

WHY DO WE BUY AND THROW AWAY ELECTRONICS?

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ABSTRACT (250 WORDS MAX)

Electronics such as computers and mobile phones have quite recently become affordable and integrated in the everyday lives of a large proportion of the world population. This has coincided with shorter product life and led to increased, and from several aspects unsustainable, scrapping of electronic products. This development reflects conditions on the markets. It also reflects social and cultural processes behind purchasing and discarding on the everyday life level. We see a need to investigate and analyse such processes. The analysis should be useful for researchers as well as policy-makers. The purpose of this paper is to review, and select knowledge and theory within, social science and humanities that can help understand socio-cultural conditions and processes related to consumption of electronics.

Theoretical frameworks selected through the review are e.g. sociology respectively anthropology of consumption, sociology of technology and practice theory. These frameworks are used, or touched upon, to form hypotheses that could explain choices of buying and discarding in everyday life. A tangible result of our review is the preliminary conceptualization of nine socio-cultural processes that seem to motivate consumption of electronics: mandatory technology (as a citizen you are expected to possess some electronics and functionality); possibility opening (buying access to functionality that you want to explore and *might* utilize); economic opportunity (i.e. decreasing economic constraints for buying electronics); specialization/multiplication (of possessed products within e.g. a household); fashion shifts; social comparison and identity; habits; matching; novelty (newly designed and/or purchased as a stimulus).

Keywords: Electronics, consumption, motives, motivators, sociology, anthropology, ethnology, socio-cultural

1 INTRODUCTION

1.1. Background and aim

Rapidly increasing amounts of produced, as well as discarded, electronic products and the way production and waste handling is taking place presently, implies a development that is unsustainable from several aspects. The development obviously reflects conditions on the markets. It also reflects social and cultural processes behind purchasing and discarding on the everyday life level. We see a need to investigate and analyse such processes. The aim of this paper is therefore to make an explorative review and selection of knowledge and theory within social science and humanities, that can help understand conditions on an everyday life level motivating consumption of electronics. The following two questions of a more general kind motivated our research: What lies behind present trends concerning how consumers in affluent societies buy and throw away electric and electronic products? How could these patterns change towards more sustainable consumption habits? By focussing on widespread patterns of action in everyday life, that seem increasingly significant in terms of environmental consequences, we hope to address relevant and truly interdisciplinary issues on sustainability. The paper is based on an earlier report that we have published together with our colleague, professor of Eco Design, Conrad Luttrupp [1].

1.2 Theoretical framework and methodology

Relevant frameworks were selected through an explorative review, and are comprehensively presented in this section. Frameworks were found within sociology of consumption [2], anthropology of consumption [2], sociology (and domestication) of technology [4], practice theory [5] and theory of habits [6]. Below we present some relevant perspectives grounded in these frameworks. We have grouped them together under two sub-headings, for convenience of writing and reading rather than that any frameworks should be seen as particularly related.

1.2.2 *Anthropology of consumption, sociology of technology and theory of habits*

From an anthropological perspective, consumption is to a large extent about creating and maintaining social relationships. Consumption of goods is co-evolving with social meanings, values and the purposes and significance that we ascribe to them. One example of this is how things become markers and help us understand our social reality; Eating breakfast in the morning not at dinner and vice versa or treating yourselves more generously in the family during the weekend, buying gifts, decorating for holidays etc. [7]. We need material things to make sense in such recurrent practices and rituals.

Therefore, according to sociology of technology, it is necessary to study what happens when people find ways to use the available technology and consumer goods in their everyday life [8]. Technology is a fundamental part of everyday life, something that is included in all daily activities. The technical development and introduction of new technologies in everyday life contributes to the transformation of everyday routines, but also acts as a stabilizing factor [8]. In order to maintain habits, discretion, self-realization and social relations people plan and carry out the purchase and use of technology. This takes place within the framework of our beliefs about what is desirable and possible [9]. Meanwhile, new forms of (using) technology are often also related to certain shifts in habits and relationships, see e.g. [10, 11]. Objects have always been important for people in this way, which means to bring order and meaning in life. The unique feature of our time is that available objects are mostly and more than ever mass-produced. The majority of things we surround ourselves with today share the common feature that they are made for sale [12].

The start of consumption in a modern sense can be traced to the 1500s and the English court, which became, more than before, a space of exhibition for the nobility [13]. In the 1700s mass consumption broke through in wider social classes than the nobility. Successively more and more goods became available in more and more places and on a larger number of occasions than before [13]. In the 1800s, in conjunction with that department stores began to appear and e.g. fashion shifts could get a wider impact, the modern consumer could be said to be born. In the department store, presumptive consumers learned how to consume [13]. One can also view consumption as an important component of the post-modern existence. Here and in the previous and following, we have drawn inspiration and references from sociologist M. Godskesen [4] and anthropologist Daniel Miller [3]. The (late) modernity is characterized by institutions such as industrial production, market economy, and political institutions, such as the nation-state and democracy. This contributes to a more dynamic social order than in previous eras. This is also related to that individuals can choose how they want to live in another way than in previous societies. An individual in today's society needs to constantly create her own life criteria, while being aware that this is exactly what she does. She is self-reflective. It has been argued that need for self-affirmation has increased in modern society (in relation to was the case for previous generations) [14]. People's habit and emotional anchorage has become more volatile, see [3] with reference to [9], and people search up and consume experiences and artifacts that can provide self-affirmation, which in turn creates new technology needs [13]. Thereby people have been in some sense in a hurry to reach a wide range of activities in their daily life, activities often diverse in time, space and the social dimension. This means that the relationship is strong between our perceived needs of access to places, networks and goods and the technology resources we utilize.

The creation of identity comprises making choices of different kinds, which also provides that there is more or less "informed" choice and because there is so much to choose from, it is hard to know what is "right" and "best." The more important the choice, the more important support and confirmation might be [15]. Here it is also important to observe to what extent consumption becomes self-generating, since it will always pop up a "better" choice.

People consume not only for themselves, but also for others. The social significance and reciprocity of gifts is something that has been studied extensively in anthropology. The gift has symbolic meanings, such that it binds donors and recipients to each other, and calls for mutual trust. Correspondingly, consumption should be understood also in terms of expressing love, care and social relationship. The buyer of a gift might therefore want to accomplish that the person who receives it desires and/or appreciates it. Seen in this way, consumption bears traits of a sacrificial rite in secular society. Through buying there is a hope to influence the recipient (e.g. your child or a friend) to become such a person who would be the appropriate recipient of the goods. One way to understand shopping and consumption is as (a continuation of) ritual sacrifice. We sacrifice consumption goods to our social relationships in order that they should become what we want [3].

In each historical epoch and every social context the pursuit of action and self-actualization has been related to specific forms of technology use and consumption. Acquisition and exploration of new technologies are important ways to create room for action, activity and access, and to reach self-fulfillment [4]. In relation to the tension between individual self-fulfillment and structural constraints, technology is seen as a potentially bridging resource, relieving the tension, e.g. by providing accessibility, see Godskesen [4] with reference to Læssøe [14]. The more connected, equipped, mobile etc. we are – the faster and further we can reach out - the more we can achieve (ibid.).

Within sociology of technology is often emphasized the user's own ability to shape their use of technology in everyday life. Lie and Sørensen [8] (on page 9) state that there is considerable room for action at the users' end, and then continue: 'The users / consumers make active efforts to shape their lives through creative manipulation of artefacts, symbols, and social systems in relation to their practical needs and competencies' [8].

1.2.2 Practice theory and sociology of consumption

As a background as to why we buy and discard electrical items a historical perspective on how new technologies come in to use is illuminating. Practice theory is a framework in which historical as well as contemporary perspectives are put to use. How private homes have become increasingly electrified is relevant for our study. Such electrification occurred in different historical rounds in connection with new technologies successively breaking through. The first round of electrification in the early 1900s comprised mainly lighting. The second round from about 1950 comprised mainly heat and power. According to sociologists and practice theorists T. H. Christensen and I. Røpke we are now in the midst of the third wave of electrification - the broadband revolution [16]. And a very big part of the electronic products consumed can be counted in the category of commercial entertainment [17]. However, also the state has had an important role in the digital revolution and broadband society. An example of how the Swedish state has driven the development is its IT Commission operating around the turn of the millennium 2000. In a large report from this commission it was stated that: 'Sweden should be a society where modern IT helps provide better quality of life for all and a developed welfare. It shall be used everywhere and by all', and that 'IT has crucial importance for the Swedish economy's competitiveness'. Furthermore, an important objective for policies within this area has been that authorities should be able to provide their service at any time of day, all days a week. Such visions have then been dependent on the material conditions in the form of new appliances. Examples include health care contacts and insurance issues, having access to the e-ID, digital TVs that require special boxes, service branches closing down analogue face-to-face services (as with Internet banking), etc., all of which requires internet and/or machine telephone services (touch tone or voice-controlled). This has increasingly made access to computer and internet a prerequisite to cope in everyday life.

This increase and spread of ICT equipment could be seen as part of how a new normality is constructed, and how expectations and standards changes for what is considered a normal home in terms of electronic infrastructure and equipment [16]. This historic perspective provides an understanding of how new product lines are added to the previous product groups owned by householders, and how the total amount of electrical equipment in the home increases. These studies have also identified a number of general factors that have been important for that each round could take off. Increasing consumption of electrical and electronic products can from this perspective be seen as arising from interaction between product development and general consumption drivers which

rests partly on individual motivations and partly on the everyday life conditions [18]. There having been different periods of electrification thus explains holdings of electric equipment has accumulated in the homes. Here we want to discriminate between accumulation in terms of a) *more of various kinds* (increased diversification of product types and new or more specialized uses) and b) *more of the same*, for example by that collectively owned equipment (e.g. freezers, washing machines within a residential area) increasingly becomes individually owned, that equipment duplicated in a second (leisure) home, or is being multiplied in terms of that each individual in the household owns one (a TV set, a laptop) or that it is installed in every room, etc.

Behind the developments of *more of various kinds* and lies, of course, increased economic opportunities for the population, or at least for the broad middle class. Increases in consumption is also associated with new business ideas, business models, marketing strategies and new successful companies etc. Through co-evolution between everyday practice and commerce, supply and marketing there seems to be created short and long term buzz around a certain product categories. A certain kind of product could be experienced as *filling a gap* in for the individual/household. Such *gaps* should be seen as socially constructed through e.g. marketing, consumer journalism and trends among groups of people.

It should be noted that ideas and metaphors like the above one that ‘products fill gaps’ could only be valid for a specific context, viewed from a certain perspective. Within sociology of consumption, linear models of explanation, focusing on e.g. marketing strategies and/or social comparison, have been subject to criticism. For a very brief overview, sociology of consumption is generally seen as emanating from works on fashion etc. published by sociologists, philosophers and economists as early as around year 1900. More than half a century later sociologist P. Bourdieu contributed greatly to the understanding of ‘who consumes what and why’. Since then a variety of frameworks has developed within sociology of consumption. For our review and paper we have found a book chapter by sociologists and practice theorists E. Shove and A. Warde [2] particularly useful. These authors specifically looked for ‘mechanisms driving consumer demand’ within sociology of consumption literature (ibid: 231). In their categorization we found a starting point and structure for categorizing motivators behind consumption of electronics. Therefore we regard the finding of this particular framework as a result and present it in the following.

2 RESULTS

We see as the main result, of our review and analysis, the below grouping of motivators behind consumption of electrical and electronic products. This grouping we propose much in line with [2]. Shove and Warde start out from a sociology of consumption perspective and arrive at the six ‘six mechanisms supporting escalating levels of consumption’ (ibid, page 232). We found this perspective very useful for singling out and understanding mechanisms behind buying and discarding electronics. The six mechanisms according to Shove and Warde are: social comparison, identity, novelty, matching, specialization and socio- technical systems. We have chosen to build on these categories with some modification and expansion, see below. When studying how electronics are bought and used we found that factors such as e.g. purchase power and the exploring of new functionalities seemed crucial. Some of the mechanisms we found aspects seemed possible to merge into the mechanisms proposed by Shove and Warde, and others we thought needed a new heading/category. We arrived at the nine motivators, expanded on in the following section. (To make it easier to see where we have built on a category proposed by Shove and Warde we have put their categories in italics, each first time mentioned under a subsection heading.)

2.1 Hypothesizing motivators behind buying and discarding in everyday life

2.1.1 *Mandatory (critical) Technology*

Through *sociotechnical systems* [2], inhabitants can provide themselves with food, clothing, medical care, transportation, water, electricity, information, communication and entertainment etc. How the systems are organised, legally, technologically etc., makes up their sociotechnical logic [2]. This logic largely determines what technologies people need for their different roles and situations in everyday

life, as citizens, professionals, parents etc. This includes requirements and expectations of possessing, or in other ways or having access to, necessary equipment (computer, family car, heat pump etc.). For electrical and electronic products electricity and telecommunications networks are crucial systems. The socio-technical logic implies that people have to possess or have access to devices and services (broadband modem, phone etc.) in order to live up to the expectations of employers, government agencies, healthcare providers, business, people in social networks for various common activities, relatives, family members and so forth.

2.1.2 Possibility Opening

The term possibility opening [4] implies that possession of a product could open for possibilities of doing things. By having access to means of transport, information technologies, etc., people can open and expand opportunities for activities and experiencing, even when it is not any strict sense mandatory to provide oneself (or one's household) with the opportunity. The desire to open a possibility could simply arise from an awareness that the possibility exists and is being explored by other people. Keeping options open has been argued to distinguish us as members of late modern society, see e.g. [15]. Having gained access to a possible activity, doesn't necessarily mean the activity will be carried out to any significant extent. The certainty of having an option should be seen as valuable in itself. One way to open up for new opportunities is by acquiring electronics. By owning e.g. the latest version of a game console the option for play playing new (versions of) games might at least temporarily be secured.

Possibility opening should be seen as a motivator directed inwards, toward the operating space and wishes of individuals, as well as outwards, in terms of being able to take part in optional, social activities. In our example of a new game console it could be about playing as well as about talking about the game in different social contexts. Correspondingly, on the mobile side, different platforms and apps etc. could open up for possibilities to process knowledge, and having access to information, social media and experiences made possible through these.

2.1.3 Economic Opportunity

An overall trend is that purchasing power increase relative to the price of mass-produced durable goods [1]. A contributing factor behind this development is, from a Nordic perspective, that products have, for at least half a century to an increasing degree been produced in so-called low-wage countries, while Nordic wages has risen. Other contributing factors are e.g. increasingly streamlined manufacturing processes and globally expanding markets. The electrical products have in addition become cheaper relative to other types of goods and services.

High economic opportunity means that this kind of products can be purchased by large segments of the population without the need plan and budget for, save to or purchases. From the perspective of the consumer the cost of buying, specific business models in the ICT sector also seem to play a role. Mobile phones, in particular, are sold as parts of various forms of subscriptions, where the phone cost is 'baked into' the cost and length of the subscription. This is in turn related to that when the subscription expires, the consumer may feel it is time for a new phone and subscription. For television, broadband Internet etc. it is common that modems, routers etc. are included (without specific visible or negotiable costs). Linked to this development are also certain forms of unpaid do-it-yourself work, of installing modems, routers etc. This means that relative sacrifices and costs (for buying, repairing, etc.) are changing. Consumers, authorities and businesses are interdependent on each other, and the development of supply, demand and business models implies that economic opportunity is a strong motivator behind specific purchases of goods and related services within the ICT and media sectors.

2.1.4 Specialization /multiplication

Specialization of products [2] applies e.g. to an increasing variety of shoe types being used for different sport activities. In more general terms the varieties of designs within a product category increase, to fit increasingly specific occasions and activities. In recent decades, the possession of portable computer-like devices with internet access has gone from the possession of only one type of product – laptop – to individual possession of e.g. the three, smartphone, tablet and laptop. One aspect of this development is that the use of each product types becomes specialized for certain situations.

Each one of these products is highly multifunctional, e.g. the mobile phone, that has become 'smarter' by increased integration of functions into it [16]. The increased number of features might lead to a specialized use of each unit and the, related, multiplication of possessed units. This development takes place on the user side, by e.g. the transition from one home telephone, used by the entire household, to each individual possessing her own mobile phone. A somewhat different development is when computers have successively been put to new uses like e.g. keeping in contact with relatives and friends, watching movies and TV, to listen to music, find cooking recipes, play games, go shopping, do homework and assignments. This seems to lead towards households keeping one laptop or tablet specimen in the kitchen, one at the desk, one by the couch, etc. This is what we mean by multiplication, where a truly multifunctional product unit is being reserved for a restricted activity, situation or location. Thus, the integration of functions (multifunctionality) has also led to that the number of purchased and possessed product units has increased [16].

2.1.5 Fashion Shifts

For electronic products fashion shifts are often related to the release of new models, and to trend breaks in popularity for different brands etc. In this modified functionality new systems, platforms and performance levels play important but not always the most crucial roles. Relevant fashion shifts can be predictable, e.g. (nostalgic) fashions that recur at fairly regular intervals, or unpredictable, e.g. when a trend starts outside the commercial sector but eventually becomes embraced by business interests. Fashion shifts can be initiated by small groups of people, trendsetters, who may be professional or belong to a particular social group or so-called subculture.

For electronics rapid product replacement is a dominant trend. This is related to that consumers today find very few reasons why they would buy a used electronic device when they could 1) get a new one for the same or lower cost than the last one they bought, and 2) the last one is certainly a bit slower, uses more power etc. For the great mass of electronic products, there is not very high chance of continued life after its owner decided to go on to a new system, platform and/or level of performance. Therefore many fashion shifts within the ICT and media sectors are evidently related to increased amounts of newly bought, as well as discarded, units.

2.1.6 Social comparison and identity

The concept *social comparison* [2] implies that people use goods and services, as well as activities associated with these, to signal positions on (changing) social and cultural prestige scales. *Identity* formation implies choosing among a variety of available attributes to symbolically and materially portray and create self-images and group belongings. Since symbols, trademarks etc. can be important to mark social position in this way, the acquisition and use of electronic products is affected by social comparison and identity formation. This is evident e.g. in relation to new generations of products on the mobile phone market. In public debate and critique of values associated with consumption, social comparison and identity are often portrayed as a dominant and problematic drivers. Within sociology of consumption at large, however, they are considered important for some products and brands, but not as the single most important, driving forces behind consumption and its environmental impacts.

2.1.7 Habits

Everyday life comprises a wide range of activities, choices etc. that need to be linked together into a manageable number of routines, in order to enable us to function as socially competent and versatile social creatures. This means that we need to start patterns of action without planning, perform them without paying much attention to them and avoid having to evaluate them during or after they have been carried out [19]. A habit is thus a learned response repeating a sequence of action in a suitable situation, using a minimum of conscious effort [20]. Habits economize the mental and bodily capacity available for doing several things at once, directing our attention in a particular direction and reserve it for decision for genuinely unexpected tasks and situations. Use of certain good and artefacts might be crucial for a particular habit. This means that if a habitually used artefact would suddenly be missing the habit would typically be a motivator behind replacing it. Concerning electronics for entertainment and information, changes in both the market and in society are co-evolving with newly created habits of using social media etc. A person's habits are linked to her use of cell phone, computers, video games etc. Also when changes in housing, family or work situation occur reassembly of particular

products, e.g. means of communication and transport, might be needed to maintain the habit. In these ways habits could be seen as drivers behind buying and discarding products.

2.1.8 Matching

The stylistic matching [2] of products with each other might take place as a chain or, domino effect, where having installed one new product in turn makes you want to replace the one 'next to it'. This can apply to the home and other everyday contexts and situations (clothing, things you bring, more or less personal belongings in workplaces etc.). There is a culturally rooted idea of style involving appliances and other possessions to be showcased, and consequently it could be important that they fit together and form meaningful units [15]. Regarding electronic products, such as all those that are portable, there is a clear trend toward increasing stylistic matching, particularly around certain brands. Such portable electronics can thus be matched both as possessions carried, placed in the home and also in the workplace.

2.1.9 Novelty

When applying the concept of *novelty* [2] emphasis is on the mental stimulation and the experience of acquiring something new. One can explain the craving for brand-new and redesigned products from e.g. a social psychology perspective in terms of need for mental stimulation, or a need to avoid boredom and create variety in things we use. What could provide the stimulus is both new looks/design, new bodily activity and the new learning involved in using the product (this stimulus could of course also arise in terms of irritation etc. when 'it doesn't work' as you expect). There is nothing to suggest that stimulus and novelty cannot come from rediscovering and rekindling older fashions, artifacts and uses; to repair, modify, create and renovate; as well as from buying, growing tired of etc. new and mass produced products. Novelty should nevertheless be considered a motivator behind the acquisition of electronic products.

3 DISCUSSION

We believe that it usually takes several interlocking motivators to induce the purchase or discarding of an electrical or electronic device or unit. One way to rank the relative importance of motivators would be according to which motivator that is most or least often in play. The motivator that we tentatively would like to place on top of the list, since we believe it to be in play in almost all contexts of buying and discarding, is economic opportunity. After that we would like to place the motivators mandatory technology and possibility opening, since we also regard them as having a general influence, for many contexts and kind of products. After that we would like to place the remaining six motivators that may be important for certain but not most situations, contexts and product categories. However, scientific validity of such a ranking would naturally require further investigation and evaluation.

We argue that the question of why we buy and throw away as we do we might be answered: it is because we are members of a society that does not prevent us from this, but rather encourages it and demands it of us. Following this a slightly different question could be phrased: How can we imagine a society that encourages citizens to take up more sustainable consumption habits? Below we provide two examples of elements for imagining such a society:

- 1) *Prosumers*: This implies that products are repaired, components replaced etc. Also other ways of caring and upgrading essentially modular electrical and electronic products are feasible. Supportive factors (policy instruments) for this could be deposit (refund) systems, profitable business models for long technical life and well-functioning markets for selling, repairing used products and components. The turnover rate for electrical and electronic products could then be low and the cycles enclosed in a more environmentally friendly way, with much higher degree of reuse and complete recovery than today. Our take on the concept prosumer is that the boundary between producing and buying and consuming is partially erased and that people in everyday life have the potential to be active co-producers of what they use.
- 2) *Collective ownership*: People generally would own a smaller amount of electrical and electronic equipment privately, compared to today. This would be associated with reduced ownership / possession of material goods in general, which in turn could be due to services become relatively cheaper compared to goods. Collective ownership models can of course also be associated with a lower total material consumption space. Collective ownership and

availability to electrical and electronic devices and services is, and could be, organized in a number of ways within a society. Here, inspiration for thinking about new approaches could be found in e.g. business models of how entertainment is provided via broadband, so called media streaming services. Another source of inspiration would of course be historic, e.g. how appliances (such as common laundries and joint freezers) have been used over the last century.

4 CONCLUSIONS

The increased volumes of electrical and electronic products in society and their increasingly shorter life span reflect conditions on the market and pursuit of economic growth etc. The amounts of electronic waste increase because globally expanding markets have made products cheaper. Production and market conditions are also mirrored in the way new goods take place in everyday life. In this paper we have conceptualized motivators for buying and discarding electronics on the everyday life level. To our minds it would be clarifying to differ between at least nine socio-cultural processes that seem to motivate consumption of electronics: mandatory technology; possibility opening; economic opportunity; specialization/multiplication; fashion shifts; social comparison and identity; habits; matching and novelty. We believe these processes to be relatively long term and universal. However, the relative importance of motivators might shift over time and between societies and groups of people. We believe the proposed categorization could be helpful in further, empirical as well as conceptual, studies of how electronics are acquired, used and discarded, and why.

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