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THE CONSTRUCTION OF THE FUTURE USER

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Abstract: The creation of a user and identification of needs; user configuration is an essential element of the innovation process and not merely the final part of the process. The outcome of consumer configuration is a kind of manuscript according to which the consumer is assumed to act when he or she confronts a new commodity. Technology research refers to this manuscript of "correct consumption", prepared, for example, by means of scenarios, as a "script". What kinds of assumptions about user are there when building the concept for products of the future? What are the user motivations to adopt and use new technology? The emphasis in the constructive future studies which means that we see these manuscripts of the different users are important as the guideline to design and in that way as the final outcome of the product. The technological system, on its behalf, affects on the individual. It is not only a question of whether users or consumers can be divided into different segments by their relationship to technology, but also about new "versions of human beings" emerging as a result of the new technology.

In the visions there are different motives to use the technology. Technology gives its user shelter from outside forces; thieves and natural disasters (intelligent home) and also a shelter from illnesses (self-monitoring devices). Technology helps its users in everyday tasks and drudgery. It is also a communication device which replaces other forms of communication and makes possible a more mobile way of life. It is also a transportation device, but more in mental than in physical way. Even though the diversity of the users/consumers is seen as important when thinking about the user's needs, the visions are quite homogenous. In the visions the users are seen as active, social and constantly looking for new stimulus. One may ask whether this is a appropriate way of looking at the user.

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1 INTRODUCTION: THE POWER OF PREDICTIONS

The creation of a user and identification of needs is an essential element of the innovation process. Innovation theorists talk about different design paradigms, dominant accepted ideas of what the product looks like, how it works and what kind of users should employ it. We can also talk about different user paradigms or manuscripts of the user. Bardini and Horvath (1995, 42) talk about reflective or conceptual user to whom needs the PC has been designed, but the idea can be applied to any product.

Product developers draft the products of the future for imaginary consumers. The interpretations of potential users are crucial in designing especially at the time when design paradigm isn't fully stabilized yet. Predictions can be made for play, like science fiction. Actually many predictions have been presented through fiction. But there is also a different, more conscious way of making predictions. Predictions are often made as an attempt to guide the evolution process. This is particularly true when talking about product or phenomena, which are not stabilized yet. In that case the predictions can be seen as attempts to build images to the products and attempts to create needs. Future predictions are important in shaping of the product and the user. So scenarios don't just describe but also create social reality and its that way they work as self-realizing prophecies. (Bijker 1987, 155).

In the social shaping of technology approach it is seen that the uses of the product and meanings attached to it are not fixed and predefined. Material objects are constantly reshaped by the designers, producers, advertisers and users. Similarly, the user of the future is being created by a wide diversity of actors with their own expectations, actions and products. In some cases the uses and the user of the product might be different from those envisioned by the producers and designers:

the design does not necessarily determine the actual use of the product. However, once materialized, the product set some limits to its use and its users.

This kind of circular influence places any future oriented research - especially futures research - in a special position in the realm of science: real phenomena and real creatures are preceded by their representations. With this idea in mind - we refer to it as the principle of constructive future studies - we aim to examine some of the pictures or representations that have been made of the future user / consumer and the information society in particular. We have went through about thirty future documents, mainly American visions about the future.

2 THE USER MOTIVATIONS; INSTRUMENTAL OR SELF-PURPOSEFUL USES OF TECHNOLOGY

The user motivations to adopt and use technology can be viewed from many perspectives. This has been viewed e.g. in a historical perspective. Pantzar (1998) has viewed the changing relationship of the user to a new commodity as a three-stage process. In the earliest stage of a novelty product, the user's relationship is often such that the product itself is understood as being a "message" in itself. The most important thing about the first automobiles and radios was the excitement of experiencing the product. This stage can be viewed metaphorically as "consumption as play". In that case using a product is primarily an activity done for its own sake: the process itself is always more important than the outcome. However, users will begin to raise their expectations of the novelty commodity (e.g. reliable operation of a motor or quality of an image), and the relationship with the product becomes more rational. The new commodity will also begin to make claims on its environment (e.g. radio and TV as coordinators of people's daily schedules). Metaphorically this stage can be termed "*consumption as work*" and the user as a rational worker. The instrumental side of the using of the product is central. Finally, the relationship to the

commodity becomes increasingly critical. Consumers may begin to question the lifestyle which is based on the product and start to analyze their own commodity-dependency. This stage may be called "the art of consumption". In the user's point of view this can be seen as a phase where he/she is not anymore restricted by the instrumental use of the product, but has embraced it in a way so it can be a part of his identity formation and self-expression. Then using a product or a service is not just rational, benefit-orientated.

The consumers different needs may be viewed from historical perspective but likewise, an another way of interpreting this is to suggest that representatives of the different orientations (players, workers and artists) are present simultaneously at all points in time. This is the case in the scenarios, where these different sides and motivations towards the technology are present at the same time. The user may have a instrumental orientation towards some objects and playful orientation towards the others. In that way it is not claimed in the descriptions that the user types would be some kind of total entities. They are more like situational behavioral patterns, the ways the user is supposed to act in different use contexts.

The extent to which various kinds of market studies and consumer segmentation into different groups shape reality in their own likeness is interesting question in itself. For instance, the creation of the image of a modern consumer has been essential for the success of the television and car (Pantzar 1998) It may be, paradoxically, that the imaginary consumer segments of marketing in fact produce real consumer segments (Miller-Rose 1997, 1-36.) Since reality is created through different interpretations, it is not only a question of whether users or consumers can be divided into different segments by their relationship to technology, but also about new "versions of human beings" emerging as a result of the new technology.

Although the play or art- dimensions are present in the future scenarios, the user of the new technologies is not dominantly seen as a player or an artist. The use

contexts which highlight the instrumental uses of new technology are more dominant. This is an interesting aspect which will be discussed in more detail.

3 RATIONAL WORKERS IN THE HOME

The newest information technology reinforces the traditional picture of the "rational consumer". We might say that Homo oeconomicus is inscribed in the manual of the information society. It is no coincidence that the term "user" is underlined in information technology rhetoric. The users of older media such as TV are "consumers" and passive recipients. In new technology, however, users are actors and active creators of content

In the future we will no longer watch TV, we will use it. We will not enjoy or consume something, but use it.

Earlier, when new technologies have been introduced, from the producer's side the use has been envisioned as useful and rational and the ideal user as educated, rational user. This was the case in telephones and in personal computers when they were commercialized (Pantzar 1998). It has been shown that a product or a concept is made more acceptable and legitimate when it is introduced in a way which emphasizes the usefulness of it. Introducing the consumer for the new concepts is not very different from the ways the products and their users have been introduced before.

Rational utilization may prove to turn out a winner of information technology, because it is so easy to talk about it in line with our cultural norms: technology is a servant. Consumers are the employers, the users of instruments, and the workers in consumption. Let us look at three subcategories, which represent special cases of the rational user.

The Web Rationalist

It has been predicted that electronic shopping will come out as the biggest winner in home networking. Judging by the precursors of teleshopping (e.g. Amazon.com, CdNow.com, Peapod.com), the only conclusion to make is that the formerly very unrealistic ideal of Homo oeconomicus, cherished by economics, is finally being realized in network shopping.

Microprocessors, the Internet and information services will empower consumers. They will become expert buyers. Armed with pocket PC's, wireless modems and access to comparison- shopping information services on the internet, they will be able to make buying decisions without leaving home. They will be able to compare prices by brand and by store - - Consumers will become more sophisticated technophiles, spurred on their passion for information, entertainment and faster, better, more personalized solutions. (Roberts 1998, 90-91).

Her online gift shopping on the living room computer is almost done when she decides to take one last look at the Deere Tractor sale and, bang, a great need is unearthed: a small lawn tractor with an attractive price. She quickly skims through a short video of the machine at work, and, despite the exaggerated advertising, is still surprised to see the heavy landscaping the compact machine can handle. She asks for a drawing of the tractor, which discloses the extensive use of carbon composite materials in its construction. With mounting interest, she fires off two requests - one for consumer reports on the product, the other a call for anyone who might be interested in selling her a used model. --Just to be safe, because the amount of money is considerable, she decides to go for a list of actual user complaints. That costs her a few extra dollars, paid to one of the many services that specialize in compiling consumer reports on outdoor equipment, but it is money wisely spent. She is happy to find out that the complaints are few and minor. Back at the Deere Tractor site, she asks a few questions about maintenance costs and ease of changing attachments and finds herself controlling an interactive video that deals with these topics. All right. She takes a deep breath and says the magic words: "I'll buy it." (Dertouzos 1998, 124-125)

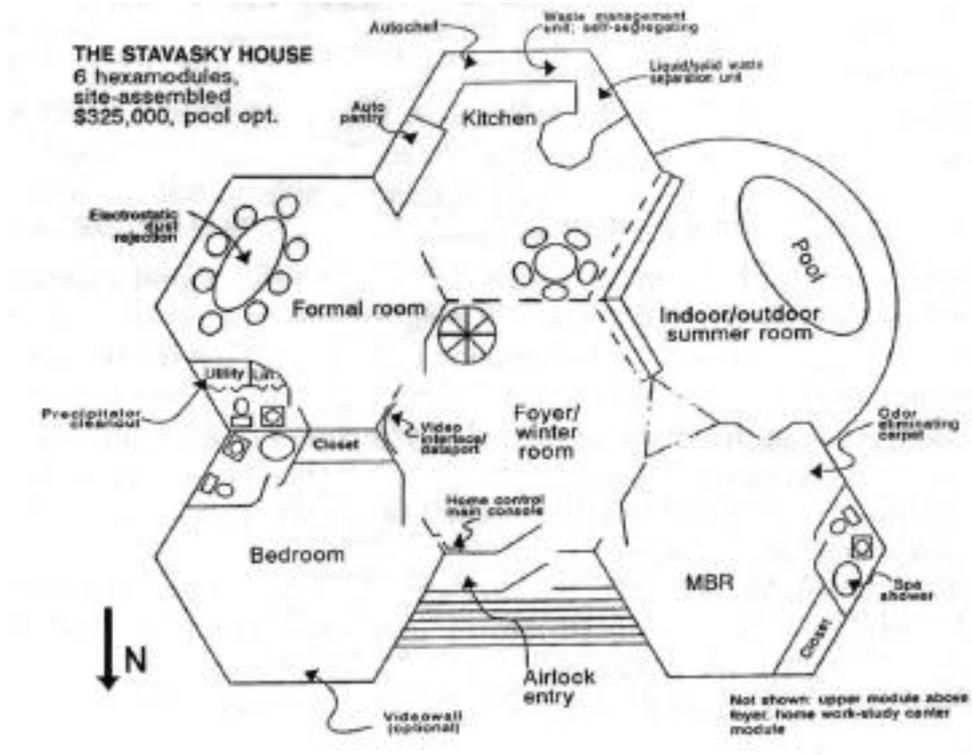
Electronic shopping makes it easy for the user to make price comparisons, and the different alternatives are offered in a very concrete form with unit sizes and prices. The user will be able to read the book reviews in an electronic bookshop before

deciding to buy. He/she gets an itemized bill from each purchase indicating, for example, the price of transport. Moreover, since the time savings are considerable, network purchasing responds to a social call and offers a real opportunity to the user who wishes to optimize his leisure time, effort and budget. This is what numerous visions of electronic shopping lead us to understand. In any case, a shopping revolution has been waiting just around the corner for a number of years already. The visions of electronic shopping are closely connected to vision safety home.

Safe home, healthy home: the homester in his/her smart home

2025: homes will be safer, more comfortable, energy efficient, flexible, educational and fun

One example of a house of a future:



In the visions there are all kinds of technologies, which make the home smart. The user wants to control his home outside and inside. In home there will be different control mechanisms, which should make the home safer from outside intruders. Inside in the home environment the mechanisms can regulate temperature and humidity. Home is also automated in other ways. Technology is taking care of everyday household chores. In these visions the kitchen will be totally automated, with autochef and cleaning facilities. The automation doesn't restrict to kitchen. There is also place for it in the bathroom, where there will be automated shower system, and in other rooms. What is essential is that all technical functions are integrated. The remote controller enables the residents to affect the energy consumption and air conditioning in the building as well as the influx of information and entertainment. Smart cards, entrance surveillance systems and television cameras create a feeling of security.

Besides the auto-cook and automated cleaning gadgets, it (home) would offer a host of sensors and controls for lights, temperature, doors latches, burglars and fire and gas alarms, entertainment, health monitoring, babysitting, and package reception systems, live or changeable visual displays; multiple communications pipes to cable, telephone, wireless and satellite links; and out door amenities like pool water purification and garden irrigation. Once the electronics are integrated into the house and with one another, you will not notice them any more or less than you notice your present hot water heater, furnace, refrigerator, washer and dryer and other electromechanical gadgets. The difference, of course, is that the new devices will communicate with one another about their goals and their problems.(Dertouzos 1997, 130).

The smart home has been an issue for a long time even if in the scenarios the home hasn't been called smart. The "home of the future" has been impending for almost a hundred years now. In the 1920s, it consisted of a living space full of electronic gadgets, in the 1930s it was a mass-produced turn-key home. In the 1940s the future home was seen as a dream-come-true built around the (peace-time) kitchen. In the 1950s it was a plastic module dwelling. The home of the future in the 1960s was a geometric structure; in the 1970s, an energy-conservation unit. The ideal of the intelligent home represents the 1980s (Berg 1996). All of these technocratic forecasts, however, have failed. In the magazines the home of the future has turned into a joke and an object of ridicule (Horrigan 1986).

It has constantly been predicted that with the smart home the housework would decrease remarkably. This reminds of the early days of the automation when it was seen that with kitchen apparatus the household work would diminish. But the automation of household work hasn't gone so far - and even if automation has gone further, the workload hasn't necessarily decreased. Schwartz Cowan (1983) and Markussen (1995) write about how washing machine and some other devices didn't actually diminish the time consumed with household work since at the same time they raised the standards of cleanness. Household work is now again portrayed as diminishing. One might ask, however, why it would happen this time when it hasn't happened in spite of earlier visions. Could it be that at the standards of cleanness, fastness, effectivity raise at the same time than the technology develops. And what should be done with the time or effort saved? The taylorisation of household work didn't give free time to the user (woman) but the time saved should be filled with other household work. Moreover, many of the applications of intelligent buildings have focused on trivialities and not on real problems. Two experiments from America: a vacuum cleaner which switches off when the phone rings, and a robot, "robotler", which serves refreshments but needs the help of a human to pour the drinks into the glasses (Berg, 1996).

The utopia of the "homester" would appear to be typical of the American visions of the "intelligent" and safe home in particular (Dertouzos 1997; Popcorn,1991.) The tiny mouse in its hole, safe from the cat and the dangers of the surrounding world. The homester is a teleworker and a teleshopper. His/her children are telelearners, utilizing the most advanced technology. The intelligent system allows access to only one exit and moving about only in daylight. Public space is visited only by abnormal actors to whom home is not paradise: predators and weak individuals – the homeless, in a broad sense.

One can't help of wandering whether this kind of vision is truly compatible in the future. The visions of intelligent home seem to represent the early 20th century ideal

of centrally controlled technological systems. Does this really work in postmodern world, with ambivalent values? Are we basing the technology of the 21st century on the Tayloristic values of the early 1900s, where the ultimate goal was to minimize the diversity of human life? The terms used for the intelligent building are indeed quite descriptive: "total house, automatic house, global house, smart house, intelligent house"(Lorente, 1996) But what when there are technical problems, total disorder? Might we expect that the smart system could be switched off if we so wished?

Like highlighted earlier, products set some limits for their users. This is also true when dealing with visions of smart home. In the visions the home requires adaptation and adjustments from its residents. Technologies used at home are technologies of control and observation of the surroundings but they are also about controlling and observing the inhabitant. The observation may be done from outside, like when looking after children.

Robositter: the babysitter's best friend... The robositter is a simple robotic device that makes it possible for daycare workers or parents to more easily and with greater security watch children... The device relies on an electronic badge prone by the child... is programmed to follow the child and monitor his or her activities... Upgraded version can monitor the child's breathing, and observe what it puts in its mouth... Infant care has never been easier, The institutions and technologies at play today give parents an unprecedented sense of security, (Coates et al, 1997, 441).

Even more apparent is the aspect of self-observation. Through technological devices the person can observe him/herself, at home and in other places.

The Self-observer

Through technological devices home is sheltered and safe from the outside world. Technology offers also another kind of shelter; through it one can prevent illness. This prevention is possible through constant self-observation. These observation instruments are often situated in the home environments. It is even seen that home will replace hospital as a health care and observation center.

The self-monitoring device makes it possible for us to check our blood pressure, pulse, blood sugar, etc. If necessary, the machine can also serve as a home kidney unit, insulin syringe, etc.. In the morning we will ask the machine to tell us whether or not we are fit for work. The machine replaces the family doctor, dietitian and personal fitness coach. If we are in danger of putting on weight, the machine will give us dieting instructions and advise us to go jogging.

Fully awake, you head to the bathroom. You brush your teeth, and some of your mellow disposition starts to disappear. That terrible sink is at it again. It has detected minor traces of blood from your gums and is now scolding you in a deep parental voice: "At the rate you are going there is a fifty-fifty chance that you will have a periodontal incident in twelve to fifteen months and a loss of half your teeth by the time you are fifty-five years old". Mumbling to yourself, you reach for the rubber tip and hope for the best. (Dertouzos 1997, 117).

Robert wandered into the bathroom, which turned on its lights when it detected his arrival. "Your sugar level appears to be satisfactory", announced the house computer, having received the urinalysis from the instrumented toilet in the bathroom. (Cerf 1997, 34)

You want to focus on the running, and you need peace to think through choices ahead. When you are finished, the cheery voice of the "treadmill doctor" congratulates you and tells you that you are on target with your chosen weight maintenance program. (Dertouzos 1997, 115).

The "help desks" of the future will no longer deal only with computer problems but with human problems as well. A cardiac monitor or an intelligent WC, which performs analyses, will send our data directly to the nearest health care center. In case of alarming results the message will be passed to the doctor in charge at the interactive call center, who will then contact the patient. Here we are in the point where it's difficult to define who or what is monitoring who. When a monitoring device asks us to act in a certain way, are we actually controlling ourselves or has the machine some kind of independent power of its own?

4 THE PLAYFUL USE OF TECHNOLOGY

In the scenarios user is also seen as someone who wants to be entertained and who wants new experiences through technology. Then the motivation to use technology is driven by curiosity and experience seeking. Users playfulness with technology has often been seen as potentially dangerous somehow. When PC was commercialized, some did not want to see it as device for playing games; rather, it should be developed into something more useful, for educational purposes, for example (Haddon - Skinner 1991, 442-443). Virtual reality has had many critics who have warned about its harmful effects on human psyche.

The playful orientation still has its critics, but in the scenarios more important aspect by which the distinction is made is about whether the user is passive or active in using technology for play.

The negative side of a playful user: a media zombie

There have been different views about how the consumer should act with communications and entertainment technology in particular. The image has been often looked from passive/active-perspective. One image of the user has been of a kind of media zombie who wants to be passively entertained. The media zombie is a dystopia of a human being chained to an entertainment machine: computer-dependency and the end of rational life. The computer society and the hundreds of digital TV channels would offer unprecedented opportunities for the passive reception of stimuli. This image has been introduced by the ones who criticize the developments of the media technology. Passive use of technologies has been seen as a route to addictions and it has been seen as a cause for isolation and restriction from "normal" relationships. This view is also widely shared by those promoting new media technologies where the interactive properties of the media technology are emphasized. What is common to the views is that the more passive use of the media is seen as unwanted development.

This can be seen for example in the discourse around television and PC, where watching TV has been seen negatively and using PC, like surfing on the Internet, positively. "In the net you have to think and make decisions, but television you can only watch and that's dangerous" (P. Järvinen, TS 20.1.1999 translation K O-S). The picture of the media zombie fits in well with the long tradition of consumption critique. The elite is worried about the behavior of the large masses. (Slater 1997, 71) It is not hard to predict that the future flood of visual messages will provoke the rage of the literati as a form of "low-brow" culture at the stage when the multimedia and virtual stations become reality also apart from advertisers' slogans. How will we react, for instance, to digital TV or 3rd generation mobile media phones in the first years of the 21st century? Will people be infected by them? Doctors warned about the LSD-like harmful effects of virtual reality already in the 1980s, before the first virtual helmet had even been manufactured (Chesner 1997). Who will be the first to voice concern over the effects of digital and interactive TV on our genes or on the quality of human sperm?

The visions of the use of technology for play have much to do with the notion of competence. Technology can be used for its own sake, for non-rational purposes, but in that case the user has to be competent enough to use the technology in a reflective and conscious way - otherwise technology might take control over the individual. The other, the more positive, vision is of a active user who uses technology in a self-reflective way.

5 TECHNOLOGY AS COMMUNICATION DEVICE

In the scenarios one of the key features of technology is the way it makes communications possible. The world described is based on different communicative networks. Through technology the user is constantly connected to information sources and to other people. The user is available and present at all times. Isolation from these connections is not even considered. The consumer/user is seen as more social and communicative through technology; e-mail and different electronic

devices. The ideal user communicates with more people and more often. He also uses all kinds of interactive devices. An unlimited access to all information sources all the time is seen as self-evident. In communications technology information and entertainment are combined.

Extracts from a daily round of Ashton, an imaginary person, in the year 2025:
7.08 AM The shower stall recognizes Ashton as he enters.. The shower video flips to his preferred channel, MTV-5...
7.45 AM Ashton uses his breakfast room flatscreen to view the news he needs...
3.42 PM For any electronic message or information source, Ashton can rely on his knowbot assistant to winnow the information down to a manageable level. The knowbot he has named "CyberJean" is programmed to anticipate Ashton's information needs...
3.58 PM Later, on his desk video console, Ashton views a ballot issue from the city council and registers his vote...
7.00ish Ashton's friend Marcus lives too far away to come to dinner, but he visits by VideoWindow on the condominium's large dining room flat screen....(Coates et al 1997, 434-439).

But John Steele was not in his office. He was traveling by himself 90 000 feet above the Pacific Ocean, streaking at 1 700 miles per hour - 2,4 times the speed of sound - toward Los Angeles. The meeting participants were similarly scattered over five continents, with no more than three or four being even in the same country. Computer imagery merged multiple audio and video tracks from all over the world to create the illusion of a single meeting room, complete with a conference table and potted plants. It even provided for private chitchat during breaks. (Knoke 1996, 20).

You finish (the telephone call) with Mom and continue walking along the avenue - - To call someone, you would whisper the name and the call would be initiated. To see the latest television news you would glance up momentarily to turn the TV on and click your ring to change channels. -- You review your personal video messages as you stroll - -(Dertouzos 1997, 65).

Communications technology has often been viewed from sociability perspective. It has been suggested that the user might become isolated because of developments in different teletechnologies, when it is possible to work, shop and entertain oneself without necessarily having to meet people. However, this is not reflected in the future visions. On the contrary, it is seen that the user is more social through technology.

Users active role is emphasized in these scenarios. Here the user is a kind of mirror image to the media zombie described earlier. The user is competent in using the media technology to his own advantage. Unlike the passive recipient, he actively uses the technology. In the interactive visions, viewing and enjoying has been replaced by creating and managing. This is reflected in the shift in vocabulary where consumer has been replaced by user, user referring to a more active role.

Get connected and establish a network presence... Don't simply subscribe to a service, use it. Explore the information sources, but more importantly, communicate. Find someone to contact.. Gain the critical skills and literacies, Yes, using interactive communications will take some work. It's not like television where information or entertainment are delivered with the press of a button (Doheny-Farina 1996, 183).

By 2047, people will no longer be just viewers and simple communicators. Instead, we'll be able to create and manage as well as consumer intellectual property. (Bell - Grey 1997, 10).

This is as a kind of democratic vision, which can be seen as an extension of the personal computing movement in the 1970's. At the time came the idea that since more and more people could produce and gain information without official gatekeepers, the society would be more democratic. With the new information technology this development is intensifying. First the information recipient is made to information producer. Further, the user is not only a information producer but a creative media artist.

6 TECHNOLOGY AS ART OR AS SELF-REFLECTION

In the scenarios the user is also seen as creative and artistic. He explores new territories and builds himself new identities. What is essential, then, is that the motivations driving him are not purely instrumental but technology enables also new kind of creativity and self-expression.

The Explorer

In the scenarios the user is curious, he has an unsatisfied appetite for information. He is also always looking for new experiences and sensations. The user is seen as a kind of explorer, exploring new territories. When exploring, the user can break free of the limitations of space and time. The user may explore the internet but might as well put on a virtual reality helmet or a bodysuit, when he/she is no longer attached to a machine. Or he may be in a ubiquitous environment where everything around him is smart, "things that think".

The language of exploring has been around since the early days of the internet. Words like navigating, browsing and exploring are part of web language. The journeys of exploration, the conquest of the West and immigration to an another country are apt metaphors for illustrating this attitude: the notion of capturing something new and facing the unknown.

The Chameleon

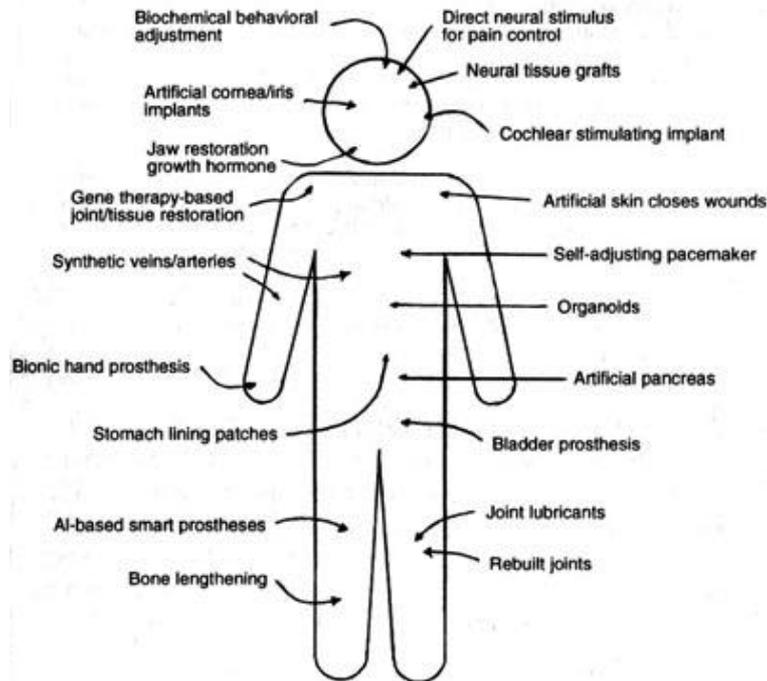
In postmodern theories it is seen that since the traditional bonds like living environment and social status have less significance in defining our life course, we have to build identity from various building blocks (Slater 1997, 30.) Identity is then seen as something which the person can build himself. It is also seen that identity is not a permanent feature but something which is created over and over again in different social situations. Postmodern theories have been criticized here since identity formation is, to put it at its crudest, seen as as a "fancy dress party", where there are no restraints whatsoever (Slater 1997). I'm also personally also sceptical when talking about this post-modern state of identity building. I believe that there are certain restrains - we can't just build our social identity, but it is in many ways already built in us, through socialization, by means of language, social practices etc.

However, in introducing new technologies possibilities, this emphasis is repeatedly expressed. In those visions people are playing with different identities. When participating in network discussions, role playing etc. the person constantly defines who or what he is like, but also creates totally new personalities for himself. The germ of the future type of human being lies in youth culture, claims Douglas Rushkoff (1997): in techno-music, rave, chat forums, cartoons, simulation games, Power Rangers, etc. By engaging in games, by playing, dreaming and changing their sex and their age, they are building, besides their own identity, a social identity and mutual understanding as well (Turkle 1996). The various chat channels and joint web sites for several users (e.g. Alphaworld) are a clear reflection of this type of future trend. Paradoxically, the most important condition for new kinds of web identities to emerge is the fact that the possibility for identifying the participants is non-existent. Identity without identification - like chameleons.

The cult of the individual has an expanded identity- the peripheral personality. Think of the self as a laptop computer with ports for multiple identities. Just for one simple Simon there are easily ports for career, fashion, family, sports, genealogy - - Instead of being forced to choose one perfect persona, we crisscross ethnic, cultural, even gender boundaries. (Meehan et al 1998, 102). Encounter "games" will involve meeting new people in new and different ways. Some may require you to appear disguised through your avatar. They will be the electronic equivalent of masked balls, where "removing the mask" may be the option of the wearer on completion of some goal. (Dertouzos 1997, 160).

In the scenarios the postmodern vision of the built personality is present also in a more concrete way. Because of the advances in biotechnology, the person may build himself in a way he wants.

An image of the person in the year 2025 (Coates et al 1997, 417):



A human being who monitors him- or herself and is connected to a machine can be called a cyborg of the first or second degree. A first-degree cyborg is one with mainly cosmetic transplants: silicon breasts and silicon lips. A cyborg of the second degree has had part of the vital functions replaced with mechanical and more efficient devices: an artificial heart or a home kidney machine. The artificial parts can be exchanged for newer versions as needed. The vital functions of athletes, for example, can be considerably improved from the current level. Cyborgs of the third degree are continuously connected to machines, so that signals from the brain pass directly to the machines.

7 MANAGING LIFE THROUGH TECHNOLOGY

What is in common to the user motivations in scenarios is that user is seen to want more control over their life through technology. The need for life management is a repetitious theme in various fields.

You take a seat in your office, a separate room attached to the house, and you proceed to access the personal finance software in your computer and

transfer the funds to May Milan's account. You request an updated financial plan that includes all the exchanges of the day. It advises that you will be in a cash-flow bind by the end of the month and recommends that you cash in your Alpha company stock. (Dertouzos 1997, 134).

One of the effects of the information age has been to promote all kinds of scorekeeping, for personal performance, group performance, and team performance (Coates et al. 1997, 52)

Management is also extended to more profound areas of life

People today manage sleep as never before.. Sleep is also no longer downtime for people intellectually. As brain science began to recognize the complexity of brain activity during sleep, and the purpose of dreaming, scientists devised sleep-time interventions, to adjust mood, ensure the cognitive recharge people need from sleep, and, at least experimentally, to promote subliminal learning during sleep... teach people while they sleep.(Coates et al 1997, 440).

Emily and Carl have decided to have a baby. They want a girl, and they want her to be born in October. They are interested in choosing characteristics such as height and hair and eye color, but those techniques add too much to the cost. They look forward to being surprised. Their genetics counseling assured them there were no diseases or other problems to worry about. - - (Coates et al 1997, 418).

People rely more on experts on various fields on life, also in personal fields where they have earlier done things themselves. It is seen that since people are busier, they need more help in everyday things. It is also a complicated situation where at the same time people are getting help in everyday management, in the long run they may no longer have the expertise in their decisions.

Ashton tries hard to keep up his appearance. He had always been a sloppy dresser, but he found that his appearance was important to his job. Now he regularly visits the Bodini Day Spa for full personal makeovers and appearance consulting. He also sees a personality consultant to fine-tune his disposition and demeanour.

Ashton's personal life-style consultant tells him he needs to socialize more than he does now.- - Based on this advice, Ashton decides to have a small dinner party that evening. Jerzy and other guests eat the Angolan feast Ashton cooks, for which he consulted an African chef on the Compuserve Video Forum - -(Coates et al. 439).

Different consultants have an important role in people's life-management. In the visions life management can be gained with the help of different consults and experts, but also with different control procedures, like the control devices at home, like autochef or intelligent stove who remembers ones liking and prepares the food accordingly.

The bathtub controller started to fill the tub with the 98 F water that Robert preferred. "Stop the bath, Jeeves, I don't have time for it today. "Yes, sir", replied the home computer, and the bathtub drained itself.(Cerf 1997, 34).

Just tell the stove what you want to prepare - like most computers, it will understand verbal instructions - and it will display a list of ingredients on its flat-panel screen. It will announce when the skillet is hot enough to sear a steak, prompt you when the pasta is al dente - -With use, it will remember how you like your food. (Cetron -Davies 5)

The increasing interactiveness of smart machines is one of the core changes in future technology. The pessimistic view is that machines, which are capable of learning in interaction, will lead to completely new kinds of human-machine dependencies. Although we speak euphemistically of "machines that learn and are customized to the user's preferences", possibly we are dealing with a completely new level of dependency. Take, for example, a personal robot connected to digital TV, which searches the channels for the viewer's favorite programs based on preferences revealed by previous watching choices. At the same time, the program robot of the media operator continuously monitors the changing of TV channels in households. The program robot learns "from experience" at what dramaturgical points people stop watching a program. Finally the robot learns to select the programs from the producers' list that will attract a maximum audience. The program-compiling robot in the media production unit then receives this information and begins to prepare combinations of different series of programs offering maximal satisfaction - as well as maximum dependency - to the viewer.

Managing time and place

Life-management has a lot to do with time-management. Managing time through quantifying time, saving time and planning its use beforehand are modern phenomena. During the last decades the scheduling of activities has intensified. Nowotny (1994) sees how because of this people feel like they need more time of their own, time which they can arrange by their own likings. The effect is that time is cut to smaller and smaller parts which are rearranged as personal schedules.

There have been different machines and devices, which have been offered to help in managing time in consumers' household and personal life. Modern devices (modern "conveniences") like electric stove have been effected towards saving time and labour. These devices have been seen as ways of making things efficiently. There are also another kinds of devices which make possible a further management of time. Different machines which work with a timer like a video recorder are a good example of this since they don't necessarily make things faster but with them it's possible to arrange and plan ones personal use of time. They don't require the user to be present all the time but they can do things independently. (Warde et al 1998).

In modern devices the fastness has been seen as a most important factor. People are seen to need to perform things quicker and quicker. There has also been an assumption that all people want to reduce their time spent in the activities and that people are most likely to do one thing at the same time. The people's need for personal time management hasn't necessarily been acknowledged. Users don't necessarily want to perform all the tasks as fast as possible, but they prefer to do some things fast, some things slow. They also want to do many things simultaneously. (Kaufman - Lane 1996, 137).

Time management is also space management. Through technology the user can free himself from spatial constrains. In the visions it has been often seen that technology makes possible a new kind of physical mobility. The visions of faster airplanes and space travel, for instance, were common in the 1950's and 1960's. However, in the new visions the emphasis is different. The transportation property is

not dominant in the visions, which emphasize the possibility to do things without having to move physically. So the movement aspect is still dominant but from different perspective; if compactness was apparent in the earlier visions, now the emphasis is on freeing oneself from spatial constraints and moving inwards.

8 DIVERSE CONSUMERS

In some visions it is seen that customers have individual tastes according to their different (ethnic, cultural etc) backgrounds and different lifestyles. There are lots of individual tastes in the markets so there is a growing need for customized products. Because of this it is seen that traditional mass-production has to change. The visions emphasize the need for customizing and tailoring the products to meet the customers needs.

Customers' different needs are emphasized in the scenarios. However, it remains unclear where the needs come from; how the consumer starts wanting a particular product. In this context, it is interesting what kind of role advertising has. Advertising is not actually very widely dealt with in the visions, which is surprising since advertising is one of the major ways in which the product is made known for the public. There are different views about advertising's actual effectiveness but regardless of this it has an important role in establishing the products use (bijker ym). In most scenarios it is seen that mass community markets are shrinking and because of that mass advertising will not be relevant anymore. One answer provided is more targeted advertising but it is not very widely dealt with in scenarios. Looks like despite of all the rhetoric stressing consumers power and choice in the end the markets more or less independently define the consumers needs simply by limiting the possible options.

9 THE POWERFUL USER?

In the visions the consumer's active role is emphasized in many ways. He/she is very demanding when it comes to quality of the service or a product. Through internet it is possible for the consumers to exchange experiences of the products on the on-line chat groups. If the quality of the product is not satisfying, the consumer will not buy it anymore. It is seen that the consumer's power is in these buying decisions. By simply refusing to buy certain products the consumer isn't really making the difference. He/she can't specify why he/she didn't make the purchase and since he can't really make himself heard.

This problem is seen in the visions which emphasize the consumers' role in the design process. The user is seen as wanting to have more say about the design of the products used, so that he/she could for example design his own car or house. Dertouzos has even suggested that we won't need traditional advertising, but reverse advertising. There the consumer takes the initiative, contacts the producer and defines what he/she needs. However, this doesn't seem to be very plausible except for cases like custom-made clothing or houses. There are lots of wider systems where we can't have a say, in things like whether or not to use pc's in our work. Or technological innovations may have some other, more or less intended consequences on our lives. For instance it is becoming uncomfortable to be without a mobile phone; since more and more people own cellular phones, its has become expensive to make a call on an ordinary phone, phonebooths are diminishing etc.

Even though in the scenarios the ideal user is active in many ways, the emergent users role is more like passive recipients, especially when talking about technological innovations. Technological development is happening somewhere, out of reach. The user's role is about adapting to the new technology. That way the user's role is similar in ways often criticized in science and technology studies. The book subtitles are descriptive: Why the new race of robots will rule the world (Warwick, Kevin 1997), How science and technology will transform our lives in the next twenty years (Cetron - Davies 1997), How the new world of information will

change our lives (Dertouzos), Scenarios of US and Global society reshaped by science and technology (Coates et al 1997)

Technology is the dominant force of our time and probably of all time to come-
-It changes so rapidly that no scientist or engineer can keep up with his own field, much less with technology in general. It permeates and shapes our lives at every turn. (Cetron - Davies 1997, ix)

In the modern world, science and technology are some of the strongest drivers of change. Discoveries in science and new developments in technology change the course of people's lives, their behaviors, and their attitudes to the world. (Coates et al 1997, preface)

On the other hand: further on Coates et al. write: "The future is most likely to be positive if people can see how to use the developments of technology and science to improve the human condition. We believe we have the power to influence the future and, therefore, the responsibility of shaping the future in a positive direction." Who are *we* in this case? Appears that the writers, the scenario makers, admit here that they have the power in shaping the future.

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