial latitude to prioritise design and brand, there is hope that environmental aspects can also become a conscious quality parameter for consumers. Participants explain that several aspects can motivate a purchase of "green" electronic products.

Environmental considerations are quality: The environmental considerations of a product represent a quality parameter to consumers. It may be either an actual quality or a symbolic quality - the awareness of making a difference.

Environmental considerations as risk minimisation: By avoiding chemical substances, consumers also protect themselves. A few consumers mention the health aspect as their motive for taking environmental considerations. In the focus group debates, other consumers mention that if they had more knowledge on the subject, they would do more to avoid chemical substances (e.g. brominated flame retardants) because of the evaporation risk.

Environmental considerations as good business: Consumers are very aware of energy concerns. Many participants are prepared to pay more for products consuming less energy, as they expect savings on the power bill in return.

Consumers want information
Consumers want verifiable schemes. They do not believe that producers' information will be correct, if a given scheme is unverified.

The design of a simple environmental declaration gained widespread support, but consumers view non-verification of the scheme as a major obstacle. In that case, consumers would prefer a verified eco-label.

Participants suggested that consumers be given more environmental information than is contained in just a label or simple declaration. Either as a small

brochure attached to the product or as an element of the product instruction material. Or both.

In addition, participants suggested giving campaign subsidies to eco-labelled or energy-labelled electronic products - similar to the subsidy offered to consumers purchasing A-labelled fridges in 1998.

Finally, the participants suggested the introduction of a scrapping reward of electronic products similar to the one used for cars. Participants suggested amounts in the range of DKK 50-100, which might spur consumers to return appliances to the retailers. This would ensure increased recycling.

5 The environmental dimension of electronic products retailers

This chapter describes how environmental matters figure into the daily work of electronic products retailers in Denmark.

5.1 Objectives

The objectives of this part of the survey were to determine whether:

- retailers carry less polluting electronic products
- information is available on any potential environmental advantages
- shop assistants can provide correct advice on environmentally beneficial choices
- environmental requirements are made to sub-suppliers
- retailers experience environmental requirements from customers
- retailers have policies for environmental training of purchasers and shop assistants
- less polluting electronic products are on offer

5.2 Methodology

To determine how retailers prioritise environmental aspects, the survey interviewed 10 major retailer chains of electronic products in the period May-August 2001. This chapter therefore describes the situation until August 2001.

Our criterion for selecting staff for the interviews was that the persons should have responsibility or co-responsibility for the products included in their shop ranges. Further, we wanted these persons to cover the environmental dimension of their companies.

To make sure that we were interviewing the right people and that all the questions could be answered, we asked the companies who the relevant person would be.

Depending on the organisation structure and competence division of the individual retailer chains, it sometimes proved relevant to interview a product manager and other times a purchasing manager or marketing manager. At two retailers, we interviewed both the person responsible for the environment and the person responsible for products. In one instance, we had to select one specific type of electronic products. This was because the responsibility for the product range had been divided into stereo/television, hi-fi and IT equipment, and that it proved impossible to set up an interview with people responsible for all areas. In this instance, we chose the product manager for stereo/television, because knowledge on less polluting products in this area is particularly poorly studied.

The retailers were very keen to participate in the survey. Of the 13 retailers asked, 10 agreed to participate. The three retailers not wishing to participate, were either unable to find the time or had no interest in the area.
The interviews were conducted in person or by telephone. The interviews were based on a question framework built around 12 main questions with associated additional questions. The question framework appears in appendix B.

In practice, the interview procedure used the question framework to ensure that all main questions were answered, while it did not need to be followed stringently. This gave the retailer some latitude to decide how the interview covered the subjects and in which sequence the questions were answered. This procedure also enabled the retailer to communicate information and views not immediately inherent in the question framework.

Time consumption per interview depended widely on whether the meeting was held in person or on the phone. The average face-to-face interview took about 1½ hours, while telephone interviews varied from fifteen minutes to one hour.

The advantage of physical presence was that the interviews were conducted in a relaxed atmosphere, perhaps because both parties could see the other person and read each other's body language. The telephone interviews made it more difficult to assess moods and know whether the retailer found the interview uninteresting and wanted it to conclude quickly or the reverse.

The table below shows the ten retailers participating in the survey and the interview method for each interview.

Retailer	Interview method	Product type
Dansk Supermarked	Telephone	Stereo/television, IT equipment
Elgiganten	Telephone	Stereo/television, IT equipment, mobile phones
Expert	Telephone	Stereo/television, IT equipment, mobile phones
FDB	Face-to-face	Stereo/television, IT equipment
FONA	Telephone	Stereo/television, IT equipment, mobile phones
HiFi-Klubben	Telephone	Stereo/television
Merlin	Telephone	Stereo/television, IT equipment, mobile phones
TDC	Face-to-face	Mobile phones, IT equipment
Zitech	Telephone	IT equipment
2tal	Face-to-face	Stereo/television

Table 6.1 Interviewed retailers and interview method

5.3 Conclusions

The project drew on ten interviews with major Danish retailer chains to uncover the environmental aspects related to retailers of electronic products.

The general picture that emerged showed that the environment as such has not yet been put onto retailers' agendas. Retailers state the reasons to be the tough price competition on the electronic products market. A few had set up an environmental policy, but only one of them set out environmental requirements directly related to products.

The retailers' knowledge of electronic products having a less adverse impact was very limited. More than 50% stated that they were unaware of any environmental aspect other than energy consumption that concerns electronic products. To this should be added that several retailers stated that no other significant environmental problems related to electronic products exist and therefore no activities need to be targeted at the area.

Generally, the retailers believe that producers will develop their products in a way that ensures that the environmental load of individual electronic products diminishes.

None of the retailers deliberately offer or market environment-friendly electronic products. However, they do offer electronic products carrying one of these energy or eco-labels: TCO 95/TCO 99, Energy Star or Energy Arrow, but this is more or less coincidental.

According to the retailers, they do not consciously offer alternatives of environment-friendly electronic products because consumers do not demand them, and until they start doing so, retailers will not be active in the area.

According to the retailers, consumers consider four parameters when they purchase, and they are price, design, functionality and service. Retailers believe that if the environment were on consumers' agenda, their sales staff would pick it up and communicate it to the management, which would then act on the basis of conventional commercial deliberations.

The lack of attention to the environment is also apparent in purchasing situations, in which retailers generally put no environmental requirements on suppliers. This is because retailer chains in Denmark are too small to make demands on their suppliers.

Nor in sales situations does the environment figure as a significant parameter. If significant, new environmental knowledge or regulation is introduced in the area, retailers will make it a natural element of the ongoing training of sales staff in the shop chains.

Overall, the retailers believed that the environment might become a more powerful factor in the future, but that the initiative must come from customers' demand or authorities' regulation. If this happens, they are prepared to focus on the environment, as long as it involves no extra expenses to them.

5.4 Results

The following section reviews the results of the interviews conducted.

5.4.1 Retailer structure and situation in Denmark

For several years, the trend in Denmark has been moving towards fewer, but larger retailer chains in the electronic products market. Mergers and acquisitions have frequently caused changes in the retailer structure. While this study was being conducted alone, Fredgaard sold its seven large outlets (Super Radio) to Elgiganten and merged with FONA. Further, Radius and Audiolink merged with 2tal. Such developments make it difficult to assess total sales on the market, but calculations based on the information furnished by the interviewed retailers indicate total sales in the range of DKK 10bn annually.

The market for electronic products is subject to keen price competition, which according to several retailers has lowered their earnings level to 10 to 15% below the normal (expected) level.

5.4.2 Environmental requirements on the agenda

Generally, the environment does not currently appear to be on the agenda of retailers selling consumer electronic products. Some retailers do consider the environment, but either they do so in other business areas or the environment is still at the planning stage

In addition, several retailers have started considering whether the environment is a parameter they should introduce into their organisations. According to electronic products retailers, the fierce price competition on the market is a key reason why the environment is poorly represented on their agendas.

5.4.3 Environmental policy

Three of the interviewed retailers have set up an environmental policy. Only one of these deals directly with electronic products. This environmental policy poses requirements to the products being purchased, both to production circumstances and to component substances in the products. As to the other two retailers, their environmental policies provide general guidelines that cover their entire business areas.

One retailer had previously had a written environmental policy, but discarded it when he found out that the chain was too small to pose requirements to suppliers. The retailer expects that the chain will re-establish an environmental policy in 2-3 years, depending on whether the sector's financial outlook improves, thus allowing the environment to gain greater importance.

Six out of ten retailers stated that they found an environmental policy unnecessary. The reason given was that customers show no interest in the environment when they purchase electronic products. Three of the six retailers further believed that there is no reason to pose environmental requirements to electronic products other than for their power consumption in operation and in standby.

Their general attitudes were that technological advances would to a wide extent automatically lead environmentally hazardous substances to be replaced with new ones that are better for the environment. Generally, the retailers believe that producers will produce products in a way that ensures that the environmental load of individual electronic products diminishes.

One retailer, TDC, has recently developed a tool targeted at promoting purchase of environment-friendly telecommunication products. The tool is based on the methodology for life-cycle analysis developed in relation to the EDIP project[8].

The tool is still so new that the group has not yet implemented it. Once this is done, group purchasers will initially have the option of using it or not.

[8] EDIP = Environmental Design of Industrial Products

In practice, it will require suppliers of displays to fill in a form placed on a special section of the TDC Internet portal. Subsequently, supplier replies will be processed and weighted in a dynamic score model, thus making it possible to evaluate and compare various telecommunication products. In a longer perspective, TDC is considering to develop a format for an environmental product declaration that can be used vis-à-vis customers.

5.4.4 Knowledge

Most of the interviewed retailers know comparatively little about environmental aspects related to electronic products. When the environment was mentioned, the power consumption of products was the first thing that came to the retailers' minds. More than 50% stated that they were unaware of any environmental aspect other than energy consumption that impacts on electronic products. To this should be added that several retailers stated that no other significant environmental problems related to electronic products exist and therefore no activities need to be targeted at the area.

In general, the interviewed retailer chains train their sales staff regularly or when they find it necessary. At this point, the environment is not an element of this training, but if it becomes relevant, retailers see no problem in including it on an equal footing with the conventional elements of sales staff training.

The retailers also stated that customers' knowledge on less polluting electronic products is limited to inquiries concerning power consumption of products. The retailers get the impression that other environmental aspects simply fail to be considered when customers purchase electronic products.

5.4.5 Supply and demand

None of the interviewed retailers would definitively say that they make a conscious effort to offer environment-friendly electronic products. However, they do offer electronic products carrying an energy or eco-label.

The labelling schemes concerned are the US Energy Star and the Danish Energy Arrow as well as the labels TCO 95 and TCO 99. The two latter eco-labels for computers, etc., were developed by the Swedish trade union, Tjännestemännens Centralorganisation. TCO labels pose certain requirements to design, reuse, component substances, packaging, ergonomics and radiation.

According to the retailers, the offer of environment-friendly electronic products is so limited because consumers do not demand them. Very few retailers have heard customers inquire about the environmental aspects of products. The customers posing questions are often public purchasers, and the questions rarely relate to the actual products, but to general aspects such as purchasing policy, etc.

Only two retailers pointed to specific producers whose products they would characterise as more environment-friendly than others.

The retailers were not interested in considering whether one product type was better than another. All retailers stated that they operated on commercial conditions and therefore offered the product types demanded by their customer group. Retailers do not care to consider whether it is, e.g. environmentally

responsible to carry plasma televisions in their ranges, even though they consume more power than conventional cathode-ray tube televisions.

According to the retailers, there are few differences in the parameters their customers give weight to when they purchase electronic products. In short, all retailers name four general parameters: price, design, functionality and service. The largest retailers who cater to the widest group, especially experience the price as the chief factor in a sale. Customers also give much weight to the functionality of products, and are often conscious of the special functions they want in a product. Design is also important to the choice, and this is why customers demand specific brands. Most retailers make a high service level a priority and see this as a way of distancing themselves from a singular focus on low prices.

According to retailers, customers can be divided into three groups:

1. customers who focus solely on price
2. customers who do not want to get into the details, and
3. customers who are unable to find out about details on their own. The last two groups put much weight on good service.

One retailer stated that IDG Danmark A/S (International Data Group) conducted a questionnaire in March 2000 in Denmark on the sales criteria on which customers based their decisions in purchases of electronic products. The survey showed that about 26% of the customers ticked off the category: "Health aspects, healthy products, low radiation, ergonomics" as being a decisive factor in their selection. According to other categories, this was the ninth most important decision parameter. The survey was based on 1,420 respondents. Presumably, the survey focused on PC purchases.

The IDG survey results show that customers are very interested in the health-related environmental aspects of a product. This result ties in well with the relatively wide awareness of the TCO label scheme, which supplements environmental requirements with health-related requirements.

5.4.6 Purchasing situation between retailers and suppliers

The general picture shows that retailers do not make environmental requirements when purchasing. Retailers have argued that no chain in Denmark is large enough to make requirements to suppliers. Denmark represents too small a market to suppliers. For this reason, retailers believe that environmental requirements must be made through European and international forums. It also means that, currently, Denmark cannot function as the vanguard for less polluting electronic products.

One retailer explained that in the trade organisation Euro Coop[9], of which he is a member, only Denmark and Sweden name brominated flame retardants as an environmental problem. As to the other countries, they show lacking knowledge or understanding of anything but energy-related questions related to electronic products. If requirement specifications are to encompass brominated flame retardants, for instance, a basic information campaign must be organised at the European level with groups of purchasers or trade organisations as the primary targets. In the long run, this could engender a common

[9] European Community of Consumer Cooperatives.

awareness of the need to phase out brominated flame retardants in consumer electronics.

Retailers do not demand eco-labels when they purchase. A single retailer has implemented the policy of only purchasing TCO99-labelled computer displays, while the extent to which the electronic products purchased carry the Energy Star or the Energy Arrow labels seems more coincidental.

About 50% of the retailers were familiar with the eco-labels, while their awareness of the TCO labels was higher.

5.4.7 Marketing

No retailers make a conscious effort to market less polluting electronic products. However, in product descriptions several retailers pass on information on whether the product carries the TCO or Energy Star labels.

One retailer has tried to market less polluting televisions as green products but without any impact on consumers, and the retailer therefore dropped the endeavour.

One retailer chain explained that in 2000 it participated in the Danish Energy Agency campaign for the Energy Arrow[10], where the staff attached stickers with the Energy Arrow on the products that met its requirements. The retailer was interested in the campaign and explained that it would like to support such activities. Unfortunately, at some point the retailer ran out of labels and had therefore stopped attaching labels to the less energy-consuming products. The results of such a campaign need to be followed up with additional material and revision of the information contained in the material.

Several retailers expressed an interest in participating in potential information campaigns to promote less polluting electronic products, but they will not finance them. Similarly, the retailers do not want to participate, unless customers show an interest.

The retailers agreed that technological development should be the primary source of environmental innovations. This is also why they do not believe in using environmental innovations in marketing vis-à-vis customers. Producers and suppliers communicate environmental data to retailers, but without retailers in Denmark making requirements.

5.4.8 Sales situation

It proved impossible within the framework of this project to determine sales staff's direct experience in sales situations, but according to the interviewees they would - as managers - be informed if sales staff registered a demand for less polluting products.

In sales situations, the retailers state that sales staff only provide occasional information on environmental aspects of products. In response to inquiries, the sales staff is able to provide the information contained in the product data

[10] Electronic products with low power consumption in standby mode can achieve the Energy Arrow. Additional information is available in Danish at: www.energipilen.dk.

sheets. Such information could be whether the product is, e.g. TCO labelled, whether it carries one of the energy labels and its standby power consumption.

If significant, new environmental knowledge or regulation is introduced, the shop chains interviewed would make it a natural element in the ongoing training of their sales staffs.

If environmental aspects are to become visible, the retailers want it done in a way that allows the information to be used as a sales argument to customers. Several retailers mentioned that the information could, for instance, enumerate actual financial savings in the short or long term. A few retailers mentioned that it would be beneficial if they could visibly show the advantages that result from purchasing less polluting products over conventional products.

5.4.9 Internal communication

The vast majority of retailers do not discuss environmental aspects of products internally in the company/group. Again, this is because customers neither give weight to nor demand environment-friendly products. If customers should begin demanding less polluting electronic products, sales staff would register this demand and communicate it to the management. The management would then use general commercial deliberations to determine how to meet the demand.

5.4.10 The future

The retailers widely agreed that the environment may become a more decisive factor in the future, but that the customers should make the opening moves. Customers determine the popularity and scope of less polluting electronic products.

Another way of ensuring the environmental aspects gain importance in the future calls for authorities to intervene and regulate the area. Several retailers said that it would require an overall control to start a trend towards less polluting electronic products.

5.4.11 Possibilities for selecting less polluting electronic products

Characteristically, retailers believe that consumers are unable to relate to less polluting electronic products. One retailer explained that, since electronic products are often produced outside Denmark and normally cause no visible environmental problems for consumers, environmental aspects become irrelevant. He believed that the closer the environmental problem comes to the consumer, the more relevant it becomes. This applied to both physical (is it made in Denmark?) and psychological (does it directly affect me and my children?) aspects.

Furthermore, consumers must have financial incentives for choosing one product over another.

The offers of less polluting electronic products available on the Danish market are limited to products labelled with the Energy Star or the Energy Arrow and computers carrying the TCO 95 or TCO 99 labels. Even though the Nordic eco-label, the Swan, and the EU label, the Flower, all have eco-label criteria

related for a range of electronic products, no producer has applied for a licence in Denmark.

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1 Methodology description of questionnaire survey

Gallup was in charge of realising the survey. This procedure ensured that the respondents were completely *anonymous* in relation to the Danish EPA.

Target group and selection of sample
The survey population consists of all people responsible for purchasing electronic products in households.

The survey is based on a sample totalling 1,000 respondents. The sample was selected from Gallup's ongoing telephone omnibus survey. This procedure ensured that a representative sample of people responsible for purchasing participated in the survey. Subsequently, the respondents received a mailed questionnaire with a stamped envelope addressed to Gallup.

Design of survey and data processing
The survey results were compiled through a mailed questionnaire. This collection method was selected because it makes it possible to pose a wide range of comparatively complicated questions.

The data was compiled in the period 17 May to 20 June 2001.
The questionnaire was forwarded together with an accompanying letter in which Gallup informed the recipients of the background and purpose of the survey. Gallup also sent a reminder letter stating that the date of submission for the questionnaires had been extended by about a week.

Gallup designed the questionnaire jointly with CASA and the Danish EPA.

The questionnaire encompasses two types of questions:

Questions of facts - i.e. questions where respondents are asked to answer, e.g., "yes" or "no" to whether they have purchased an electronic product or similar.

Intensity questions - i.e. questions where respondent are asked to grade how important, for instance, a certain parameter was in the purchasing situation. For these questions, the survey typically used a four-degree scale from "very high importance" to "no importance". In the analysis, the answers were cross-referenced so that all essential interrelations could be elucidated.

Survey validity and systematic errors
The percentages stated in the results section are subject to some uncertainty, because the survey only questioned a small sample of all people responsible for purchasing rather than all of them.

The uncertainty can be stated as a 95% margin of certainty. This means that the true percentages with 95% certainty are as follows:

Sample size	5% or 95%	10% or 90%	15% or 85%	20% or 80%	25% or 75%	30% or 70%	35% or 65%	40% or 60%	45% or 55%	50%
600	1.6	2.2	2.7	3.0	3.2	3.4	3.5	3.6	3.7	3.7

Example

From a high number of respondents, 700 randomly selected respondents participated in the survey. Out of the 700, 280 reply affirmatively to a specific question, i.e. 40%. As the table shows, the margin of certainty lies around 3.6%. This means that it is almost certain (95% probability) that the percentage of affirmative answers would lie in the interval between the two margins 36.4% (40%-3.6%) and 43.6% (40%+3.6%), if the entire group had been asked.

The analysis takes the statistical uncertainty into account, and therefore only mentions the statistically significant results. Besides the statistical uncertainty, there are two other sources of uncertainty in the survey, i.e. systematic errors and validity.

Systematic errors mean that groups of the population may systematically register a lower response percentage than other groups, thus figuring in the survey with lower weight than they should. For this survey, a total of 1,000 questionnaires were sent out. Of these, an estimated 960 questionnaires fell within the target area (the rest were returned as address unknown etc.). 709 replied adequately to the questionnaire, corresponding to a response rate of 74%. This response rate is satisfactory. No systematic errors were seen in the target group, and overall we can conclude that the results are representative of the population of people responsible for purchasing electronic products.

Validity addresses whether the study actually answers the specific questions asked. To ensure high validity in the survey, a steering committee set up for the purpose reviewed the questionnaire.

Inquiries received in the course of the survey showed that the respondents rarely ran into many misunderstandings or questions of doubt in the questionnaire.

1 Framework of questions for retailer interview

In 2000, CASA and dk-TEKNIK conducted a survey on behalf of the Danish EPA, to charter public procurement of and interest in less polluting electronic products. One aim of the survey was to determine the use and effect of the tools available to aid (public) purchasers in procuring less polluting electronic products: eco-labels (Swan, Flower, Blauer Engel), energy labels (Energy Star, Energy Arrow), the Danish IT Industry Association's environmental declarations and the Danish EPA's procurement guidelines.

CASA and dk-TEKNIK are now conducting a survey together with Gallup that focuses on general consumer interest in and possibilities of purchasing less polluting electronic products. The objective of the survey is to chart consumer awareness, attitudes and behaviour in relation to the environmental load of electronic products as well as to study consumers' needs for information and evaluation tools. We fulfil this aim through a questionnaire survey of consumers. However, we are also surveying consumers' possibility of buying environment-friendly products from retailers of electronic products.

1.1 Overall questions

Before we start on the more specific questions on the electronic products you offer and consumers' demand for less polluting electronic products, we first have a couple of questions related to aspects such as your own purchasing.

1.1 How big is the volume of your business? (turnover, number of employees)

1.2 How is your business structured?

1.3 Do individual shops have joint or independent marketing?

1.4 How big is your purchasing department?

1.5 Who decides what to buy?

1.6 How big is your sales department?

1.7 Do you consider customer service important or are sales based on self-service?

1.8 Are you familiar with the various labels (Energy Arrow, Energy Star, Blauer Engel...)?
Who in your organisation would be familiar with them?

Can you give the name and phone number of these persons?

Today, the environment is the subject of ever increasing discussions and figures on the agenda of many companies. Both manufacturing companies and their retailers.

2. Are environmental aspects found on the agenda of your organisation?

Yes	No
2.1 How? 2.2 Where in the organisation do you discuss environmental aspects? 2.3 Do you discuss environmental aspects of electronic products? If yes: What aspects do you discuss? If no: Why not?	Why not? Do you think you will do so in the future?

3. Do you have a written environmental policy?

Yes	No
3.1 Does your policy set requirements to purchasing situations? 3.2 Is your policy decisive for which products you offer? 3.3 Do you make environmental requirements downwards in the supplier chain? If yes: Why? If no: Why not? What are the barriers? 3.4 Have your sub-suppliers offered green products? 3.5 What environmental requirements are significant? 3.6 Have you set up an environmental management system? 3.7 Who should we contact to hear more about your environmental policy? *Internal questions: Should interview be followed up?* Yes No	Why not? Have you considered setting up an environmental policy? Do you consider the environment in purchasing? If yes: What environmental requirements do you make? If no: Why not? Have your sub-suppliers offered green products?

Selection of environment-friendly products

The environment is a subject of ever increasing debates - also in relation to electronic products. In this context, the debate focuses on standby-time, reusable plastic and the content of heavy metals in batteries. To enable consumers to purchase less polluting electronic products, a selection of environment-friendly electronic products should of course be available.

4. Do you sell electronic products that you would characterise as environment-friendly?

Yes	No
4.1 Why?	Why not?
4.2 How large is your selection of environment-friendly electronic products?	Do you have plans to sell environment-friendly products in the future?
4.3 Are any specific brands the best option? Is a specific series (Philips EcoVision) or another single product the best option?	If yes: Why? If no: Why not?
4.4 In what way are these products environment-friendly?	Do you have plans to promote environment-friendly products in the future?
4.5 Are they marketed as environment-friendly products? If yes: Why? If no: Why not?	If yes: Why? If no: Why not?
4.6 How satisfied are you with the offer of environment-friendly electronic products?	

Demand for environment-friendly products

If we really want to start development of environment-friendly electronic products, we need demand for them. Public purchasers are gradually beginning to demand environment-friendly electronic products, but what about private consumers?

5. Do you as retailers/sellers register any demand for environment-friendly electronic products from consumers?

Yes	No
5.1 How often do consumers demand environment-friendly electronic products? 5.2 What do consumers ask about? Do they, for instance, ask about power consumption in standby mode or what they should do with spent batteries? 5.3 Are environmental/energy conditions decisive for consumers' choice? How much weight do they put on environmental and energy aspects? 5.4 What other parameters (price, quality...) are important to them?	Why do you think that is? What other parameters (price, quality...) are important to them? Do you think that environmental aspects will become a significant parameter in the future? If yes: Why? If no: Why not? In your view, what can we do to make consumers ask about environmental aspects in the future?

Marketing

If consumers are to demand less polluting electronic products, they have to know that such products exist. Consumers can, for instance, obtain such information through retailer marketing of environment-friendly electronic products.

6. Do you use environmental aspects when you promote your business or your products?

Yes	No
6.1 Why?	Why not?
6.2 Does the marketing work? If yes: How does it work? If no: Why doesn't it work?	Do you think that you will come to use environmental aspects in marketing in the future? If yes: How? If no: Why not?
6.3 How can the environment become a competitive parameter in your business? Will environmental aspects or health aspects have the largest impact?	How can the environment become a competitive parameter in your business? Will environmental aspects or health aspects have the largest impact?
6.4 Do you know shops or chains that use environmental aspects in marketing? If yes: Where? If no: Why not, do you think?	Do you know stores or chains that use environmental aspects in marketing? If yes: Where? If no: Why not, do you think?
6.5 Who can we contact to discuss environmental aspects in marketing? Would that be you or someone else?	

Sales

The sales situation is another way of informing consumers of environmental aspects of electronic products. At that point in time, information on environmental aspects of electronic products might influence consumers to make more environment-friendly choices.

7. Do you inform your customers about the environmental aspects of electronic products in sales situations? For instance, about power consumption in standby mode or the content of hazardous substances?

Yes	No
7.1 Why/how? Is it an aspect of your sales technique? 7.2 What is the effect? 7.3 How do customers respond to the information? Are they interested or uninterested? 7.4 Can your sales staff guide customers correctly on environmental aspects in purchasing situations?	Why not? (Don't you experience any demand?) What do you think weighs heavily with consumers when they purchase electronic products?

Internal communication

If any consumers have wishes, requirements or questions to environmental aspects of electronic products, it may be important to register such signals.

8. Do you discuss consumer wishes to environmental aspects internally in your organisation?

Yes	No
8.1 How are environmental aspects communicated between purchasers and sales staff/retailers? 8.2A "Top-down" How can positive environmental aspects be communicated from purchasers to retailers/sales staff? - and then passed on to customers? 8.2B "Down-top" How can demands for "environment-friendly" products travel from customers to purchasers? (How is communication from sales staff to purchasers organised?) In other words: Does anything happen if customers ask about environmental aspects? Do you have procedures aimed at following up on consumer input? Do you have special procedures for picking up consumer attitudes/wishes? Do you conduct consumer surveys? Do environmental aspects figure into such surveys? Who do we contact to find out whether we can see any results? 8.3 How do you see your role as retailers? Should you do more to promote sales/ production of environmental products?	Why not? (Is it because consumers have no wishes related to environmental aspects?) How do you see your role as retailers? Should you do more to promote sales/ production of environmental products?

Purchasing

You as retailers can best influence developments by making environmental requirements to electronic products in relation to purchasing.

9. Do you make environmental requirements in purchasing?

Yes	No
9.1 What environmental requirements do you make? Why? 9.2 Do you as purchasers know enough about environmental aspects to consider these aspects in purchasing? If yes: What do you know about environmental aspects? And where did you learn about them? If no: Why not? And what type of knowledge do you need? 9.3 Can you think of anyone else in the organisation we should discuss purchasing and environmental aspects with?	Why not? What can make you pose environmental requirements in the future?

Internal knowledge

Clearly, one needs internal knowledge on the environmental load of electronic products to make requirements in relation to purchasing and to inform customers on environmental aspects of electronic products.

10. In your view, do sales people know enough about environmental aspects?

Yes	No
10.1 What do they know about environmental aspects? Where did they learn about it? 10.2 What does your sales staff know about environment-friendly electronic products? 10.3 Would your sales staff be able to answer environmental inquiries from consumers if questions relate to the environmental aspects of electronic products?	Why not? What knowledge do they lack? How can they acquire it? Are sales staff informed about environmental aspects of electronic products, e.g. via sales material? Will knowledge on environmental aspects be a necessity for retailers in the future? Is your company prepared to put sales staff and purchasers through training in environmental aspects? Which environmental aspect do you think would be in focus?

Consumers' knowledge

To get consumers to demand environment-friendly products, they have to be aware that the products exist and know which environmental aspects are important.

11. In your view, do consumers know enough about environmental aspects of electronic products?

Yes	No
11.1 Why do you think so?	Why don't you think so?
11.2 What do consumers know about environment-friendly electronic products?	Do consumers know anything about environment-friendly electronic products?
11.3 What should they know?	Should they know anything about them?

Parallel to other areas

In recent years, environmental aspects have gained ground in the food sector through organic foods. The Danish co-op FDB, in particular, is campaigning with a wide range of organic foods. Similarly, a major campaign is currently running in Denmark to promote environment-friendly textiles - both eco-labelled textiles and eco-labelled detergents.

12. Do you think that something like that can or will happen with electronic products in the future?

Yes	No
12.1 Why do you think so?	Why don't you think so?
12.2 Can the same means be used? If yes: Which? And why? If no: What is then needed?	Is this only true for electronic products? What about CDs, tapes for cassette recorders/ videos, minidisks, etc.?
12.3 How can we get consumers interested in environmental aspects of electronic products?	
12.4 How do you see the electronic products market in five years?	How do you see the electronics market in five years?
12.5 Will you be prepared to face a market with a demand for environment-friendly electronic products in five years? If yes: How are you preparing yourselves? If no: Who can help you? Trade organisations, consumer organisations, the Danish EPA, others?	Will you be prepared to face a market with a demand for environment-friendly electronic products in five years? If yes: How are you preparing yourselves? If no: Who can help you? Trade organisations, consumer organisations, the Danish EPA, others?

1 Basis for segmenting consumers

1.1 Group 1 - the converted

The criteria for including consumers into this group is that they meet the following parameters:

1. They attach high or very high importance to one of the environmental aspects when they purchase electronic products (questions 25-31 and 61-76).

2. It is of high or some importance to the consumers that the product puts the lowest possible pressure on the environment (question 83).

3. They disagree with the statement that they rarely purchase organic or eco-labelled products (question 92).

4. They are willing to pay 15% more for a product if the product puts less pressure on the environment (question 100).

1.2 Group 2 - the convertible

The criteria for including consumers into this group is that they meet the following parameters:

1. They attach high or very high importance to one of the environmental aspects when they purchase electronic products (questions 26-31 and 61-76).

2. It is of high or some importance to the consumers that the product puts the lowest possible pressure on the environment (question 83).

3. They disagree *or* neither disagree/agree with the statement that they rarely purchase organic or eco-labelled products (question 92).

4. They are willing to pay 15% more for a product if the product puts less pressure on the environment (question 100).

1.3 Group 3 - the accessible

Consumers meeting the following requirements are in this group:

1. They attach some importance to one of the environmental aspects when they purchase electronic products (questions 26-31 and 61-76).

2. They are mainly in favour of paying more for products putting less pressure on the environment (must have answered disagree or neither disagree/agree to question 100).

3. They believe that solving environmental problems is mainly the central government's responsibility (question 101).

1.4 Group 4 - the inaccessible

Consumers meeting the following requirements are in this group:

1. They do not give weight to environmental or energy aspects in purchasing electronic products (questions 61-76).

2. They are unwilling to pay more for less polluting products (question 90).

3. They believe that solving environmental problems is mainly the central government's responsibility (question 101).

1 Example of simple environmental declaration

1.1 Specimen of completed environmental declaration

Work Report from the Danish EPA no. 16, 2001. Report on environmental declaration on consumer electronics – from knowledge to action.

Environmental declaration

Video recorder: Phillips VR 880-02

Energy consumption (power consumption)

Operation/standby in Watts (W)	15.8 W/5.4 W

Undesirable substances

Halogenated compounds	Yes: X	No:
Heavy metals	Yes: X	No:

Waste handling

Potential reuse	55%

Hints on how to use the environmental declaration

- Choose a product with low power consumption in operation and in standby. In the user manual, you can see how to utilise the standby function.
- Choose a product without halogenated compounds or heavy metals
- Choose a product with high potential reuse. Please dispose of a product in an environmentally responsible way.