8 Condition 3 for effective use of user profiling: Acceptance[12]

8.1 Introduction

Acceptance is a key factor in user profiling. It consists of several dimensions: acceptance by users, acceptance by organisations and acceptance of the technology. The most important is user acceptance; it is a prerequisite for user profiling that the user allows a user profile to be built, just as he or she must be willing to accept the user profile to be used. In addition, in cross-domain settings the user must be willing to allow data to be exchanged between organisations from different sectors or domains.

User profiling also has to be accepted by the organisations themselves. At first glance, this might seem strange, because in probably all cases it is the organisation that takes the initiative and thus is willing to adopt and accept user profiling. But especially in cross-domain settings, the organisation has to accept the fact that other organisations may make use of the data it has collected. The fact that this organisation 'asset' is being shared or sold must be accepted. Organisations might be hesitant to accept data interchange if they do not trust the quality of the data provided or the applications that other organisations involved are planning with their data.

Most studies of acceptance of innovations are about the adoption decision and acceptance of the technology by users or organisations. User profiling implies a greater use of technology and essential business and communication processes such as delivering service will become even more dependent on technology than they are now. User profiling can reduce the human influence on organisational processes and increase the dependency on technology in the contact with users. The dependency of both user and technology might constitute important obstacles to an organisation to engage in user profiling.

The focus of this chapter will be on the users and their acceptance of new technologies.

8.2 Research question

The central question of this chapter is:

What factors determine and influence the (process of) acceptance of user profiling from both an organisation and user perspective?

The first section of this chapter will take a closer look at the concept 'Acceptance'. What is it? And what are relevant aspects and issues? Next, the most relevant theories on acceptance will be discussed, followed by a discussion of research aiming to extend the theories with more factors determining acceptance. These factors include *trust*, *motivation* and *self-efficacy*. Next, several factors that do not relate to one of the theories but are most likely to influence the acceptance of user profiling are presented.

---

[12] Author: W.J. Pieterson

These factors are:
- Control
- Privacy
- Emotions.

Finally, one of the most important prerequisites for acceptance, 'Informed consent', will be presented and discussed.

8.3   Defining acceptance

Dillon and Morris (1996) provide a definition of acceptance of information technology. They define users' acceptance of information technology as:

The demonstrable willingness within a user group to employ information technology for the tasks it was designed to support (Dillon & Morris, 1996).

Although their definition applies to user acceptance, it also suits the organisation because it can also be seen as a user from the perspective of user profiling.

Dillon and Morris' definition strongly focuses on the acceptance of technology. Acceptance of user profiling as a broader concept covers multiple aspects. The following aspects of acceptance of user profiling can be distinguished:
- Acceptance of the organisation: demonstrable willingness to communicate, interact and conduct transactions with the organisation;
- Acceptance of the technology: demonstrable willingness to use the organisation's ICT applications;
- Acceptance of user profiling: demonstrable willingness to adopt the initial and continuous use of user profiling;
- Acceptance of the goals and effects of user profiling: demonstrable willingness to cooperate in achieving the goals and effects of user profiling.

Bouwman et al. (2002) describe a four-stage process of diffusion of ICT, which covers all stages that are relevant to the acceptance of technology. The model depicting the process is shown in the following figure:
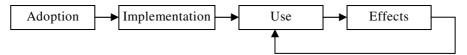

Figure 8.1: The process of ICT acceptance (adapted from Bouwman, J.A.G.M. van Dijk, van Hooff and van den Wijngaert (2002))

This model clearly shows that acceptance of technology is not a process that stops once the adoption decision has been made. Both users and organisations must continuously evaluate whether or not they accept the technology, its implementation, use and effects. This specifically applies to user profiling. User profiling is an ongoing process of collecting, using, updating and re-using data, etc. It requires a continuous effort of both users and organisations. A user who initially has accepted the use of his personal information, might revoke that decision at any moment that he loses his trust in the organisation or finds that the efforts do not (or no longer) match the effects or benefits. Organisations can also revoke the use of user profiling, but not at any given moment because it requires a major change of business strategy and systems. So it is important to focus not only on the initial adoption and acceptance of user profiling, but also on continuous acceptance during the complete life cycle of user profiling. Most existing

theories focusing on acceptance only address the initial adoption of an innovation. A number of theories will be discussed in more detail in the following paragraphs. They will help to understand the process of acceptance and to identify influential factors.

8.4 Theories on acceptance

ICT acceptance research to date has produced two types of theories. The Diffusion of Innovations Theory (DOI), presented here, is a representative of theories based on studies of communication, marketing and society (E.M. Rogers, 2003). It describes the acceptance of innovations at group level, monitoring acceptance in societies.

The other type of theories focuses on individual acceptance and adoption decisions. They are rooted in social psychology (Bhattacherjee, 2000). They state that individual behaviour (e.g. the acceptance and use of user profiling) is primarily determined by behavioural intention, which in turn, is predicted by multiple belief structures concerning the intended behaviour (Ajzen, 1991; Bhattacherjee, 2000). The intention-based Technology Acceptance Model (TAM) discussed here and the Theory of Planned Behaviour (TPB), discussed in chapter 5, are representatives of intention-based models.

8.4.1 Diffusion of Innovations Theory

Diffusion can be defined as 'the process by which an innovation is communicated through certain channels over a period of time among the members of a social system'. An innovation is 'an idea, practice or object that is perceived to be new by an individual or other unit of adoption'. And communication is 'a process in which participants create and share information with one another to reach a mutual understanding' (E.M. Rogers, 2003).

Diffusion research focuses on the conditions that increase or decrease the likelihood of a new idea, product or practice being adopted by members of a given culture. Diffusion of innovations theory predicts that both the media and the interpersonal contacts within a culture will provide information and hence influence the opinion and judgement of individuals or organisations taking the decisions to adopt or not adopt an innovation.

In his analyses of innovation processes, E.M. Rogers (2003) states that they are defined by four factors: invention, diffusion (or communication) through the social system, time and consequences. The information flows through networks. The nature of networks and the roles that opinion leaders play in them determine the likelihood that the innovation will be adopted.

Innovation diffusion research has (among others) attempted to explain the variables that influence how and why users adopt a new information medium, like Internet. Opinion leaders of groups or cultures exert influence on the behaviour of their audiences via their personal contact and communication channels. Intermediaries, called change agents and gatekeepers, also play a role in the diffusion process. Because individuals differ in their characteristics, needs, preferences, etc., different (groups of) individuals adopt an innovation at different times. E.M. Rogers (2003) describes five categories of adopters which adopt the innovation in succession: 1) innovators; 2) early adopters; 3) early majority; 4) late majority; and 5) laggards.

These categories follow a normal distribution curve: very few innovators adopt the innovation in the beginning (2,5%), early adopters make up for 13,5% a short time later,

the early majority 34%, the late majority 34%, and after some time, finally, the laggards make up for 16% of the entire population.

The decision to adopt an innovation is not a simple affair. It is a complex process. Rogers (2003) calls this process the *innovation-decision* process. This is the process through which an individual (or other decision-making unit, like an organisation) passes from initial knowledge of an innovation, to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision. A model of this process is shown in the figure below.
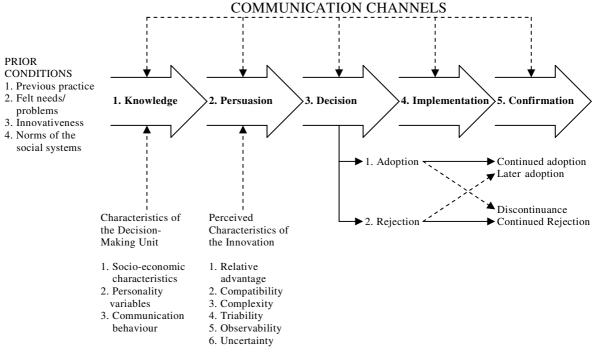
COMMUNICATION CHANNELS

PRIOR
CONDITIONS
1. Previous practice
2. Felt needs/
   problems
3. Innovativeness
4. Norms of the
   social systems

1. Knowledge   2. Persuasion   3. Decision   4. Implementation   5. Confirmation

1. Adoption   Continued adoption
Later adoption

2. Rejection   Discontinuance
Continued Rejection

Characteristics of
the Decision-
Making Unit

Perceived
Characteristics of
the Innovation

1. Socio-economic
   characteristics
2. Personality
   variables
3. Communication
   behaviour

1. Relative
   advantage
2. Compatibility
3. Complexity
4. Triability
5. Observability
6. Uncertainty

Figure 8.2: The Innovation decision-making process (E.M. Rogers, 2003)

E.M. Rogers (2003) states that various aspects influence the decision to adopt or reject the acceptance of an innovation. These are: prior conditions, characteristics of the decision-making unit (the individual or the organisation) and the perceived characteristics of the innovation.

Roger distinguishes the following prior conditions.
- *Previous practice* relates to the previous behaviour that is relevant to the adoption of innovations. For example: a person already using a computer might be more eager to use the Internet than someone not using a computer.
- *Felt needs/problems* refers to the perceived need for the innovation. It is likely that a person with a greater need for an innovation will adopt it sooner than a person who has no need for it at all.
- *Innovativeness* refers to how innovation-minded someone is. It is assumed that some people are more innovative than others.
- *Norms of the social systems* refers to the social influences that individuals or organisations are experiencing within their group or culture (system). The group or cultural norms can form an obstacle to change. Some groups are more resistant to change and potentially risky or uncertain situations than others.

E.M. Rogers distinguishes three types of characteristics of the decision-making unit, which in the case of user profiling is primarily the user.

- *Socio-economic characteristics*. These are factors such as income, labour, level of education, etc.
- *Personality variables*. Chapter 6 gives an overview of personal variables and presents four main factors: Age, Sex/Gender, Race and Health.
- *Communication behaviour* This refers to the use of communication means and media. A person who makes little use of the media to get information is less likely to know of the existence and potential benefits and drawbacks of an innovation than a person who uses various information and communication channels. Communication and media behaviour is important for the acceptance of user profiling, because the media can set the agenda for discussion about issues around user profiling. Organisations will use mass and group (segmented) communication strategies to motivate people and to generate levels of trust concerning user profiling.

The perceived characteristics of the innovation itself (in our case the user profiling system) also determine the degree of adoption by the individual or group:
- *Relative advantage* is the degree to which an innovation is perceived as being better than the idea it supersedes.
- *Compatibility* is the degree to which an innovation is perceived as consistent with the existing values, past experiences and needs of potential adopters.
- *Complexity* is the degree to which an innovation is perceived as relatively difficult to understand and use.
- *Triability* is the degree to which an innovation may be experimented with on a limited basis.
- *Observability* is the degree to which the results of an innovation are visible to others (Pijpers, Montfort, & Heemstra, 2002; E.M. Rogers, 2003).

Frambach and Schillewaert (1999) have added uncertainty as an important factor determining acceptance of innovations, one that might certainly be relevant to user profiling.
- *Uncertainty* is the degree to which users are uncertain about: 1) technical, 2) financial, and 3) social factors regarding the innovation.

8.4.2 Technology Acceptance Model

The Technology Acceptance Model (TAM), first introduced by Davis (1986), is an adaptation of the Theory of Planned Behaviour, which has been introduced in chapter 5. TAM was specifically designed for modelling user acceptance of information systems. It has been widely applied in research of information systems use (see: Legris, Ingham, & Collerette, 2003). It has also been used as a foundation for acceptance studies for systems such as mobile phones and intranets. There is a large number of studies that support the validity of the model (e.g. Adams, Nelson, & Todd, 1992; Davis, Bagozzi, & Warshaw, 1989; Horton, Buck, Waterson, & Clegg, 2001; Igbaria, Zinatelli, Cragg, & Cavaye, ; Legris et al., 2003; Mathieson, 1991; Szjana, 1996; Venkatesh & Davis, 1996).

The original objective of TAM is to provide an explanation of general determinants of computer acceptance that would help explain user behaviour across a broad range of end-user computing technologies and user populations (Davis et al., 1989). In subsequent studies, the model has been used and extended for various situations, both for introducing new information technologies for explaining the use of IT that has already been implemented (Pijpers, Bemelmans, Heemstra, & Montfort, 2001).

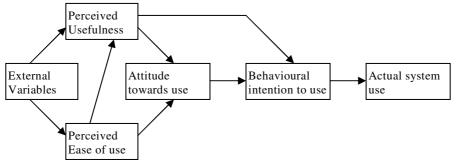The model as presented by Davis (1989) is presented in figure 8.3.

Figure 8.3: The technology acceptance model (Davis, 1989)

TAM posits that two particular beliefs or expectations, *perceived usefulness* and *perceived ease of use,* are most relevant for explaining computer acceptance behaviours. Perceived usefulness is defined as the prospective user's perception of how probable it is that using a specific application system will increase his or her job performance within an organisational context. Perceived ease of use refers to the degree to which the prospective user expects the target system to be free of effort (Davis et al., 1989).

Like the Theory of Planned Behaviour, TAM postulates that actual computer usage is determined by *behavioural intention* (BI), yet differs in that the behavioural intention is viewed as being determined both by the person's attitude towards using the technology and the person's perception of its usefulness.

TAM is different from the Theory of Planned Behaviour because it does not include the *subjective norm* as a determinant of behavioural intentions. Because of its uncertain theoretical and psychometric status, the subjective norm was not included in the TAM model by Davis et al. (1989). Others (e.g. Warshaw, 1980) do not agree and assume that social norms may influence an individual's behavioural intention towards acceptance directly and indirectly. A direct influence on acceptance is executed if a specific individual is willing to *comply* with mandates of important peers who think the individual should adopt the innovation. An indirect influence on acceptance is executed through attitudes which are formed in *internalisation* or *identification* processes. This suggests that the three forms of social influence, compliance, identification and internalisation (Kelman, 1958) determine how social norms influence behaviour.

Finally, TAM distinguishes external variables that influence the perceived usefulness and the perceived ease of use. Among the possible external factors investigated are training, documentation, user support (Davis et al., 1989), usability (Bewley, Roberts, Schroit, & Verplank, 1983), and system features (Dickson, DeSanctis, & McBride, 1986). In the following section, where past research is discussed, more attention will be paid to possible external variables. With regard to these, it can be concluded that the list of possibilities is virtually unlimited and that the exact influence of external variables is hard to determine, because it strongly depends on the situation investigated (the technology to be accepted) and the context (e.g. the organisation and the user involved).

Both the Diffusion of Innovations Theory and the Technology Acceptance Model might help to understand the process of adoption and acceptance of user profiling. Both theories suggest possible factors that might influence the acceptance process and are therefore a good starting point for research on the acceptance of user profiling.

8.5   Research on acceptance

Most studies in the field of user profiling explore the subject from the perspective of the technological possibilities of ICT. In this report, we focus on acceptance from an organisational and user perspective. From an organisational perspective, the central question is whether or not an organisation is willing to accept the technology necessary to engage in user profiling, due to economical and technical reasons. Research addressing the individual users' acceptance and the factors determining it exists to a much lesser degree. The next sections will discuss the known research on user profiling and related technologies. The discussion is aimed at identifying factors that might influence acceptance.

8.5.1 On acceptance of user profiling and personalisation

As user profiling is a relatively new term, no research to date is known that has investigated acceptance of user profiling from a clearly defined theoretical background. Nysveen and Pedersen (2004) studied acceptance of personalisation[13] (rather than user profiling) in a slightly different context. They studied customers' attitudes towards using a website when the website contains interactive applications such as personalisation. They used the Technology Acceptance Model (TAM) and measured the perceived ease of use, the perceived usefulness and the attitude towards use of a simple personalised, static website.

Nysveen and Pedersen conclude that the implementation of interactive applications (personalisation) does not have an effect on the perceived ease of use, usefulness and attitude. This corresponds with Hanson's conclusion that excessive personalisation (on websites) is cumbersome, confusing and wastes consumer time (Hanson, 2000). Personalisation must provide added value, and this (according to the Nysveen & Pedersen study) is not the case for routine and simple product websites.

Hinnant and O'Looney (2003) have studied the level of interest of local governments in personalised online service. They do not focus on the individual (end-) user but on the organisation. The researchers developed their own innovation adoption model, instead of using one of the existing models. Their model focuses on three primary dimensions of online innovation: perceived need, technical capacity and risk mitigation. The results of their study suggest that perceived need, financial costs and the ability to mitigate the risks associated with privacy issues each influence the level of interest that public organisations have in personalised online services. It appears that those organisations must find reliable means of determining external demand for online innovations, as well as reducing the risks associated with each specific type of online innovation prior to adoption. Possible risks are technical failure, citizen dissatisfaction but most importantly, as the results suggest, the possible abuse of personal information.

Two general research projects focusing on personalisation are worth mentioning here. The first is the ChoiceStream Personalization Survey (ChoiceStream, 2004). This survey was conducted among 673 (U.S.) respondents, who were almost all (95%) Internet users. Overall, the survey found that more than 80% of consumers were interested in receiving

---

[13] Because the research discussed here uses the term 'personalisation', this term is used instead of the term 'Tailoring' that has been used throughout this SOTA (see chapter 1).

personalised content. However, the percentages vary strongly for the different age groups of the respondents.

Younger respondents tend to be more interested in personalisation, with 87% of 18-24 year olds expressing an interest in some type of personalised content. This amount decreases from 82% (25-34 year olds) to 76% (35-49) and 77% (50+). Also the interest in content varies according to the age of the respondents. Younger respondents are more interested in receiving personalised music recommendations, followed by DVDs and books, whereas older people, particularly those in the 50+ category, are interested in personalised web search results followed by books, news and travel.

The second key finding is that the vast majority of consumers is willing to provide demographic and preference information in exchange for personalised content: the younger the consumer, the more likely he or she is to provide these types of information.

The third and last key finding is the result that consumers are willing to spend a significant amount of time answering questions about themselves in exchange for personalised content.

A second relevant research project is the Personalization Consortium's Online Consumer Personalization Survey (CyberDialogue, 2001). This survey was held among 512 respondents who were selected from a population of 3,500 and screened to represent this group of online users. The most important finding is that consumers who frequently purchase goods and services over the Internet have a more positive attitude towards personalisation than those consumers that never purchase over the Internet. Of the respondents, 56 percent said they are more likely to purchase from a site that offers personalisation, and 63 percent said they are more likely to register at a site that offers personalisation or content customisation.

Other relevant findings are:
- Usability drives consumers' demand for personalisation. Of the respondents, 87% indicated that they are annoyed when a site asks for the same information more than once. In addition, 82% are willing to provide such personal information as gender, age and ethnicity if the site will remember their preferences and personal information. These findings correspond with the findings of the ChoiceStream (2004) survey.
- Consumers who endorse personalisation spend more money on internet purchases. Of this group, 28% spent more than $2,000 online last year, compared with only 17% of the clients who did not endorse personalisation..
- Online purchasers are likely to pay close attention to the protection of their privacy. Of the respondents, 82% state that a website's privacy policy is a critical factor in their decision to purchase online and 84% have refused to provide information to a website because they were unsure how the information would be used.

It is unknown to what extent the results of both surveys apply to other than the e-commerce domain, let alone to cross-domain profiling. It is also unknown what data consumers want to supply about themselves. The results show that consumers are willing to *spend time,* not what information they want to share. Finally, the results concerning respondents' attention to the privacy policy of websites might reflect what they say or think they would do, not necessarily their actual behaviour on e-commerce sites.

8.5.2 Extending TAM: Other factors influencing acceptance of new technologies

Most of the research discussed focuses on the technology acceptance model and the factors predicting actual use. It has been studied extensively in research on acceptance of ICT-related technologies. The factors *perceived usefulness* and *perceived ease of use* were found to be robust predictors of acceptance (the behavioural intention to use). The research was mainly aiming at: a) adding other factors to the model, or b) determining what the possible external variables of the model might be. The following section will explore these added factors.

Perhaps the most essential additional factor determining acceptance is *trust*, addressed in detail in chapter 7. Trust can be seen as a prerequisite (critical factor) for the adoption and acceptance of new technologies. Dahlberg, Mallat & Öörni (2004) interviewed participants in a focus group about the factors that determined their decision to adopt mobile payment services. Trust proved to be an important factor, which determined perceived usefulness. Gefen, Karahanna and Straub (2003) have researched trust in online shopping. They state that trust influences the behavioural intention (buying online) and the perceived usefulness. Trust itself is influenced by perceived ease of use, i.e. systems that appear to be easier to use are creating and enhancing trust.

Research by Hoffman, Novak & Peralta (1999) demonstrated that lack of trust was the major reason for people not to adopt online shopping. Warkentin, Gefen, Pavlou & Rose (2002) studied the role of trust in the adoption of e-services. They found that trust in the organisation using the technology and trust in governmental policies are important determinants for the adoption. They state that trust is a crucial enabler affecting purchase intentions, inquiry intentions and the intention to share personal information. The latter intention, of course, is especially relevant in user profiling.

Besides a direct relationship with acceptance of the technology, trust is related to many other issues that appear to be critical for user profiling. Firstly, trust is influenced by the *locus of control* for the user profile (Araujo & Araujo, 2003). When end users feel that they themselves or a trusted third party representing them controls the user profile and its applications, they will trust user profiling more than when they feel that the organisations in control are not primarily focusing on the users' interests.

Trust is also influenced by *privacy concerns*, and hence by the privacy policies realised in the user profile system. Concern about the privacy aspects of personal information shared on the Internet is correlated with increasing levels of Internet experience (George, 2002): the more experienced internet users are more worried about privacy issues. There is considerable resistance among many Internet users to engage in business-to-consumer transactions over the Web, primarily due to concerns about privacy and the trustworthiness of the Internet (Aldridge, Whithe, & Forcht, 1997; Wang, Lee, & Wang, 1998).

In section 8.5.3 and 8.5.4 we will focus on the issues of control and privacy concerns.

A second factor that has been added to the Technology Acceptance Model is *motivation*. Motivation has already been addressed both in chapter 3 and 6. Two types of motivation can be distinguished: extrinsic and intrinsic motivation (Vallerand, 1997). Extrinsic motivation points to the drive to perform behaviour to achieve specific goals/rewards (Deci & Ryan, 1987), while intrinsic motivation points to perceptions of pleasure and

satisfaction from performing the behaviour in question. (Vallerand, 1997). Extrinsic motivation is a factor that has been extensively researched. In TAM, extrinsic motivation is captured by the perceived usefulness construct (see Davis, 1989; Venkatesh, 2000).

Venkatesh (2000) has also studied the role of intrinsic motivation in technology acceptance. He introduces the factor *computer playfulness* as operationalisation of intrinsic motivation. In a similar vein, Pijpers, Montfort and Heemstra (2002) added the factor *perceived joy* (referring to the pleasure experienced when using ICT) on the basis of a quantitative study of ICT acceptance with 87 European managers. The prospective users' expectation that it is pleasant to work with a computer was found to be a significant influence on the acceptance of computers. Pijpers et al. (2002) assume that perceived joy influences the behavioural intention defined in TAM. Venkatesh (2000) assumes that computer playfulness leads to perceived ease of use about a new system.

Bhattacherjee (2000) found effects of the factor *self-efficacy* in the acceptance of e-commerce services. Self-efficacy is the degree of an individual's self-confidence in skills or ability to perform the intended behaviour (see Bandura, 1977). It has been studied extensively with respect to ICT acceptance. For example; Compeau and Higgins (1995) research among Canadian managers shows that self-efficacy exerts a significant influence on individuals' expectations of the outcomes of using computers, their emotional reactions to computers as well as their actual computer usage. Staples, Hulland, and Higgins (1998) found that those with high levels of self-efficacy in remote computing situations were more productive and satisfied and better able to cope when working remotely. Given the effects of self-efficacy on technology acceptance, one might expect self-efficacy to influence the acceptance of user profiling.

Various studies have focused on the possible *external variables*, which supposedly influence acceptance through the other factors summarised in TAM. External variables that have been found to be significant are shown in table 8.1.

Variable	Definition
Level of education	The level of education of the individual.
Computer experience	Indication of years of experience in using computers and using similar packages; and the current skill level.
Support	The support and encouragement for using technology.
Computer training	Amount and type of computer training received.
Image	Degree to which use of a system is perceived to enhance one's image or status in one's social system (group, organisation, etc).

Table 8.1: External variables. Based on: Al-Gathani and King (1999), Agarwal and Prasac (1999), Venkatesh and Davis (2000) and Pijpers et al. (2001).

The problem with most external (and additional) factors is that they depend to a large extent on the context in which the acceptance of technology takes place (Pijpers et al., 2002). This makes it difficult to predict the influence that particular factors will have, given the specific circumstances, organisation and technology studied.

8.6 Critical issues influencing acceptance

As shown in the overview of studies above, researchers distinguish many factors that influence the acceptance of various applications of information technology. They also have different interpretations of how influential particular factors are. Do these factors also apply to user profiling? User profiling and personalisation techniques are so new that very few studies have focused specifically on the acceptance of these new applications of ICT. Given the state of the art in acceptance research, we have to assume that the current theories (Diffusion of Innovations, Theory of Planned Behaviour, Technology Acceptance Model) predict and describe the factors influencing acceptance of user profiling technology. But it remains to be decided whether these same factors also apply to applications of user profiling. We recommend conducting specific studies of acceptance of user profiling, to support or reject the assumption that factors critical to technology acceptance in general also apply to user profiling.

In the previous chapters, a numbers of critical issues influencing acceptance have been identified which are not embedded in theoretical models of technology acceptance such as TAM. Those issues, i.e. control, privacy concerns and emotional response, will be addressed in the following sections.

8.6.1 Control as a condition for acceptance

As stated in the Alter Ego focus and refinement document (Telematica Instituut & IBM, 2004a), two aspects regarding control are important: first the hosting of the user-related information and second the updating and maintenance of user-related information. A study by Roy Morgan Research (2001) shows that 59% of the 1524 Australian respondents state that their trust in the Internet increases when they feel they have control over their personal information. The study also showed that:

- 91% of the respondents want to asked for explicit permission before companies use their information for marketing purposes;
- 89% of the respondents want to know which persons and which organisations have access to their personal information;
- 92% of the respondents want to know how their personal information is used.
- User control obviously is a critical condition for user acceptance of profiling and personalisation. However, the study cited does not answer the question whether the users themselves should host the user profile themselves, nor whether trusted third parties can resolve the users' anxiety about control issues.

Alpert et al. (2003) studied user attitudes regarding the personalisation of content in e-commerce websites. In their study, the users expressed their strong desire to have full and explicit control of personal data and interaction. They want to be able to view and edit (update and maintain) their personal information at any time.
Byford (1998) perceives personal information as a property or asset of the individual ('Byford's property view'). The user is the owner of his or her personal information. In Byford's property view, individuals see privacy as the extent to which they control their own information in all types of Internet exchanges. The property aspect of the exchange manifests itself in the users' willingness to trade personal information for valued services such as free e-mail or special discounts from merchants.

A user profiling system that is not supported by a good system for user control of personal information is bound to lead to acceptance problems. However, building a user interface that allows users to control the information in their profiles is a complicated problem. Especially if the interface provides controls that go beyond a very course level of granularity (Cranor, 2004). Although users have indicated they want to be in control of their personal data, very few users make use of possibilities websites offer to control personal information. A number of e-commerce websites give users access to their profiles; however, it is not clear that many users are aware of this (Cranor, 2004, p. 69). Reports of operators of personalisation systems have indicated that users rarely take actions to proactively customise their online information (Manber, Patel, & Robinson, 2000).

8.6.2 Privacy concerns and acceptance

Throughout this report, privacy concerns have come up as a critical factor determining the acceptance of user profiling. Loeb (1992) distinguishes three types of privacy concerns: regarding protection of the user profiles and queries, regarding protection of the person's web usage history and regarding protection of the actual information if the delivery takes place over public networks.

Wang, Lee and Wang (1998) distinguish four types of privacy threats:
1. improper acquisition of information (e.g. uninvited tracking of the users' web usage);
2. improper use of information (e.g. distribution of data to third parties);
3. privacy invasion (e.g. spamming a mailbox with uninvited direct mailings);
4. improper storage and control of personal information (e.g. no opting-out, no means to remove incorrect or unwanted information)

It is still unclear which privacy threats and concerns are (most) influential for acceptance of user profiling. But it is clear that privacy is important for the users' acceptance of internet and hence for acceptance of user profiling. An overview of studies regarding privacy and personalisation on the Internet shows that users have significant concerns over the use of personal information for personalisation purposes on the Internet (Teltzrow & Kobsa, 2004). CyberDialogue (2001) found that 82% of all Internet users say that a website's privacy policy is a critical factor in their decision to purchase online. Even more salient is that 84% of the respondents have refused to provide information at a website because they were not sure how that information would be used. The fact that there is a concern, however, does not necessarily imply that users do not provide any information. The lack of trust in privacy policies moved a large majority of users to give false or fictitious information over the Internet, and thus protect their privacy (Culnan & Milne, 2001; Fox et al., 2000). Examples of this development include 'Anonymous Websurfing' (AWS) and the use of pseudonyms. Surfing under a pseudonym entails assuming another identity (see for example www.bugmenot.com) and consciously making mistakes when filling in (or partially *not* filling in) personal details on forms. With AWS use is made of all kinds of technical tools which make it impossible for suppliers of electronic services to place cookies, and make it possible for users to dislodge and block spyware and prematurely deactivate pop-ups. According to research conducted by the Winterberry Group, this development is increasingly becoming a problem for the collection of user relation information (Direct Marketing, 2001). It also makes it apparent that many users are reluctant about user profiling.

Users might be willing to sacrifice some privacy and trade personal information, in exchange for recognisable rewards, such as information that suits their needs or

preferences better. But even in the event that they are willing to give up parts of their privacy, they have to be reassured that their personal information is not used in ways they disapprove of. Mander, Patel and Robinson (2000) suggest two solutions to address privacy concerns:
- make use of encryption of passwords and sensitive data to guard information
- (possibly external) audit and evaluation procedures for data security and privacy issues.

Bonett (2004) states that organisations should declare a privacy statement (or disclosure statement) on their site, which describes the kinds of information gathered and the policies for using and sharing personal information.

Solutions like the ones mentioned could be less effective than expected, because not all users might be able to comprehend privacy statements and their implications. In order to guarantee privacy and to reach informed consent on the use of personal data, privacy and disclosure statements should be presented in plain language, in a way that makes the implications of the policies completely clear to all users. Again, a trusted third party, such as the Consumentenbond (Consumers' Organisation), could serve as an institutional guard of the users' rights on protection of personal information.

Another attempt to solve privacy issues on the Internet with respect to the use of personal information is the P3P initiative (see: www.w3c.org/p3p). The Platform for Privacy Preferences Project (P3P), developed by the World Wide Web Consortium, is emerging as an industry standard providing a simple, automated way for users to gain more control over the use of personal information on websites they visit. The aim of P3P is 'to communicate to users, simply and automatically, a website's stated privacy policies and how they compare with the user's own policy preferences.' At its most basic level, P3P is a standardised set of multiple-choice questions, covering all the major aspects of a website's privacy policies. Taken together, they present a clear picture of how a site handles personal information about its users. P3P-enabled websites make this information available in a standard, machine-readable format. P3P-enabled browsers can 'read' this snapshot automatically and compare it with the consumer's own set of privacy preferences. P3P enhances user control by putting privacy policies where users can find them, in a form users can understand, and, most importantly, enables users to act on what they see. Whatever solutions would be chosen to address privacy concerns, they should meet the same standards as P3P: users must be able to find them, understand them and act on them.

8.6.3 Emotions and acceptance

All the theories that are discussed in this chapter assume that people act on the basis of rational deliberations, even if these deliberations are fed by subjective information or the social norms of the group the people are part of. However, people often do not act as rationally as is assumed in the theories and models. In his book *Reason in Human Affairs*, Herbert Simon (1983) warns us that an explanatory account of human rationality must identify the significance of emotions for behaviour. User profiling, a technology that can easily evoke concerns about the security and integrity of the user's personal information, might well be a topic that leads to an emotional rather than a rational response. That is why the link between emotions and behaviour is addressed here.

One of the most basic models linking emotions and behaviour is Maturana and Varela's (1987) model of the cognitive system. This model states that action, emotions,

perceptions and feedback form one consistent whole. Actions are constituted of both emotions and perceptions. Emotions determine the intention to perform actions and perceptions give meaning to these actions. Abilities finally are needed to perform actions. Actions lead to feedback towards the perceptions and may alter the meaning of actions and emotions. The model shows the tight relations between emotions, perceptions and actions and makes clear that they interact at all time. Although little empirical data that tests the model is available, its notions are nevertheless interesting. The model is presented in figure 8.4.
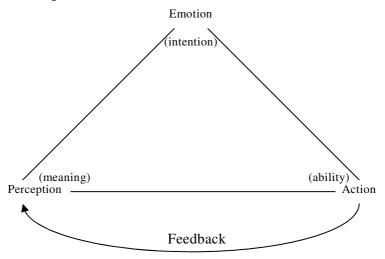

Figure 8.4: Maturana and Varela's (1987) model of the cognitive system

But what emotional factors are we talking about? Laros and Steenkamp (2004) propose a hierarchy of emotions that are important in consumer (buying) behaviour, divided into negative and positive emotions. The hierarchy is presented in figure 8.5.
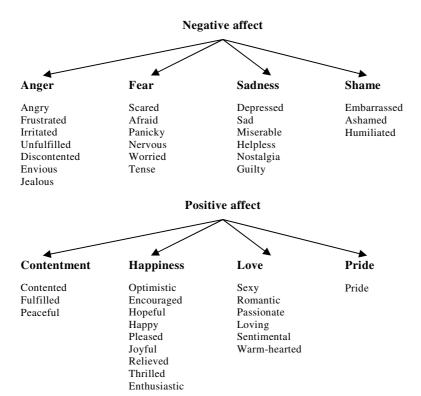
Negative affect

Anger	**Fear**	**Sadness**	**Shame**
Angry	Scared	Depressed	Embarrassed
Frustrated	Afraid	Sad	Ashamed
Irritated	Panicky	Miserable	Humiliated
Unfulfilled	Nervous	Helpless	
Discontented	Worried	Nostalgia	
Envious	Tense	Guilty	
Jealous			

Positive affect

Contentment	**Happiness**	**Love**	**Pride**
Contented	Optimistic	Sexy	Pride
Fulfilled	Encouraged	Romantic	
Peaceful	Hopeful	Passionate	
	Happy	Loving	
	Pleased	Sentimental	
	Joyful	Warm-hearted	
	Relieved		
	Thrilled		
	Enthusiastic		

Figure 8.5: Laros & Steenkamp's (2004) hierarchy of emotions

In Laros' and Steenkamps study of consumers' feelings (where feeling means 'positive' or 'negative' affect) towards food products, the emotions 'Love' and 'Pride' were not investigated further. All other emotions proved to be correlated to consumers' feelings

and via these feelings they might influence attitudes and intentions. Most research addressing emotions and buying behaviour have studied the emotional reactions to advertising and other post-purchase processes (see e.g. Mano & Oliver, 1993; Westbrook, 1987) and have thus concluded that a relationship exists between buying behaviour and emotions. However, direct relations between buying behaviour and emotions have a hypothetical status at the present moment. Nevertheless, researchers are increasingly discovering the importance of emotions in processes that have always been thought to be rational (see for example: Kaufman, 1999; Muramatsu & Hanoch, 2004; Oatley & Johnson-Laird, 1987). Although we have reason to assume that emotions will influence the acceptance of user profiling, we have no way to assess the degree to which they influence acceptance. Assessment of emotions through e.g. questionnaires or interviews can easily lead to 'rationalisations' by the respondents: rational explanations of behaviour that actually were emotionally inspired.

8.7   Informed consent: gaining acceptance

Throughout this chapter, an inventory has been made of factors influencing user acceptance of user profiling technology. Trust and control, especially in relation to privacy concerns are crucial for gaining acceptance from users. But how to win that trust, and how to give control to users? We propose to seek a solution in procedures of informed consent.

Informed consent enables users to make informed decisions on whether they want to participate in user profiling. The term is known from the field of medicine. Patients have the legal and ethical right to be informed on what will happen to their body, and make informed decisions on the intervention or treatment before it is started. Parallel to definitions from the healthcare sector, we can define informed consent on the use and application of personal data as follows:

Informed consent is the process whereby a fully informed user participates in decisions about his or her personal data. It originates from the legal and ethical right the user has to direct what happens to his or her information, and from the ethical duty of organisations using personal data to involve the user in the control, use and maintenance of these data.[14]

Sreenivasan (2003) states that informed consent in medicine consists of two parts: a duty to obtain the voluntary agreement of patients or trial participants before treatment or enrolment; and a duty to disclose adequate information to the patient or participant before seeking this agreement.

Friedman, Millet and Felten (2000) state that informed consent in web privacy policies comprises the following elements:
- Disclosure
- Comprehension
- Voluntariness
- Competence
- Agreement.

---

[14] See: http://eduserv.hscer.washington.edu/bioethics/topics/consent.html

Disclosure refers to providing accurate information about the benefits and harms that might be reasonably expected from the action under consideration. What is disclosed should address the important values, needs and interests of the individual.

Comprehension refers to the individual's accurate interpretation of what is being disclosed. This component raises the question: What criteria must be satisfied in order to say that something has been adequately comprehended? For example: does a user understand the privacy statement? Why (not)?

Voluntariness means that an individual should only participate voluntary; there must be no control of an individual's actions and the action may not be coerced.

Competence refers to possessing the mental, emotional and physical capabilities needed to be capable of giving informed consent. Children, for example, might not be mentally and emotionally capable of judging whether or not to provide personal information on websites.

Agreement refers to a reasonably clear opportunity to accept or decline to participate (Friedman et al., 2000). This not only implies the opportunity to choose whether or not to participate at all, but also to the opportunity to choose to stop or continue the participation at any given time. This means, for user profiling, that the individual should have full control at all time.

Translated in a procedure parallel to the medical world, the following elements should be addressed in an informed consent procedure regarding user profiling.
1. The nature of the personal data collected for the sake of user profiling.
2. The organisation's objectives with user profiling and its prospective effects for the user. This includes the sharing of data with other organisations, and their respective objectives for user profiling (cross-domain user profiling).
3. The alternatives when no data are collected, or when no user profiling is applied. Also, the alternatives when particular types of user-related information are rejected, or when particular applications of user profiling are refused.
4. Relevant risks, benefits and uncertainties related to user profiling, for the various alternatives.
5. Assessment of the user's understanding of the information.
6. Explicitly stated acceptance or refusal of the user, for all or particular types of user-related information, and for all or particular applications of user profiling.

The consent must be voluntary, and the user must have the competence to understand the information and its consequences, or the right to decide on the use of one's own personal information. Therefore, special attention must be paid to those groups in society that do not have easy access to ICT (see chapter 6). Both the procedure and the information on user profiling should be explained in layperson's terms. The user's understanding and acceptance must be assessed along the way, not only on initial adoption of user profiling.

Informed consent is a critical condition from the perspective of the individual user, but it might not always be in the interest of organisations to inform the public about the collection and use of user-related information. According to Business Week[15] 88% of users want sites to guard their consent when personal information is collected. According

---

[15] See: http://www.businessweek.com/2000/00_12/b3673010.htm

to a report from the Federal Trade Commission, 59% of websites that collect personal identifying information neither inform internet users that they are collecting such information nor do they seek the user's consent (Federal Trade Commission, 2000). This strongly conflicts with the public's interest and might even be a violation of European privacy and personal information protection laws.

8.8   Conclusions

Acceptance can be seen as a cumulative factor that correlates strongly with discussed concepts like trust, motivation and privacy. An important means to obtain acceptance from users might be informed consent. The organisation and the user must undergo an informed consent procedure before the actual user profiling can take place.

Acceptance is a very complex subject. The list of factors that appear to influence or determine acceptance of user, organisation, application and user profile seems endless.

This chapter opened with the question which factors determine and influence the (process of) acceptance of user profiling. The most important factors identified in this chapter are: **trust**, **control**, **privacy concerns**, **motivation** and **emotions**. These factors are distinguished in addition to factors captured in the Diffusion of Innovations Theory and the Technology Acceptance Model. The state of the art on acceptance of user profiling is that research on critical factors is only just starting. We recommend that future research and development projects in the field of user profiling focus on exploring these critical factors further.