Public Service Broadcasters and User Profiles

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Introduction

Public Service Broadcasters in northern Europe have – in different paces and with different activities – since long been delivering media content to listeners and viewers not only by broadcast but also 'on demand'. With this pull-based distribution, and with PSBs fighting for marked shares on commercial conditions, it is tempting to ask if PSBs should, like their commercial competitors, strive for a more personalised media delivery enabled by user profiles. Information on users' preferences and interests could be collected by the PSB either indirectly or directly when a program is retrieved onDemand or a PSB website is visited. By collecting this information PSBs could start to recommend media content in a personalised manner responding to the interests and media usage patterns of the individual user. These methods and techniques are known from commercial web as personalisation, e.g. applied as 'recommender services', and embedded in the overarching concept of 'Customer Relation Management' (CRM). On the other hand it is often stressed that it is the duty of PSB to serve the whole society, not only a few 'star customers' – as expressed in PSB remits and in so called 'public service contracts' with governments and their regulatory bodies.

The objective of this paper is to initiate the critical examination of the concept 'personalisation of PSB media to users' which is the topic of my PhD project. The aim is to identify implications for users, PSB and society. In this text I will not discuss the possibility or the feasibility of personalisation services in the context of PSB, but merely the consequences for the *idea* of Public Service. Through this preliminary analysis research and design questions emerge that are important for the eventual design and implementation of personalisation technologies – e.g. recommender services – in the context of public service media, and for the assessment of the consequences of such a service. My aim is neither to advocate the introduction of recommender services in the realm of PSB nor argue against it, but instead to

examine the eventual implications. Two kinds of problems are discussed; one concerns a possible shift in editorial power, the other concerns surveillance and privacy aspects.

Background

What would happen to the idea of Public Service Broadcasting if PSB organisations would provide the users with means to personalise media content to their own interests? In order to discuss this overall question I will hypothetically examine the consequences of personalisation of PSB media by automatic recommender services. Shortly described do automatic recommender services monitor your preferences and habits, compare these with large amounts of similar data of other users, and on that basis recommend you items that are assumed to be of your interest. But first, I will introduce the main elements: user profiles, user modelling, recommender services, customer relation management and 'Public Service Broadcast'.

User Profiles

The idea of personalisation could be said to be closely related with the development of the computer. At the old mainframe computers in 1970ies processing power was a scarce resource and subsequently the different users had to 'queue up' in the memory of the machine when requesting data to be retrieved or processed. In this way user profiles keeping track of each individual user's requests were invented through the development of the UNIX mainframe computer (Wikipedia, 2007). The advent of the personal computer emphasised the personalisation further as a typical PC would be used by more than one person, and subsequently the need for assignment of access rights and division of data emerged. Later the Internet, and particularly websites where users enter personal data, became the extension of the idea of user profiles to a network structure. Today the concept of user profiles is applied in an indefinite number of contexts and is an almost invisible everyday truism, which however in very concrete ways express phenomena such as 'access' and 'control'. User profiles are however practically unknown in the context of PSB media. Only where PSB activities include social forums, e.g. communities, user profiles and logins are applied. However, users of these PSB services are often holding a large number of different user profiles due to the often occurring lack of a central PSB user database that could enable single-sign-on user profiles. This is caused either by non-coordinated activities by independent the PSB departments[1] or caused by national data protection rules[2]. The fact that users create several user profiles can however also

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[1] E.g. in the case of DR.dk, where user data and user profiles until now has been stored in a number of - uncoordinated databases for each service, according to research interview with online editor, DR, Jens Poder, spring 2007.

[2] E.g. as in the case of ARD and ZDF. In this context German data protection rules prohibits cross-utilisation of user data.

be socially motivated, as users want to present themselves with another identity than the one already known in the community.

User Modelling

To build a user profile, a formalised 'modelling' of the user and her activities is needed to determine which data should be collected, and in which system architecture it should be stored. The concept 'user modelling' was introduced in a classic computer science text by Elaine Rich (Rich, 1981 / 1999). Here the focus of user modelling is the work-oriented use of computers with the overall goal of utilizing manpower and resources more cost efficient e.g. in faster workflows, in expert systems or in automated customer dialogue systems. The purpose of deriving information about the user is here driven by an engineering paradigm of optimising the workflow and efficiency. The vision is here to describe all relevant action unambiguously and categorical. Compared to media usage, that is often motivated by curiosity and entertainment, the idea of categorical user modelling seems problematic.

Recommender Services

Formalized descriptions of users and their activities can form the base for automated recommendation systems. Recommender systems collect data about your activities and compare these data with large amounts other users' data about activities to find patterns of similarities between items or users. When your affiliation with one of these patterns is determined, items from this pattern can be recommended to you. The comparison can either be based in similarities between items or between users, yielding different search results but also having different implications for privacy; when comparing items is, users' identities can be kept anonymous (Ali et al., 2004).

Within the media industry prominent examples include Amazon's recommendations of 'what other customers also bought', and the web music service 'Last.fm's recommendation of music you don't know but is in your taste. When you sign up with Last.fm a program installed on your computer that monitors which music you are listening to. This is reported to the Last.fm server that through data mining of other users' music usage, recommends music to you. The advantage is that you get your knowledge of music enhanced, for the Last.fm advantage is that they get valuable knowledge of patterns of users' music taste. These statistical patterns may eventually be sold as marketing information e.g. to record companies. A study showing the correlation between music types and personality types, indicate the user data of Last.fm could be valuable also in other contexts than just in the music industry (Rentfrow et al., 2003).

Also the Internet connected Personal Video Recorder system 'TiVo' (PVR) available in the U.S., should be mentioned as example. Here your TV-viewing is analysed – '*data mined*' - by a central server and you get recommendations of TV shows in return (Ali et al., 2004). The TiVo company is, however, reported to sell viewing data to advertisers, who in this way get detailed information on viewers'

behaviour and preferences (Spangler et al., 2006). Lately TiVo has started to use their PVR as a regular marketing platform[3]. In this way viewers are not only getting more control on their TV-viewing, now freed from broadcasting schedules, but also loosing freedom as their view habits are being scrutinised by advertisers argues Matt Carlson in an analysis of the power shift in the TV industry caused by PVRs (Carlson, 2006).

Several other applications of Recommender Services within the media industry could be mentioned, and several computer engineering and AI projects are concerned with targeting content, e.g. news, films or advertisements, to user profiles e.g.: (Raskutti et al., 1996; Smyth et al., 2000; Lee et al., 2001; Kazasis et al., 2003; Spangler et al., 2003; Yu et al., 2006; Lim et al., 2007). These engineering projects have in common that they do not pay much attention to users' motivation using the media products, or the meaning created hereby, but merely the mathematical similarity between items. The commercial logic behind user profiles recommender services is, seen from the company, to acquire knowledge on customers' habits and demands and to expose products more efficiently. Building up knowledge on users, expressed in user profiles, seem a promising business, a strategy as e.g. Google and Yahoo appear to follow. Seen from the users' and customers' side, the value could lie in getting introduced to new relevant products and save time by browsing and searching. A recommender service could thus be described as an active utilisation of the user history data.

Customer Relation Management

Recommender systems are often embedded in a larger context of a long-term relationship between a customer and a company. This kind of relationships is often formalized in so-called 'Customer Relation Management' systems (CRM). The idea of CRM is to identify customers that are valuable to the company, strengthening the individual relation to them and to new similar customers, while discarding customers that are causing more loss than profit. The CRM idea also pursuits a thinking that focus more on the long-time relationships with customers than the single transaction, e.g. the purchase of a product.

Public Service Broadcasting

The central entity in this research project, Public Service Broadcasting (PSB), was born long before ideas like 'user profiles' and 'personalisation' were developed. It was born in 1920'ies in the project of reaching every national citizen with information, education and entertainment (Tracey, 1998). The giant antennas and the powerful transmitter stations symbolised not only this universal access – or reach - but also the unidirectional type of communication and the power of setting the agenda. Accusations of being paternalistic in the programming of the few channels available were uttered against the Public Service Broadcasters that on their side acted as state institutions with intentions both to educate and entertain the population. In the

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[3] www.tivo.com 'Product watch', provided by TiVO, searches for TV and video featuring specific goods, e.g. cars, if you inform your TiVo Personal Video Recorder that you intend to buy a new car.

beginning PSBs only slowly adjusted to the existence of differentiated audiences. PSB programming developed from discovering the existence of audiences, over identifying the programs' intended audiences, to later the launch of segmented channels and programs.

The scarcity of available radio spectrum limited the degree of segmentation of the programming in the beginning of the era of PSB, until internet media streaming and DAB (Digital Audio Broadcasting) recently shifted the problem to how programs and audiences could possibly find each other in the abundance of media products suddenly available. With a higher degree of onDemand retrieval the problem emerges how to organise content, and how to reach listeners and viewers. PSBs are now scrutinizing the media habits and behaviour of those formerly named 'audience', now merely 'users' or 'customers'[4]. Also the identity of 'broadcast' is under change by some PSBs. The 'B' in PSB for 'broadcasting' should rightly in these cases be exchanged with an 'M' for media; distribution and media retrieval runs now through so many technical channels and are segmented in so many ways that 'broadcasting' in the near future only may describe a part of the Public Service activities. The development in this respect by the different North European PSBs is however quite different.

PSB and CRM

Picard (2005) introduces the concept of Customer Relation Management in relation to Public Service Broadcasting. Picard observes that a 'pay-for-service' culture among TV-viewers is emerging, setting the licence fee under pressure in a consumer-driven environment. Picard suggests introducing CRM into the activities of PSB as a response. With CRM PSBs could target users more directly with relevant content and thereby show the users the exact relationship between the licence fee paid and the product received. Unfortunately, the licence fee offices are kept separate from PSBs, making PSBs unable to approach users directly, Picard notes. Furthermore the methods applied in current PSB media research does not focus on creating and nurturing the relationship with users over time (Picard, 2005).

Lowe (2006) discusses further the possibilities of CRM in the context of PSB in a detailed examination of how the concept of CRM could impact, interfere with, or stimulate the activities of PSB. Lowe concludes that although the concept of CRM could help PSBs being more focused in their activities and more aware of the essential dialogue with users, the excluding aspects of CRM where some customers are identified as 'lost causes' which generate more costs than profit collides with the universalism in the public service remit of PSB serving all citizens in a nation. If CRM should be applied in the context of PSB, it cannot be any 'from the shelf' solution (Lowe, 2006).

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[4] In my interviews with employees of Danish Broadcasting Corporation (DR) the terms 'users' and 'customers' are routinely applied by the staff members and appears to be widely disseminated in the organisation.

It appears thus that the idea of PSB is in the middle of dramatic process of change where not only the contact between PSB organisations and users are under change, but also the very purpose and future of PSB are discussed; a topic that engages many researchers e.g.: (Tracey, 1998; Søndergaard, 1999; Hujanen et al., 2003; Steemer, 2003; McNair, 2005; Murdock, 2005; Nissen, 2005; Scannell, 2005; Leendertse, 2006; Leurdijk, 2006). Among those Lowe and Jauert (2005) stress the importance of redefining the PSB remit. In the light of both globalisation and individualisation of media the authors propose four functions for public service broadcasting: 1) PSB should be a beneficial socialising agent, building up social capital in society, 2) PSB should be a robust discursive medium, providing a locally situated forum not following the marked forces of differentiation, but the cultural of cohesion, 3) PSB should be a civil organisation independent from market and state, 4) PSB should facilitate democratic mediation of intercultural communication (Lowe et al., 2005). The point of Lowe and Jauert is that there is no marked substitute for PSB, and that PSB is getting increasingly important in the current European cultures, that are under fast changes by globalisation and individualisation. The idea of PSB is still to be 'public' in the sense of being a force of societal cohesion.

Global Single-Sign-On

To complete the basis for discussing 'user profiles and public service broadcasting' I will here shortly introduce to the current development within 'Global Single-Sign-On' engineering projects e.g.: (ETSI, 2005; MAGNET-beyond, 2006; Olesen et al., 2006). Where a normal user profile only access a single service (e.g. a webservice), single-sign-on user profiles can be used within a single organisational context, e.g. a workplace context (Windows login) or a federated internet service bundle such as 'Microsoft Passport' or Google. The idea of the 'global' or 'generic' user profile is however that the user is always identified and logged in, and as such does not need to login every time she enters or interacts with a new context. Global 'single-sign-on' user profiles could be used across different contexts e.g.: web services, physical access control (as keys, as tickets), as virtual access control (access to data), e-commerce (personalised marketing), context-aware services etc. For users global 'single-sign-on' profiles would solve many problems of remembering logins and passwords, but global single-sign-on profiles will also generate privacy questions of large dimensions (Dumortier, 2005). If such global profiles in the future become the standard for human interaction with the context, non-personalised services that does not require login - such as public service broadcasting - could become an exotic phenomenon.

Discussion

North European PSBs are fighting two wars for survival today. The first 'war' is a commercial one for market shares. Here the aim is to show those, that are being referred to as the 'owners', namely politicians and voters, 'value for money', to show that the PSB organisation is efficient and competitive, but at the same time is no

threat to the 'real' commercial media industry. The other 'war' is to show the same politicians the fulfilment of the 'public service contracts'[5] and the PSB remit in general. In these contracts e.g. the dissemination of national culture to all citizens is typically emphasised. The idea of gathering the nation around shared themes expressed in media content such as TV-drama seems to play an important role in these contracts[6]. Modern PSBs are thus situated in a number of paradoxes and conflicting requirements.

Open Questions

If we try to merge the ideas of 'shared culture' and of 'cohesion of society' (Lowe et al., 2005; Scannell, 2005) with the idea of Customer Relation management, e.g. expressed in personalised media delivery, a dilemma appears that is particular problematic for PSBs. Should PSBs optimise their relationship with important and attractive 'star customers', e.g. by supplying personalised media services (Lowe, 2006) or should they insist on not targeting any content, just leaving content at disposal to whom it may concern? To which degree should modern PSBs decide on the programming, or should they rather let users decide the programming? What should be the balance between just presenting media content as on 'disposal' for onDemand listening / viewing in contrast to presenting composed flows of media content as we know as 'channels'?

Beyond this major question of PSBs position in relation to society and users-citizens, three specific questions emerge in relation to the application of user profiles in the context of Public Service Media. First, the question of how the PSB editorial intentions, that are strongly affiliated with the tradition of the broadcast media, now are being confronted with the selectiveness by users and recommender systems caused by interactivity and onDemand technologies.

Secondly, the question of personal integrity, surveillance and freedom: Who will have access to the user profiles? What kind of assumptions will the system make about personal preferences? Will the system understand the preferences? How can misconceptions about user preferences be corrected? Can user profile information be misused – by whom, when and for what purpose? Is there a kind of personal integrity associated to media consumption, making media consumption a private matter? Are these questions answered differently by different types of users?

Thirdly, it can be asked if the usage or consumption of media flows ('broadcast channels') has certain use qualities that can not be simulated by personalised media flows? Has broadcasting itself a unique quality, or is it rather the social awareness in the target group that yields a unique feeling of social belonging? These questions are

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[5] e.g. in Denmark: DR and Kulturministeriet (2006). Public service kontrakt mellem DR og kulturministeren for perioden 1. januar 2007 til 31. december 2010. For an European overview see: Coppens, T. (2005). Fine-tuned or Out-of-key? Critical reflections for Assessing PSB Performance. Cultural Dilemmas in Public Service Broadcasting. RIPE@2005. G. F. Lowe and P. Jauert. Göteborg, Nordicom.

[6] See the above mentioned Danish 'Public Service kontrakt'.

important when assessing users' eventual value of personalised media flows or onDemand recommendations.

Editorial implications of recommender systems

The Case of Personalised News

Many types of media content are already or could be objects for personalised media recommendation systems, e.g.: TV shows (TiVO and Joost), music (Last.fm and Pandora), links (Google), news (iGoogle, Google News) or advertisements. Some types of this content are currently being provided by Public Service – e.g. TV shows and music, but particularly news is in the PSB context a topic of great attention. For example, PSB news production is often subject to discussions of eventual political bias, e.g. as seen in Denmark in relation to the news covering of the invasion of Iraq 2003 (Hjarvard et al., 2004). Personalised news recommendation is known both from the commercial web – e.g. Google News, and from computer science research e.g.: (Rodríguez et al., 2001; Maybury et al., 2004). Recommendation, selection and filtering of news seem thus to constitute a good case for discussing the apparent conflict between adopting media content to personal preferences versus the need of a shared public knowledge and debate. I will now look closer at an existing PSB onDemand news service to show the potentials and problems that could be related to the hypothetical implementation of recommender service.

In June 2007 the Danish PSB, DR, launched a classic – not personalised - web news service called 'DR-update'. The webpage shows to the left a video player window, to the right a tremendous long scrollable list of video clip news stories produced by journalists and the editorial staff. The video clips are approximately one minute long and the themes seem to vary from domestic politics, social matters, and foreign politics to stories with high entertainment value. The 'DR-Update', equipped with its own editorial staff, was launched in the middle of the biggest budget cut-down in history of DR when approximately every tenth employee had to leave DR. Possibly 'DR-Update' is DRs response to the competitor 'TV2's launch of a CNN-clone 24-hour news broadcast channel autumn 2006.

The competition between the broadcasters and other providers of web news will not be my topic, neither the budget cut-down, but 'DR-update' constitutes an interesting example of an onDemand PSB news service that *could* be personalised. In current version 1 (accessed June and July 2007) users can either select between the five most seen clips and the five highest rated, or scroll down the long list of 35 – 50 video clips. This 'filtering' of five most seen or highest rated does not differentiate between news genres or clusters items in other ways, only it shows what the majority of viewers choose indirectly by viewing or directly by rating. The sequence of news stories in scroll list to the right is decided upon by the 'DR-update' editorial staff. This long scrollable list of news items would be an obvious case for personalised filtering. Different filtering methods could be applied; from data mining users' behaviour and use to form clusters of news items matching different typologies of

users, to ask users manually select relevant categories of news. The solution could also include a combination of these two extremes as well as other data mining techniques could be applied.
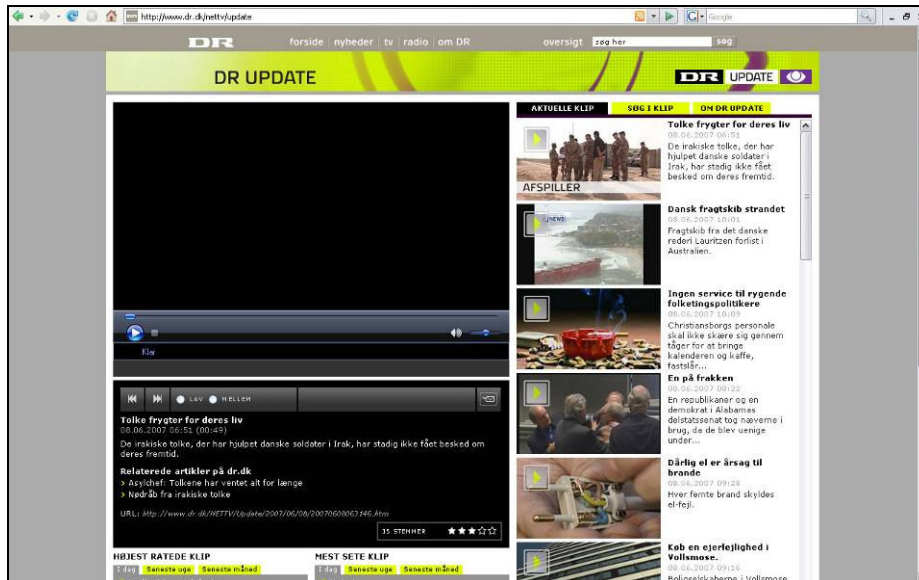

Figure 1: DR Update, screen dump, main page, June 8th 2007, www.dr.dk/update

The design of an eventual recommender system will not be my topic, rather the questions of possible implications: 1) would the editorial power be altered or changed in the case of a personalised recommender system? 2) Should the system be assigned with editorial responsibility? 3) Would a non-transparent recommender system be perceived as paternalistic?

A Shift of Editorial Power?

In the hypothetical case of applying a filtering mechanism to DR-Update news, one could ask if the editorial power really shifts from PSB to users. Most of the editorial work will remain in charge of editors and journalists: the selection of news stories to be researched, and subsequently how to research, record, describe, cut and present these stories. The only power that seems to shift is the display of news stories, but this is too an important power. Classic news broadcast do not allow users to skip items, whereas the scrollbar in DR-Update with 35-50 news stories in very different categories demand the user to scroll and select in a, however, cumbersome and not very user friendly way. If the news stories of DR-Update were selected through a personalisation mechanism, the usability of the service could be improved.

New questions emerge, now from the editorial point of view: Should some news stories of certain importance be obligatory in a personalised selection? Should it be assured that all users during a time-span receive a broad variety of news in order to

avoid users being too single minded? Or should the news selection (and news production) primarily be driven by users' demands? The underlying question that emerges is the one of the role of PSB news. Where is the balance between the editorial line and viewers' / readers' wishes to be found? This question is not new in news production, neither in PSB nor in commercial news production, but in the eventual design of a filtering algorithm the question must be answered unambiguously and formalized.

Editorial Responsibility of Recommender Systems?

To consider a related example, the personalised PC-desktop application iGoogle includes a news content aggregator, which according to Google tries to learn about my preferred news topics through observing which websites I am visiting and subsequently providing me RSS feeds about these topics. I cannot judge if iGoogle really fulfil the promises, but it is clear that iGoogle does not carry any editorial responsibility, when its' filtering algorithms replace the human editor's planning of the news sequence. Google news, as another example, displays a disclaimer at the bottom of the page, which reads "*The selection and placement of stories on this page were automatically determined by a computer program*" (Google, 2007). So how could a recommender service in a PSB context possibly filter news in a way that is compliant with the PSB remit of reaching the whole national population with unbiased news? Is it possible at all, paying attention the PSB principle of universalism?

It is known that each editor on duty has his or her own touch to the classic news criteria, some tacit knowing of composing a sequence of news in the news broadcast. News selection and composition process is not a mechanical procedure, even though it follows certain implicit and explicit criteria (Schultz, 2006). How could a filtering mechanism meet the criteria and tacit knowing embedded in the professional news selection process? Would any Artificial Intelligence ever be able to make a sensible selection? Known shortcomings of current AI are the lack of understanding of context and meaning by the system, reducing the performance of AI systems to very simple cognitive tasks. On the other hand: could the so-called 'wisdom of the crowds', formed by data mining user behaviour, reveal patterns of news usage that differ from the professional editors' selection?

Freedom, privacy and false assumptions

If we on a more general level approach the problems related to recommender services and data mining, the computer ethical questions of privacy, surveillance and false assumptions of user needs are the pivotal points. It can e.g. be asked if users loose or gain freedom by using a recommender system (Carlson, 2006). To pose the question of gaining or loosing freedom more precise, it can asked if users are less or more under surveillance. Are they to a larger extent having their privacy infringed or not? Are they subject to the systems' false assumptions about preferences, desires and

interests? Or do they just more easily reach their goals, accomplish their tasks, and encounter more interesting media content?

The Privacy Discussion

The discussion of privacy in relation to ICT is extensive, and will here not be discussed in depth. A central idea in the discussion, however, is 'individual freedom' expressed as human self-governance and autonomy. It is seen as the prerequisite for modern western democracies and central in western thinking about the relation between the citizens, and between state, organisations and citizens. Several texts within the research area Computer Ethics are discussing the question of freedom and privacy in relation to ICT. If we look closer to at the term 'privacy', its original meaning that dates back to 1890 is 'the right to be alone' (Warren et al., 1890). In most cases of data mining, according to Thompson (2001), privacy – as 'the right to be alone' – is actually not violated as "*it will be difficult to characterize this as practice as intrusive with the respect to a person's security.*" But Thompson continues: "*I am more inclined to think of privacy as a primary good than as a fundamental liberty or as a merely instrumental good. I am also inclined to think that the pattern of disclosure and the way information is used are more important than the fact that something private is known by others.*" (Thompson, 2001). The term 'privacy' is thus typically applied more precisely as 'informational privacy', a topic discussed by several authors (Moor, 1997; Shapiro, 1999; Thompson, 2001; Lyons, 2003; Floridi, 2005; Chun, 2006). Particularly web data mining, that can occur invisibly when a user browse the internet or type in personal information at a website, call for a discussion of privacy (Wel et al., 2004). The discussion of the relation between 'the private sphere' and 'the public sphere' (Habermas, 1969/89), and how borders are shifting, moving or transforming (e.g.: (Livingstone, 2005)), is however not discussed further in this text.

Freedom, Autonomy and False assumptions

A paper by Philip Brey forms my starting point, asking if recommender services enhance or diminish users' individual freedom (Brey, 2005). The topic of Brey's text is, however, not explicitly recommender services, but the - by industry and European ICT research advisory group (ISTAG) - envisioned 'ambient intelligence' future. According to this vision so-called 'smart objects' constituting a computerised environment surrounding the user should be able to react intelligently and proactive on almost any occurring situation. The ideas with ambient intelligence (AmI), according to Brey, are to "*make it easier for humans to reach particular goals or outcomes in an environment in which they operate by requiring less cognitive or physical effort from users in their use of objects in the environment (…) Second, AmI's may enhance control by supplying humans with detailed and personalized information about their environment that may enable them to interact with it more successfully. Third, AmI may be seen as conferring additional control by doing what people want without them having to engage in intentional behavior.*" (Brey, 2005:161)

Brey asks the question whether the user gain or loose individual freedom through these ambient intelligent services. He concludes that albeit users should gain more freedom by being freed from time consuming trivial activities through intelligent proactive computing, they may also loose freedom in three ways: 1) if the 'smart objects' does not correspond to the needs or intentions of the user, 2) if the 'smart objects' assign unintended meanings to users' behaviour by making false assumptions, requiring the user to correct this and to go against the 'will' of the system, 3) if the 'smart objects' serve other purposes than those of the users, e.g. work as sales agent or monitor the users for surveillance purposes.

Fulfilling the Needs of the User?

If we exchange the future concept of 'smart object' with today's media recommendation services we can apply Brey's considerations to the question of PSB and media recommendation systems. The first consideration, if the smart object – here the recommender service – corresponds to the needs or intentions of the user, gets here another twist as the typical use of e.g. news and other media content is not characterised by the user having a specific task or question in mind, rather by curiosity of 'what has happened in the world today?' The understanding of the context or situation in which the 'smart object' appears is often task oriented; it is assumed that the user has a well-defined project or goal that the 'smart object' resolves or support. Examples could be the support of daily routine actions or the emission alerts in certain cases; actions that can be formulated as rules to be applied by the system. In these cases it is easy for the user to determine if the system responds in an acceptable way: was the task solved, was the response valuable? In the case of personalised media recommendation it is more difficult to formulate rules on which the smart object or the recommender service can react, as personal interests, ideas, preferences and associations complicate the predictability, and thus the rules, that are necessary for the recommender algorithms to work. Furthermore is it difficult for the user to assess the consequences of the rules - the outcome of the filtering. The user does not know what she is missing; she does not see what has been omitted from the search results. The way how the filtering system works is not transparent either. If personalised automatic filtering becomes the standard appearance for media content, users may very well start to perceive the automated media recommendations as the 'the full picture', and the discarded items as *a priori* irrelevant, as well as many users perceive Google search results as adequate.

Being Lumped Together with Strangers?

I will here invent an idealised fictitious figure - the 'individualist' – as I try to describe the possible feelings using media recommenders. Being lumped together with random strangers having the same media preferences as yourself, does not sound attractive in the ears of any individualist. The fact that the selection process in recommender systems is automated and takes place outside your control sounds even more frightening. Most individualists value autonomy and self governance as central assets. This autonomy and freedom is well expressed in the idea of being a customer ('customer is king'), of the infinite Internet, of the phenomena 'interaction' (action)

itself, of the time-shifted viewing through PVR and onDemand media, one could even mention TV-zapping which quality however depends on the scheduling strategies of the broadcasters. On the contrary, the recommendations from a recommendation service could be perceived as a limitation of freedom; someone has made the choices on your behalf. The fact that the selection process of recommender services is not based on human decisions directly, but on algorithms (however also designed by humans) could be worrying the individualist further; she does not only not choose herself, but there is even not another human decision behind the recommendation. There is something contradictory between the idea of automatic recommendations and individualism. The freedom and autonomy appears to be gone.

TV and radio consumption is dependent on what is on offer and what is produced. OnDemand viewing and listening enabled time-shifted consumption, but most TV and radio products has an implicit actuality making them relevant only within a short time span. This implies that what the individualist perceives as freedom of choice is actually heavily depending on editorial decisions at many stages. Actually the individualist should welcome recommender services, as the very idea of searching for natural occurring patterns of media use could become a major improvement of the way users encounter media content and it could change broadcasters' thinking about audiences.[7] Until now focus group interviews and surveys based on questionnaires have mainly been the foundation for PSBs' planning of content for audiences. A Danish example is the 5 segment model "Minerva" introduced by the sociologist Henrik Dahl at the marked research company AIM Nielsen 1996. It was introduced in DR around 1997, received with great scepticism and is still discussed[8]. In the 'Minerva' model users are really being lumped together in five big groups to predict their preferences, desires, positions in society and their social, cultural and political values. To be fair, it should also be mentioned that PSBs operate with other representations of users when developing and scheduling content, such as the method of using fictitious users – so called 'personas' especially in the design of web services (Cooper, 1999:123-148). When criticism or alertness towards anonymous group modelling in the context of PSB anyway should be raised, is it again due to the possible lack of transparency in the actual group assignment process: will you get notified of which group you have been assigned to, and why? Do you have any possibilities to object? Another relevant problem is that, although user data in many recommender systems is anonymous, users still may be identified. This can happen when anonymous data sets from several sources are combined and compared e.g. with name and address information from phone books.

The question remains, whether recommender services will dry out user's curiosity? If a recommender system constantly narrows down its assumptions about your preferences, one might think that you will end up receiving a very homogeneous selection of media recommendations. In this way one could imagine that the recommender system could play out its own function as it would be devoid of new

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[7] as discussed in the Danish Radio (DR) radio program "Agenda" 23-06-2007

[8] see e.g.: http://www.kommunikationsforum.dk/default.asp?articleid=11291, accessed 20-07-2007

ideas and inspiration. Indeed this is also the problem of some types of recommender services that are using a too small set of data as base for the calculation, as it typically occurs when only the user's own data are fed into the system. In an attempt to avoid this problem – and the so-called 'cold start' problem of building up a new user profile when very little information is available about the user, 'collaborative filtering' is often applied.

De-individualisation and Collaborative Filtering

Collaborative Filtering is a widespread method to avoid getting few and predictable recommender results (Goldberg et al., 1992). Through data mining of large data sets, patterns of similarities – e.g. between users or items - are identified. Relevant examples are Amazon's recommender service or the earlier mentioned Personal Video Recorder system 'TiVo'. This kind of anonymous recommendations where items are being clustered in groups is however problematic in terms of privacy issues. In the narrow, original 1890 understanding of privacy *'the right to be alone, private'* (Thompson, 2001), one may argue that as long as user data is anonymous, no privacy has been violated, but Wel and Royakkers (2004) describe this handling of anonymous data as a potentially 'de-individualisation' (Wel et al., 2004:133). They define the term as '*a tendency of judging and treating people an the basis of group characteristics instead of on their own individual characteristics and merits*' (Vedder, 1999) (quoted by (Wel et al., 2004)). According to Wel and Royakkers, group profiles that are used '*as a basis for decision-making and formulating policies*' could threaten the individuality of people even if their identity is a secret; they will be affected by the assumptions being made on behalf of the whole group, even if their privacy is not infringed. A recommender system applied on PSB content could thus make too coarse assumptions about users' interests.

False Assumptions on Users' Preferences?

Brey's second concern is: "*even if a smart object ultimately does what one wants, it may still be experienced as taking away control by telling us how to act, by assigning particular meanings to human behaviors that may be unintended, and by requiring negotiations and corrective actions in order to avoid the object's preferred course of action and implement one's own.*" (Brey, 2005:161)

Typically the recommender system is a 'black box' operated by the service provider. The functions inside this black box are not visible to the user. Only system administrators, programmers and service providers know the exact configuration of the data mining and the algorithms determining the recommender's results. The user is normally left with an interface with few possibilities of interacting such as 'skip item', 'add item to favourites' etc. The user is not told explicitly how the system works, or informed about the exact functionality of the comparison mechanism. Additionally media recommendation services are typically provided by major companies and organisations, where it may be difficult for users to be heard.

One could argue that the users' problem of how to correct the recommenders' false assumptions of interests does also indeed apply to user's relation to human editors of mass media. These editors serve a large anonymous audience that does not at all have the option of uttering individual desires, but essentially a dialogue is possible between the users and the editor about desires and opinions, e.g. through 'Letters to the Editor' and public debates in general. In recommender systems a proper 'dialogue' between the user and the system is not possible or at least limited to the very indirect one of the user getting a tacit knowing of how the system works, enabling her to behave accordingly. Automated services seem thus much more difficult to correct or modify for user than to influence the opinion of a human editor.

A Design Question: Transparent or Opaque Recommender Systems?

The problem above could also be stated as design questions: How transparent should the recommender system work, should the user be able to configure it, and then to which extent? Should it be a 'black box' that according to usability rhetoric would be easy to use but without options to configure it? If this solution is chosen users will not get more freedom and control (which is the main argument for recommender services); the control will just move from human editors to algorithms. Or should the recommender service be transparent in its operation, offer a lot of possibilities for the user to configure it, but with the risk of scaring users away or at least complicating things for users? This option would grant users more freedom, but would they be able to use it? Will they care about it? The answers to above questions must also reflect the current PSB perception of 'users'; should they be perceived as 'consumers', 'audiences', 'customers'; as active 'users' or passive 'listeners' and 'viewers'? Answering this question implies also to discuss what power the PSBs in general want to assign to the 'citizens' / 'users' in terms of shaping the media experience: is the media usage taking place on the conditions of the sender or the user?

The question of the transparency of the functionalities of the recommender service could be viewed as a question about 'technology paternalism'. Spiekermann and Pallas (2006) introduce the term 'technology paternalism' as *'the fear of uncontrolled autonomous action of machines that cannot be overruled by object owners'* (Spiekermann et al., 2006: 8). As an example of possible technology paternalism, the authors mention products with build-in surveillance of the user in order to prevent accidents, e.g. car keys that only work if the driver is sober or a drilling machine that does not operate without protective glasses. Applying the concept of technology paternalism to the context of recommender services for PSB content may seem exaggerated; after all we speak about recommending media content, not about preventing users' intentions or actions. However, if we assume that the recommended media content would play a considerable role in at least some user's future media habits, it can be asked if the paternalism criticism once directed at the PSBs, now just has moved to providers of personalisation providers and the designers of the algorithms?

The question of possible advantages of technology paternalism for society and / or the individual also remain unanswered. Spiekermann and Palles write about the "*difficult trade-off to be made when deciding on paternalistic design: How can paternalism be avoided while still achieving 'the best' for the individual?*" (Spiekermann et al., 2006: 13). This question also seems crucial for the eventual design of recommender service for PSB content: should it enforce some kind of editorial policy that would emphasise PSB values such as 'coherence of society', 'intercultural knowledge', and 'informal learning', or would that rather be the return of paternalism, but now in a personalised, non-transparent way? The design question emerges again: who should have the power to configure the recommender system: the user? The PSB? A commercial provider of user profiles? A commercial content aggregator?

Representing Other Interests than Those of the Users?

Brey's third doubt concerns a 'smart object', that "*does not just represent the needs of the user, but also the interests of third parties*" (Brey, 2005: 161). If the recommender service e.g. has been designed to prioritise or promote certain media products that are valuable for the provider it could be claimed that recommender service is not only a service for the user. If customer information is sold or exchanged with other companies or departments, the same doubt can be justified. In relation to media recommendation systems this doubt makes sense as many commercial providers of recommendations are relatively unclear in their policies of utilizing user data (e.g. Google). Some providers do not put much effort into motivating new users to inform themselves about the privacy issues related to the service. An example could be the music provider Last.fm that on the sign-up page has already ticked the box "Terms and Conditions", so that the user does not have the inconvenience of doing so…
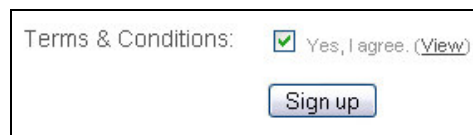

Figure 2: excerpt from screenshot of the sign-up
page on Last.fm, accessed March 9th 2007

I do not know the number of users that read through the entire "Terms and Conditions", but anyone who engages in doing so will learn that "*If you choose to download the Last.fm software, it will monitor all the music you listen to on your computer (even if you are not online)*" and "*we log (but do not use) personally identifiable information with respect to the listening, skipping and music-sharing activities of users whilst they are on Last.fm*" and "*We do not use this information in any manner in conjunction with your personal information (i.e. although we here at Last.fm can connect your username to your email address, we don't use a personally*

identifiable activity log in any manner whatsoever and no third parties are given access to it)."[9]

In the case of Last.fm the Terms and Conditions text actually explains in many details how and with which intentions Last.fm works, e.g. applying by data protection laws (UK legislation and EU); e.g. is user data never transferred to '3rd parties'. An interesting problem is however how users' integrity is assured in case of a company takeover. Last.fm explains that in case of sale of Last.fm, user data will also be transferred – naturally one might add as user data constitutes the core asset of the Last.fm business,. Actually Last.fm was recently (May 30th 2007) sold to CBS for £140 million[10]. Now it may be assumed that user data from Last.fm now can be exploited in the whole organisation of CBS and affiliated companies, as they do not constitute any '3rd Party'.

Editorial intentions of recommender systems?

The case with Last.fm shows also that power in the media industry is currently shifting from media content providers to user profile providers. The shift does not mean that content ownership now becomes unimportant; rather that some of the power formerly associated with traditional content aggregators (e.g. broadcasters) now is moving towards the field of user profiles and personalised media recommendation. As such Brey's doubt on the integrity of the recommendation service seems well situated. The question remains if or when users will stop trusting the integrity of the recommendation, and start to perceive recommendation services as advertisement platforms. Here Google took a clear standing point when they introduced text advertisements, by never allowing advertisements to occur among the search results. The situation however looks different when we look at how a content owner or aggregator would list results in a recommender service. The suspicion arises that the most valuable media content for the provider – e.g. the content of greatest commercial importance - would be shown at the most prominent places among the recommendations. The question emerges if this modification of user wishes should be applied also on editorial content, as discussed in the section about personalised news and in the discussion about technology paternalism. Should the provider of the recommendation service utilise his knowledge of user interests also to promote items (e.g. news stories) that do not exactly fit into the user profile, but which are important for editorial reasons, and also may make sense to the user's development of new knowledge? This would constitute a didactic, almost paternalistic approach to user profiles.

Current recommendation systems follow principles of not applying any self-employed intentions to the selection or filtering of items; the user profile is the only determining factor in the selection process. The providers of the filtering or recommendation service (e.g. Google) report that they do not conduct any editorial

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[9] "Terms and Conditions", Last.fm, accessed March 9th 2007 at www.last.fm
[10] Blog posting, 30/5 2007 by Richard Jones, Last..fm staff, "Last.fm Acquired By CBS"
  http://blog.last.fm/2007/05/30/lastfm-acquired-by-cbs

assessment of the content. This position is radically opposed to the traditional editorially composed website or any other mass media where the communicative intentions are central. The two positions constitute two different approaches to the selection of content. The question emerges how traditional mass media will react in order to get their editorially selected content displayed if personalised recommender and filtering systems play a more salient role in future media usage. Should PSBs actively try to influence the selection mechanisms of the recommender systems or should they become mere content providers, letting recommender algorithms and other recommender systems select on behalf of the users? In the future interfaces content providers and personalisation providers may struggle for every single pixel and every single metadata indexing term in the fight of getting their media content displayed to the right user profiles. The content providers and the personalisation providers are serving two different types of interests, namely editorial / commercial ones versus the ones of users. This will again bring the question of who should control the configuration of the personalisation service into the centre of the discussion.

Targeted advertisement and PSB content

The problem above could also be viewed as a problem of targeted marketing. After all, 'recommendation' could also be understood as 'marketing', and thus 'personalised recommendations' understood as 'targeted advertisement'. Much commercial aimed engineering research promote targeted advertising systems, or improvements of existing systems e.g. (Bilchev et al., 2003; Lim et al., 2007). The phenomena of targeted advertisement is not completely irrelevant to Public Service Broadcast, as PSBs need precise marketing of own programs that as products cover – and shall cover – the whole population. As such is the problem of getting the right programs exposed to the right audiences tremendous. Person Video Recorders and other kind of onDemand TV-viewing and radio listening will potentially shift PSB marketing focus from broadcaster and channel brands gradually to single programs, series or services (Looms, 2005; Scannell, 2005). This calls for a stronger application of targeted marketing by PSBs, as also Picard argues (Picard, 2005). On the other hand it can be argued that PSB products mostly are reoccurring programs, being published in a regular time pattern. With its roots in broadcast, current users have strong habits in media consumption, and therefore do reoccurring well-established products not need much marketing. Finally it could be argued that the competitive situation on the media marked require constant marketing, and long-term customers relations (Lowe, 2006).

Discussing targeted marketing in relation to PSBs is relevant for another reason: PSBs may be involved in targeted advertising when PSB media content is displayed on platforms outside the realm and control of the PSB itself, e.g. integrated in commercial webservices or mobile services. A possible example of this is DR's delivery of program content to the P2P web-TV service Joost[11], which base parts of

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[11] Press release from DR March 22nd 2007: " Endnu flere muligheder for at se DR TV på nettet"

their business model on targeted marketing. Although I have not seen the contract between DR and Joost, I assume that it has been agreed that no commercials will be shown in direct relation to DR programs. However, the user's utilization of the Joost service, including program content from DR, is subsequently generating user history, and thus indirectly data for targeted marketing. Working with external distributors and content aggregators, PSBs need to assure their independence of (external) economical / editorial interests in order to invoke their status as 'Public Service'. Keeping PSBs clear of such interests may, however, get more and more difficult the more platforms PSB content is distributed on - and through.
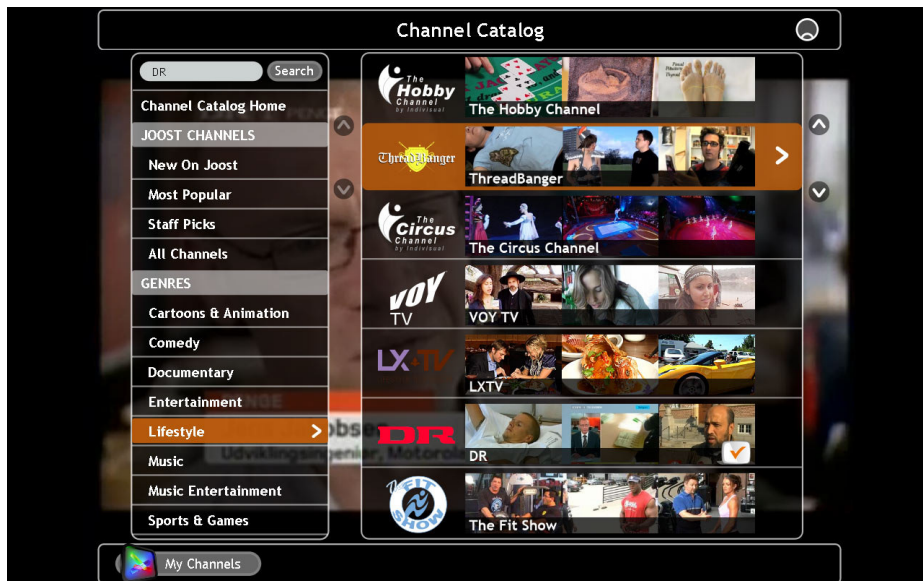

Figure 3: DR supplies currently the programs "Kontant" and "Magasinet Penge" to Joost. Screenshot of 'Channel Catalog', Joost Beta, accessed June 7th 2007

Use qualities of broadcasting: The common vs. the individualised experience

The last question that remains unanswered is: Do certain unique qualities of broadcasting exist, e.g. the perception of a live broadcasting experience? Anyone who has experienced the loud enthusiasm pouring out from open windows when a nation watches its football team in an important game will definitely acknowledge such a phenomenon. Paddy Scannell (2005) describes the 'live-to-air' transmission as creating "*a spanned and gathered now that brings together into the public worldly time of the programme all who watch and listen. In this common, public time the common experience of a common world is created*" (Scannell, 2005:136). Scannell examines the concept of 'broadcasting' under change, propelled through devices such as the Electronic Program Guide, the Personal Video Recorder and a broad array of TV-channels. Scannell claims that the viewer fundamentally has been changed into a consumer. Television is something that can be customised, and the programs can

easily be accessed onDemand as commodities in a supermarket. Consumption has replaced broadcast, and thus is 'publicness' – the idea of 'the general public' and the universalism PSB threatened. One may argue against Scannell's worries that this Habermas-based idea of 'the bourgeois public' (Habermas, 1969/89), long has been under change and maybe just was a historical époque (Häussling, 2007).

But if we accept the existence of a certain 'live feeling', we can ask to which other media content this 'live feeling' applies? What does the simultaneousness means; is it sufficient that you can discuss a topic with friends and colleagues the next day, catching up the program via your Personal Video Recorder or is the synchronised media experience paramount? Is it the social importance of being an audience member and view the same content (e.g. the same TV series) as the friends do, eventually time-shifted? This would imply that media recommendation systems, which do not include social functionalities (e.g. recommendation among friends), would be perceived as marketing systems, rather than services in the duty of user. This would make Brey's scepticism about 'smart objects' with other objectives than serving the user come true (Brey, 2005). Social based recommendation systems seem here much more relevant than an automated recommender system searching for mathematical similarity between items. Live broadcast may also play an important role in the future for another reason; the live aspect of the broadcast media experience forces you to decide *here and now* if you want to consume; time-shifted viewing on the other site relieves you from deciding, postponing the choice. As such live broadcast may still hold a strong position when users – viewers – need to show their commitment to program content providers.

Conclusion

This paper introduces the research questions in my PhD project. Two main areas have been identified: 1) the possible shift of editorial power caused by personalisation technologies, 2) the issues of privacy, surveillance and false assumption related in general to recommender services. Finally the use qualities of personalised media recommendations versus non-filtered broadcast to the general public have been discussed.

If recommender systems become editorial substitutes, it could be asked if they ever would be able to understand the social context in which they are operating. Classic recommender systems are narrow, partly blind, in their understanding of the social life in which they are used, and it is reported how they occasionally make false assumption about users. Artificial Intelligence has not been that successful yet, but when different datasets of user profile information stemming from different contexts are merged, very precise patterns of users may emerge. The recommendation systems have grown out of an engineering tradition of optimising workflow and they have been built to support a rationalistic process of searching and selecting items by a paradigm of efficiency. In a commercial context this efficiency is translated to 'the best possible exposure of products to customers', but my claim is that media usage

follows another more psychologically based motivation than the one of pure efficiency. Media usage may not be so goal directed as work-related tasks and actions; social values may play an important role. After all it really matters if the book or film I get recommended is proposed by a close friend, a group of peers, an unknown internet user, a newspaper or a recommender service provide by media giant. Probably I would trust suggestions from the first two ones more than those from the last ones, but together they compose a pattern of possibilities for media consumption through social exchange.

The larger research question behind these above is: which implications for society, citizens and media will occur if media usage to higher degree were based on user profiles? Will users get a higher satisfaction or entertainment, and engage themselves deeper in the dialogue with media providers? Will some people, facilitated by filtering systems, narrow down further their areas of interests? Or could recommender systems stimulate users' curiosity? How should 'the public debate' relate to the extreme segmented audiences that could emerge as a consequence of media recommendation systems? Should it be possible, e.g. for the government, to overrule the recommendation algorithms when important messages have to reach the citizens? Should recommender services, or the designers of those, be subject to editorial responsibility? Which role in society should they have? A number of similar questions could be asked, questions that on one side are general and abstract, but on the other side have direct implications for the design and application of the services, and not at least people using the systems. And still it can be asked if users generally would be interested in using such recommender services? Are we solving the wrong problem?

Many of other adjacent aspects could be considered for inclusion in my PhD project. The paper tries to identify a possible dilemma in which PSBs are situated and to which the need to react. This dilemma is expressed well by personalisation services, but they are only an expression of general problem of PSBs: should they follow the marked or their own editorial agenda based in the classic PSB remit?

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