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The contexts of internet use: From innovators to late majority

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Abstract:
Throughout the years, information and communication technologies have developed and increased in importance in society and in people's lives. To understand the ongoing and future development, researchers must understand activities, habits, and adoption in a wider social context. This study aims at capturing the contexts of internet use in Sweden from the mid-1990s up until 2012. The emergence of users is analysed from the perspectives of socio-demographics, socio-economic status, employment status and social capital. Data were collected in large-n, representative surveys between 1995 and 2012. On all measure points, age is undoubtedly the most significant factor explaining take-up of internet use. The explanatory power weakens somewhat in 2011 and 2012. Gender contributes relative little to the overall understanding of internet use over time, and was more important in the beginning of the diffusion process. Among socio-economic factors, social class was rather important in the early years, but have very little explanatory power from the mid-2000s. Income does not to any large extent contribute to the understanding of internet take-up at any time. Educational level is one of the most important factors all over the studied period, and employment status has been of relatively great importance since the beginning of the new millennium. Opposite to previous research, social capital contributes only to a small extent to the understanding of internet use on all measure points. Take-up of internet technology depends strongly on age, educational level and employment status. It is likely to assume that diffusion of internet related features and applications will follow the patterns revealed in this study.

Key words: Internet use, digital divide, large-n survey, diffusion process, technology acceptance

Throughout the years, information and communication technologies have developed and increased in importance in society and in people's lives. Media forms are constantly being invented and reinvented as they are taken up by new people in new contexts and for new ends.

The internet became available to a wider public in the early 1990s. Just as with many other media technology, the internet was unevenly spread from the start. There have been so called digital divides between groups in societies, countries, and regions ever since (Hargittai and Hinnant, 2008; Moores, 1993; Norris, 2001; Tsatsou, 2011; Winston, 1998). Digital divide, defined as the gap between people who have and do not have physical access to technology, has developed to include also differences in skills for using the internet (van Deursen and van Dijk, 2011). The internet may create a usage gap that has wide implications for activities in different spheres of daily life. Some activities offer more chances in for instance career, work, and education than others (van Deursen and van Dijk, 2014). With the expansion of the internet in several societal sectors, it is reasonable to assume that the gap between users and non-users becomes increasingly significant over time.

The majority of research in this area demonstrates that there are links between social exclusion and digital engagement. It seems that groups with limited access to information tend to be further marginalized when computer and internet skills are becoming more and more important for personal reasons and for societal involvement (Haddon, 2000; Hargittai and Hinnant, 2008; van Deursen and van Dijk, 2011; van Dijk, 2005). The direction of development is dependent on the accumulated past, and to understand the ongoing and future development, researchers must understand activities, habits, and adoption of the internet in a wider social and societal context (Allen, 2013; Bouwman and Van Der Duin, 2007; Brügger, 2013). When trying to predict digital exclusion in society, it is important to develop knowledge about diffusion patterns based on generalizable data on large populations in the longer term.

The purpose of this study is to capture the contexts of general internet use in Sweden from the mid-1990s up until 2012. Internet usage, in this context, is defined as frequency of use, and leaves out, among others, content, length of time and type of activities (van Deursen and van Dijk, 2014). The emergence of users is analysed from the perspectives of traditional socio-demographics, socio-economic status, the effects of experiences from education and work, and people's social capital. By regression analysis, the driving forces in the diffusion process are revealed at different times and stages. Representative long-term survey data allow us to analyse all these perspectives over an 18 years period of time. The present study uniquely contributes to the overall understanding of the media take-up process and digital inequalities.

Theory

To adopt internet use now, just as in the mid-1990s, requires appropriate technology. Some 20 years ago, this usually meant a personal computer connecting to the internet via a dial-up modem. Today, it could mean a personal computer, a tablet, or a smartphone, and the

internet is accessed via wireless networks, fibre cables, or 4G technology. Access does not by any means lead automatically to use, it should be seen as a necessary condition. Use is strongly related to people's ability to understand how systems work, their confidence and trust in new systems, the economic and social benefits and costs, and how the innovation fits into existing cultural norms (Bouwman and Van der Duin, 2007; Livingstone and Helsper, 2007; McCreadie and Rice, 1999; Norris, 2001; Tsatsou, 2011; van Deursen and van Dijk, 2011; Verkasalo et al., 2010).

The innovation-decision process involves "the process through which an individual passes from gaining initial knowledge of an innovation, to forming an attitude toward the innovation, to making a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision" (Rogers, 2003:168). There are several theories for understanding why people adopt or reject an innovation such as the internet. The most commonly used are the diffusion of innovations theory (Rogers, 2003) and the technology acceptance model (TAM) (Davis, 1989). The unified theory of acceptance and use of technology (UTAUT) is a comprehensive synthesis of prior technology acceptance research (Venkatesh et al., 2012).

In TAM, "perceived usefulness" and "perceived ease of use" are considered important factors which predict intention to use technologies in general (Davis, 1989; Shin, 2011). These are closely related to "relative advantage" and "complexity" suggested by Rogers (2003). UTAUT identifies "performance expectancy" (the degree to which using a technology will provide benefits to consumers in performing certain activities) and "effort expectancy" (the degree of ease associated with consumers' use of technology) as two of four key constructs. All these factors are strongly related to the innovation itself and its characteristics.

There is often an overemphasis on technology determinism when describing diffusion of media technology, and a failure to take the influence of current trends and social changes into account (Bouwman and Van Der Duin, 2007; Winston, 1998). It is evident that innovations develop and diffuse in a larger social context affected by social factors or supervening social necessities. Winston argues that the degree of subsequent diffusion depends more on the operation of such necessities than on efficiency of the innovation and its prototypes. Acceptance is never straightforward, no matter how much the technology is 'needed' (Winston, 1998).

All three models mentioned above take one or more factors, aside for the technology itself, into account when trying to explain the take-up use of new media technology. Each of them focuses on partly different characteristics among potential users and the context surrounding them, and to achieve wider understanding of how new media and media applications and features are becoming part of people's life and of society, it is useful to include all three of them in one analysis.

It is evident that technology acceptance and use is strongly related to socio-demographic factors. Age has been shown to play an important role in the adoption of innovations like the internet, and younger people are overrepresented among the so-called

innovators and early adopters (Rogers, 2003). Older people perform more poorly than the younger generations with regard to operational formal internet skills. In the last few years, research has shown that young people tend to generate more content than older people, and are over-represented in uploading music and films or contributing to Wikipedia, as well as in various kinds of online social communities and in online discussions (Fisch and Gscheidle, 2008; Lenhart et al., 2007; Davis, 2005).

Furthermore, several studies have proven differences between men's and women's motives for media use and the actual use taking place. The internet in many ways reproduces gendered behavior as it already exists in society. Traditionally, computer culture has been perceived as a male culture, attracting no or little interest from women. One reason for this might be that women are kept from creating it and giving it their own meaning, and might consider computer culture as structured as male (Gersch, 1998; Turkle, 1995). Considerable gender differences have also been found in the breadth of use, the use mixture orientation and interest in different content and platforms (Hargittai, 2008; Hargittai and Malejko, 2008; Fisch and Gscheidle, 2008. See Helsper, 2010 for an overview). It seems, however, that men and women are equally skilled in handling the internet, navigating the internet, finding information, and using the internet for achieving personal goals (van Deursen and van Dijk, 2011).

In addition, different indicators of socio-economic status have proven to influence internet use. Access to economic resources is one important, but not the only consideration when talking about material deprivation (Haddon, 2000). There are studies showing effects of income on, for instance, internet access (Katz and Rice, 2002). People with a higher level of education are more likely to be among the first groups adopting new technological innovations (Rogers, 2003). Social outcomes such as higher status in the community or being unique in the group may be important additional drivers of IT use (Venkatesh et al., 2012). General creative activity on the internet also seems to be strongly connected to users' socio-economic status (Hargittai and Malejko, 2008).

Social norms represent a factor that is assumed to have direct impact on perceived usefulness and is considered one of the core concepts in TAM models. People's perceptions of the usefulness of a service or a technology might increase in response to persuasive social information, the degree to which individuals have the impression that important others believe they should use a new system (Verkasalo et al., 2010). Users are driven to adopt an application primarily because of the functions it performs for them, and secondarily for how easy or hard it is to get the system to perform those functions. Users are often willing to cope with some difficulty of use in a system that provides critically-needed functionality (Davis, 1989). The UTAUT model also points out the importance of social influence and the extent to which people perceive that family and friends believe they should use a particular technology. Important others can also provide support necessary to perform a behavior (Venkatesh et al., 2012).

There are studies pointing to a so called "bandwagon effect", meaning that people will adopt the internet simply because other people have adopted it (Rogers, 2003; Zhou, 2008).

Such findings point to the impact of socializing on internet use. Media use is embedded in different aspects of social life, and it is important to study media use within this framework (Hartmann, 2009; Zhou, 2008). There is evidence of a strong relation between people's use of media techniques and their social relations. People exposed to media technologies in their close surroundings are more likely to adopt the techniques (Haddon, 2000). People included in social networks tend to learn faster by helping each other and providing support in using the techniques. The same goes for adults living in households with children: adults tend to be more likely to adopt technology and be more competent because children pass on knowledge to their parents (Hargittai, 2004). People who have access to social support when using the internet also show a higher level of internet skills than people who do not (van Deursen and van Dijk, 2011).

Social life has a number of dimensions. One includes private relations with family and friends. However, social life refers not only to the home, which was studied extensively in early research on computer use, but also to communications and relations with wider networks. In general, many people first encounter new information and communication technologies in contexts outside the home, which opens up the topic of looking at the role of the workplace in the adoption of new technologies (Haddon, 2006). In other words, it is in such workplace situations that people learn not only how to use new technologies, but also under what conditions and how they can be useful (Haddon, 2000).

In the mid-1990s it was common for organizations to inspire or even force their employees to adopt the internet at work as a part of modernization processes and societal growth. It is evident in international research that organizations have played an important role in the diffusion process (Rogers, 2003; Zhou, 2008). Universities in Western societies were early in adopting internet technology, and people with a higher level of education were exposed earlier to the internet compared to people with an educational level below average (Hargittai, 2004). Previous research also points to the fact that the perceived importance of the internet influences use (Papacharissi and Rubin, 2000). It is likely that it was easier to recognize the importance of the new technology at workplaces and in higher education in the 1990s since the household usage of personal computers was low.

Earlier, there were great differences in internet access between workplaces, particularly when comparing white-collar workers and blue-collar workers (Norris, 2001; Hargittai and Hinnant, 2008). These differences of course diminish as the diffusion process proceeds, but it is still evident that some places of work and some professions and occupations are more intense in computer and internet use than others.

Media technology diffusion and the increase of the internet are affected by both individual and social factors, and by factors where individual characteristics and the surrounding society are intertwined. Internet diffusion could be seen as a process of different technological, individual, and societal forces melding together. Based on the presented theories and previous research, it is reasonable to hypothesize that external factors such as workplace, employment status and higher education experience had greater impact on the take-up of internet early in the diffusion process. With a more computerized

society, the technology has become domesticated (Haddon, 2006). It is further reasonable to assume that private social life might be more evenly important over time. As long as services and applications continuously develop, there will always be a social pressure to adopt the technology more generally in order to enjoy specific features. Individual factors might play different roles at different times. Age and gender inequalities are likely to decrease as the process develops. The significance of physical resources such as income usually diminishes over time as prices fall. But within the internet sector, new models of computers, tablets and smartphones along with software applications are constantly presented, which might make personal finance constantly significant. Socio-economic resources are always of great importance when analysing inequalities and gaps related to media and information technology. Since the study, however, focuses on general use only, it is reasonable that social class and level of education better explain the take-up early in the diffusion process. The present study, based on representative, large-n surveys, contributes to the understanding of demographics, socio-economic resources, employment status and social factors as driving forces in the diffusion process of the internet.

Method and data collection

Internet use in the Swedish population was captured in a quantitative survey with a representative sample of the Swedish population between 16 and 85 years old. The study is based on data collected in the Swedish national Society, Opinion, Media (SOM) surveys conducted as an annual mail survey since 1986. Each year between 3,000 and 12,000 persons aged 16 to 85 and living in Sweden have received the SOM survey. The surveys from 1995 to 2012 are included in the analysis. The survey design has altered somewhat across the years. Between 1995 and 1997, the sample was 2,800 persons aged 15 to 80 years. In 1998 and 1999, the sample was 5,600 persons in the same ages. From 2000 to 2008, the sample was 6,000 persons aged 15 to 85 years. In 2009-2011, 9,000 persons aged 16 to 85 years were included in the sample, which was expanded to 12,000 persons in the 2012 survey (see Vernersdotter, 2013 for details in research design).

The average net response rate from 1995 to 2012 is 63 per cent. The highest response rate was found in the 1996 and 1997 surveys (69 per cent) and the lowest in 2011 and 2012 (57 per cent). The respondents are divided in almost the same way as the Swedish population in terms of gender, social class, and level of education. Older people are, however, overrepresented since the response rate in the youngest groups is below average. This means that there might be some underestimation of habits strongly related to younger people, such as internet use (Vernersdotter, 2013). Analysis with weighted data indicates that this might be a few percentage shares (Markstedt, 2012). As with other statistical surveys, this one gives a general picture of the development of internet use. The methodological choices, however, cannot give more in-depth information about why internet use is taken up by people.

The average questionnaire consists of approximately 20 pages and 80-90 questions, most of them with fixed answer options. There are several editions with a somewhat

different focus. The dependent variable analysed in this study – internet use – was posed as a single question: "How often during the last 12 months have you used the internet?" Between 1995 and 2007 a seven-grade scale was used: *Never*, *Once during the last 12 months*, *Once during the last 6 months*, *Sometime in the quarter*, *Once a month*, *Once a week* and *Several times a week* . In the 2008 survey, the option *Daily* was added. To get comparable data across the period, *Several times a week* and *Daily* are merged in the dataset. The question on internet use was posed in all questionnaire editions in the survey. The number of editions has, however, varied over the years, which is why the number of respondents also varies.

The independent variables are captured in several different survey questions. Socio-demographics such as gender and age (year of birth) are integrated with the dataset from public registers. Socio-economic status is measured by questions about household income, educational level and subjective social class on household level. Income was measured in 12 categories and then trichotomized into equal groups on the basis of national statistics on income in Swedish households. Education was measured in eight categories, then divided into three groups: low, medium and high educational levels. Social class is captured by a subjective measurement where two categories are used in the analysis: blue-collar workers and white-collar workers. With the education variable, university affiliation is also captured. Employment status was measured in four categories: retired, unemployed, student and employed. Social capital is measured by variables of household composition and frequency of socialising with friends.

Findings

The aim of this analysis is to reveal what factors have influenced the usage of internet technology over an 18-year period from 1995 to 2012. To draw an overall picture, frequencies over the years are presented in **Table 1**. It is evident that there has been a rather fast development from two percent frequent (several times a week or daily) users to 77 percent in 2012. By the year 2000, the number of frequent users exceeded the non-users. It is also evident that internet use has turned into something people either do or do not do in that the number of sporadic users, which peaked in 2002, has declined to only a few percent in 2012.

Previous research has clearly pointed out the importance of different single factors affecting the take-up of the internet. Socio-demographics such as age (Rogers, 2003; van Deursen and van Dijk, 2011), gender (Hargittai, 2008; Helsper, 2010; Turkle, 1995), and socio-economic resources like income (Haddon, 2000), social status (Hargittai and Malejko, 2008; Norris, 2001; Venkatesh, et al., 2012) and education (Rogers, 2003) have proven to play central roles. Workplace (Haddon, 2000; Rogers, 2003; Zhou, 2008) and university affiliation (Hargittai, 2004; Rogers, 2003; van Deursen and van Dijk, 2014) have positively affected willingness to use of the internet. Finally, users' social context might influence whether or not use is taking place (Haddon, 2000; van Deursen and van Dijk, 2011). It is rare for studies on representative samples to include all these dimensions. This study contributes

to the field of diffusion and technology acceptance by providing the possibility to include all of them in representative surveys over a period of 18 years.

Table 1: Frequency of internet use in the Swedish population, 1995-2012 (percent)

	Never	Once the last 12 months	Once the last 6 months quarterly/ monthly	Once a week	Several times a week/daily	n=
1995	90	3	3	2	2	1,777
1996	79	4	7	4	5	1,779
1997	64	5	12	7	12	1,754
1998	49	4	13	12	22	3,561
1999	40	4	14	13	29	3,503
2000	37	3	11	13	36	3,546
2001	33	3	11	13	41	3,638
2002	30	3	12	14	41	3,609
2003	28	1	10	13	48	3,675
2004	28	2	8	12	51	3,612
2005	25	2	9	14	51	3,499
2006	23	1	7	11	57	3,336
2007	23	1	5	11	60	3,435
2008	20	1	5	7	67	3,259
2009	19	1	3	5	72	4,926
2010	17	1	3	6	74	5,007
2011	17	1	3	6	74	4,720
2012	16	0	2	5	77	6,289

Research on knowledge gaps and digital divides has shown that many factors interrelate when identifying both information-rich and information-poor, or users and non-users. To reveal how the independent variables chosen for the analysis affect internet use, taking into account all factors, a linear regression analysis was conducted for each year except for 1995. A couple of independent variables were not available this year, and the 1995 data therefore are not fully comparable. The value of the chosen model varies from year to year, and the overall explanatory power was strongest between 2002 and 2007, and weakest in the beginning and at the end of the period. In 2006 and 2007, the highest adjusted R^2 is found: 0.48. Many Beta values in **Table 2** are significant, pointing to the fact that socio-demographic factors, socio-economic background, work and study settings and social capital altogether constitute a relevant context for understanding the development of internet use. The analysis that follows focuses on determining what factors that had great importance at different times.

Age is the most significant factor of explanation for internet use throughout the whole period. Among the analysed factors, age has the highest Beta value over the years, varying between 0.48 and 0.20. The impact of age is weaker in the beginning of the diffusion process, which is in line with Rogers' (2003) description of so-called innovators. They are not necessarily as young as the group to follow: the early adopters.

In 1996, gender, social class and education were also strong predictors of internet use. Men, white-collar workers and the highly educated were more frequent internet users than women, blue-collar workers and people with an educational level below average. Over the years, the importance of gender reduces, both in actual numbers and in relation to age. In 2012, the impact of gender on general internet use was very small, but still significant.

As already mentioned above, household income was found to have some impact in the media technology diffusion process. In comparison to for instance age or gender, the present analysis points to a rather small value of income explaining the take-up of internet use. Significant correlations are found in the regression models from 1998 onwards. The significant Beta values vary between 0.07 and 0.13 and there is no clear peak over the years. The results are in line with recent findings of van Deursen and van Dijk (2014), who conclude that income proved to be less relevant than expected.

Another socio-economic measure already mentioned is class, which in the conducted surveys is a self-classification of family class in the household. Differences due to social class are statistically significant over the whole period. Internet use is more widely spread among people in white-collar households than among those in blue-collar households. Social class as explanatory factor of internet take-up plays its most important role between 1997 and 1999, then decreases in significance and is found to be of low, but still significant impact in 2012.

Level of education is included in the study for two purposes. The first one regards the relation between education and socio-economic status, the second one is about university affiliation as an arena for internet intense settings. The importance of education is significant, rather strong and fairly steady over the years studied. It is the second most important factor after age at most of the measurement points. The impact of education is weaker in the mid-1990s, and strongest in 2006 and 2007. Contrary to what is found in other studies (Hargittai, 2004; Rogers, 2003), the importance of education is less at the beginning of the diffusion process. There is reason to believe that people with a higher level of education have more computer-intense jobs than people with an education below average, and the findings indicate that this might have been reinforced over the years.

Together with university affiliation measured by level of education, employment status contributes to the understanding of external social factors in the diffusion process. It is evident, in **Table 2**,[1] that employment status has become increasingly important over time. Those employed especially, but also students, are far more likely to be frequent internet users than unemployed and retired persons. In the late 1990s, this had no significant impact on the take-up of internet, whereas it turned out to be one of the most important factors, aside from age, from the mid-2000s onwards. As more and more jobs are being

Table 2: Linear regression with internet use as dependent variable, 1996-2012 (standardized Beta)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gender	0,17 ***	0,15 ***	0,11 ***	0,12 ***	0,12 ***	0,10 ***	0,07 ***	0,10 ***	0,10 ***	0,07 ***	0,09 ***	0,07 ***	0,08 ***	0,06 ***	0,04 **	0,04 ***	0,06 ***
Age	-0,29 ***	-0,38 ***	-0,41 ***	-0,37 ***	-0,38 ***	-0,34 ***	-0,38 ***	-0,40 ***	-0,35 ***	-0,37 ***	-0,36 ***	-0,33 ***	-0,38 ***	-0,31 ***	-0,28 ***	-0,26 ***	-0,24 ***
Household income	-0,04	0,03	0,08 ***	0,13 ***	0,11 ***	0,13 ***	0,09 ***	0,10 ***	0,10 ***	0,12 ***	0,08 ***	0,12 ***	0,07 ***	0,10 ***	0,07 ***	0,08 ***	0,09 ***
Social class	0,20 ***	0,24 ***	0,24 ***	0,21 ***	0,17 ***	0,16 ***	0,19 ***	0,18 ***	0,12 ***	0,13 ***	0,13 ***	0,13 ***	0,13 ***	0,10 ***	0,08 ***	0,07 ***	0,08 ***
Educational level	0,14 ***	0,15 ***	0,13 ***	0,10 ***	0,16 ***	0,18 ***	0,16 ***	0,16 ***	0,18 ***	0,19 ***	0,20 ***	0,19 ***	0,17 ***	0,18 ***	0,18 ***	0,19 ***	0,17 ***
Employment status	-0,02	0,01	0,05 **	0,15 ***	0,18 ***	0,15 ***	0,17 ***	0,17 ***	0,21 ***	0,19 ***	0,21 ***	0,22 ***	0,19 ***	0,17 ***	0,23 ***	0,17 ***	0,16 ***
Household composition	-0,02	0,00	-0,01	0,00	0,01	-0,01	0,02	0,03	0,05 ***	0,03	0,04 **	0,05 ***	0,06 ***	0,06 ***	0,05 **	0,07 ***	0,04 ***
Social capital	0,04	0,10 ***	0,05 **	0,11 ***	0,07 ***	0,14 ***	0,11 ***	0,06 ***	0,11 ***	0,07 ***	0,10 ***	0,13 ***	0,01	0,05 ***	0,01	0,05 ***	0,04 **
Adjusted R^2	0,20	0,32	0,38	0,42	0,44	0,43	0,46	0,47	0,47	0,47	0,48	0,48	0,42	0,38	0,37	0,32	0,28
n=	1,165	1,246	2,564	2,233	2,363	2,452	2,615	2,715	2,683	2,648	2,525	2,582	2,445	3,628	2,432	3,350	4,474

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gender	0,17 ***	0,15 ***	0,11 ***	0,12 ***	0,12 ***	0,10 ***	0,07 ***	0,10 ***	0,10 ***	0,07 ***	0,09 ***	0,07 ***	0,08 ***	0,06 ***	0,04 **	0,04 ***	0,06 ***
Age	-0,29 ***	-0,38 ***	-0,41 ***	-0,37 ***	-0,38 ***	-0,34 ***	-0,38 ***	-0,40 ***	-0,35 ***	-0,37 ***	-0,36 ***	-0,33 ***	-0,38 ***	-0,31 ***	-0,28 ***	-0,26 ***	-0,24 ***
Household income	-0,04	0,03	0,08 ***	0,13 ***	0,11 ***	0,13 ***	0,09 ***	0,10 ***	0,10 ***	0,12 ***	0,08 ***	0,12 ***	0,07 ***	0,10 ***	0,07 ***	0,08 ***	0,09 ***
Social class	0,20 ***	0,24 ***	0,24 ***	0,21 ***	0,17 ***	0,16 ***	0,19 ***	0,18 ***	0,12 ***	0,13 ***	0,13 ***	0,13 ***	0,13 ***	0,10 ***	0,08 ***	0,07 ***	0,08 ***
Educational level	0,14 ***	0,15 ***	0,13 ***	0,10 ***	0,16 ***	0,18 ***	0,16 ***	0,16 ***	0,18 ***	0,19 ***	0,20 ***	0,19 ***	0,17 ***	0,18 ***	0,18 ***	0,19 ***	0,17 ***
Employment status	-0,02	0,01	0,05 **	0,15 ***	0,18 ***	0,15 ***	0,17 ***	0,17 ***	0,21 ***	0,19 ***	0,21 ***	0,22 ***	0,19 ***	0,17 ***	0,23 ***	0,17 ***	0,16 ***
Household composition	-0,02	0,00	-0,01	0,00	0,01	-0,01	0,02	0,03	0,05 ***	0,03	0,04 **	0,05 ***	0,06 ***	0,06 ***	0,05 **	0,07 ***	0,04 ***
Social capital	0,04	0,10 ***	0,05 **	0,11 ***	0,07 ***	0,14 ***	0,11 ***	0,06 ***	0,11 ***	0,07 ***	0,10 ***	0,13 ***	0,01	0,05 ***	0,01	0,05 ***	0,04 **
Adjusted R^2	0,20	0,32	0,38	0,42	0,44	0,43	0,46	0,47	0,47	0,47	0,48	0,48	0,42	0,38	0,37	0,32	0,28
n=	1,165	1,246	2,564	2,233	2,363	2,452	2,615	2,715	2,683	2,648	2,525	2,582	2,445	3,628	2,432	3,350	4,474

computerized, one might assume that employment would lose in explanatory power. The findings seem, however, to point to a segregated labour, which in turn could actually widen the existing gaps.

The last part of the analysis tests the explanatory power of social capital measured by household composition and socializing with friends. Previous research has found strong relations between use of media technology and people's social habits. For example, those included in social networks with family and friends have an advantage in that they are surrounded by support in using technology to a larger extent than more isolated persons (Haddon, 2000; Hargittai, 2004; van Deursen and van Dijk, 2011).

Results from international research are confirmed only to some extent in this study. Household composition has had weak significant impact on the take-up of internet from the mid-2000s. It is actually the weakest factor in the model, and sharing household with other persons – adults and/or children – proves to be of less importance than socio-demographic factors or external factors such as employment status and education. It seems that friends are more important than family on this matter. Significant correlations are found for socializing with friends on most of the measure points in the study. These are also weak – on about the same explanatory level as household income – and become weaker at the end of the period. People with a frequent social life have, over the years, been more likely to take up internet use than people who less frequently socialize with friends. The presented findings provide weak evidence for the bandwagon effect (Zhou, 2008) at the beginning of the diffusion process, while social capital seem to be of greater importance, the more people who are getting online.

Conclusions and discussion

The share of regular internet users has increased from year to year since the mid-1990s, when the internet was made available to a larger Swedish public. The graph gradient has been more or less steep at single measure points, which was expected against the background of technical availability – broadband, portable laptops, and smartphones – and the continuously ongoing development of content and services on the internet.

Throughout the years, several studies have pointed to different explanatory factors when trying to capture the diffusion of internet and digital inequalities. Socio-demographics, socio-economic status, employment status and university affiliation and social capital have all proven to be of varying importance at different times and in different situations. This study incorporated all the mentioned dimensions in a long-term, representative study to reveal which, at different times, best explained the take-up of internet use. From this study, it is evident that all other factors studied are subordinate to age. Age is the single most important factor explaining many media habits in society, and it seems that the explanatory value of age is particularly high when studying internet use.

At the last measured point presented, 2012, educational level and employment position have almost equal importance with age. Since these two factors have proven to be strong predictors of internet use for quite some time now, future initiatives to counteract

digital exclusion will continuously face challenges in these particular groups. It is likely that the patterns revealed here will be repeated in the diffusion processes surrounding future media, platforms, and applications appearing on the market.

The findings indicate that the concept of 'internet use' is changing over time. As the age factor continues to be the most important in explaining use, it is reasonable to assume that the scope of use is extending and transforming its significance for the respondents over time. The social profile of internet users will change with time, as it has for radio and television. Normalization is taking place. But also with shrinking gaps, it is likely that people with a longer acclimatization have an advantage when talking about internet skills, and by extension, internet use. Further, it is a well-known fact that people are more formative in the early stages of life (Corsten, 1999), which would make those who have grown up with internet technology more advanced and qualified users. More in-depth studies of motives and areas of use would probably reveal significant cohort differences, like those found for other media activities as for instance news consumption practices (Wadbring and Bergström, 2014).

The data presented do not take into consideration the development of the internet and internet technology. The internet known to us today differs radically from the one which we knew only some 10 years ago (Meikle and Young, 2012). Hardware and software development most certainly affect the adoption pace. Browsers, search engines and ongoing changes and improvements of web services could be thought of as driving forces in the context of use. It is beyond the scope of this study to include internet development in the analysis, but it is likely to assume that the importance of age for frequency of use could be related to the development of internet services and applications. The diffusion process in a way starts all over again with new features launched.

Verkasalo et al. (2010) argue that one should specifically address individual services when studying adaption of technologies or services. It is common in for instance the TAM model to treat services as generic concepts, which is also the case for internet use in the present study. The findings do not reveal how characteristics in different devices or applications affect the will to adopt technology or the pace of diffusion.

Digital skills, as opposed to social skills, have proven to be important in relation to online communication and social interaction (Helsper and Eynon, 2013). Digital skills are not taken into consideration in this study and can only be traced indirectly via workplace and university experiences and social habits. Related to the ambition of this general overview is also the question of societal implications, such as participation in online politics, journalism, and other areas. Participating is not just about what technologies we possess or use, but also the extent to which we can fulfil various social roles and seize our social rights and citizenship (Haddon, 2000). General internet use does not give the whole picture of how people engage in different societal matters; it can only be understood as a basic condition for potential participation. But since the conducted analysis clearly has pointed out a few factors of great importance in the diffusion process, the general usage patterns

will likely have implications for what people adopt from existing and future internet content and services.

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Note:

[1] The question for the dependent variable was posed: How often during the last 12 months have you used the internet? A seven-point scale was used: *Several times a week, Once a week, Once a month, Sometime in the quarter, Once during the last 6 months, Once during the last 12 months, Never.*
Independent variables:
Gender: dichotomous, women (1), men (2)
Age: continuous.
Social class: blue-collar worker (1), white-collar worker (2).
Educational level: low (1), middle (2), high (3).
Employment status: retired (1), unemployed (2), student (3), employed (4).
Household composition: single (1), household with other adults/children (2).
Social capital: How often during the last 12 months have you hanged out with friends? A seven-grade scale was used: *Never (1), Once during the last 12 months, Sometime in the quarter, Once a month, Once a week, Several times a week (7).*
*p<0,05, **p<0,01, ***p<0,001.