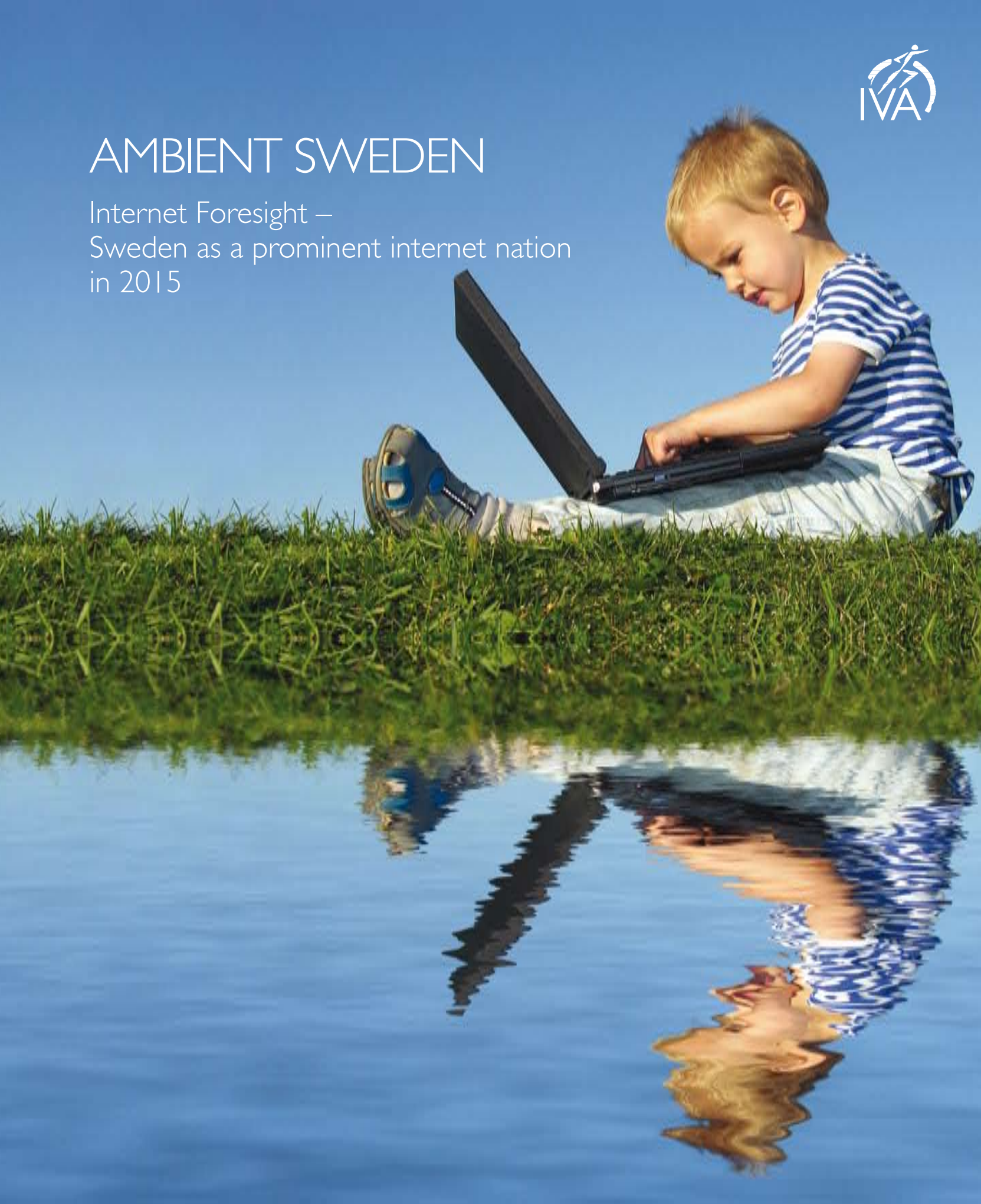




# AMBIENT SWEDEN

Internet Foresight –  
Sweden as a prominent internet nation  
in 2015



# Summary

The Internet is playing an ever more important role in our lives. Today, private individuals, businesses and organisations are dependent on the Internet for numerous functions in both business and private life. The need for infrastructure and Internet services is rapidly growing. Among other things, the Internet offers a multitude of opportunities for companies and government agencies to expand and improve their offerings. A determined effort towards integrating information technology in society is also helping to reduce the impact on the climate by reducing the need for travel and rendering transportation more efficient. In many respects Sweden is already at the forefront of development. If Sweden is to maintain its position, it is vital that we as a nation play an active role in influencing development in the area. Issues concerning the future of the Internet affect many people and organisations. Developing proposals for steps to take so that Sweden can be a prominent Internet nation in 2015 has been the goal of the work presented in this report.

In IVA's *Internet Foresight* project around 50 experts have worked intensively with issues concerning the future of the Internet. They include individuals who have built up the Internet in Sweden, people from the private and public sectors who are knowledgeable in this area and individuals who are well-informed about research into the future of the Internet and Internet-based services. Three expert panels have addressed the issues from three different perspectives: the user perspective, infrastructure requirements and security and legal aspects. The work of the expert panels is presented in separate reports that can be ordered or downloaded from IVA's website: [www.iva.se/internetframsyn](http://www.iva.se/internetframsyn)

The prospects for Sweden to strengthen its position within the Internet field are good. According to the latest statistics from the Swedish Post and Telecom Agency (PTS), Internet access in

Sweden is among the highest in the world. In 2007 demand for mobile Internet grew significantly. Children and teenagers regard the "Web" as a natural and self-evident part of their everyday lives. But the older generations are also getting more and more from what the Internet has to offer.

Numerous players are focusing on securing a strong position in the market. On the commercial side, we see international corporations such as Intel, Google and Ericsson advancing their positions through acquisitions. Fresh statistics from the Institute for Advertising and Media Statistics (IRM) show that advertising on the Internet increased by 230 per cent from 2005 to 2007, from SEK 1.7 billion to SEK 4.1 billion. The value of Internet advertising is now almost equivalent to TV advertising. More and more organisations are choosing the Internet as a channel for marketing as well as information and communication.

In reports from the World Economic Forum we see that countries with a well-developed IT sector tend to have greater growth. Other factors are, of course, contributing to growth, but countries such as the US, South Korea and Sweden have enjoyed a long period of growth above the OECD average. One explanation is that they have a high percentage of IT-based companies, but also high IT use within the private and public sectors.

The development of the Internet has been fast and its emergence has not been accompanied by any real control measures. This has resulted in a number of negative consequences. We are all familiar with the existence of such phenomena as spam, child pornography, chat forums where people pose as someone else, bullying and illegal trade with medicine and drugs, as well as illegal file sharing. These crimes and behaviours themselves are not new, but the Internet has made it easy to be anonymous and to act in a lawless realm. For some, the Internet has become a separate virtual world where national and international re-

gulation and laws do not apply in the same way as in the physical world. Criminal and unethical behaviour on the Internet often goes unpunished, which is also part of the reason for its success and popularity. Doing nothing about these negative consequences could erode confidence in the Internet. Loss of confidence will result in users turning their back on the Internet and ceasing to use services that involve economic transactions and personal information. Lack of trust also means more manual work, instead of the simplification of administrative tasks that the Internet otherwise can offer. Efforts to promote trust in and ethical behaviour on the Internet are therefore an important concern for everyone in society.

For various reasons, Sweden should be and is capable of being involved in leading development in this field. The project has identified a number of areas that are crucial to development. Below are the project's proposed measures to ensure that Sweden will be a prominent Internet nation in 2015:

### **New opportunities for businesses and the public sector**

By building further in areas where we are already strong, Sweden can, by 2015, be a leader in mobile Internet, be best at e-administration and green IT, and also be regarded as a pioneer within digital media distribution. This requires determined and targeted initiatives and investment.

### **Raise the level of trust in the Internet**

This can be achieved by generally increasing awareness of the importance of information security among users, businesses and the public sector. Internet infrastructure needs to be robust, i.e. providing uninterrupted and high-quality service. Introducing a general and accepted national e-identification system is another measure that could increase the level of trust in the Internet.

### **A common service market**

Internet users must be able to get the services they need independent of access and carrier networks. This is not the case today. Steps should therefore be

taken to make it possible to create common services such as e-mail addresses that follow the user and not the operator; communication services such as video conferencing or TV and music services that are not dependent on which operator a user is connected to.

### **Infrastructure for future Internet services**

The capacity requirement for an average user is 100 Mbps – both via fixed and mobile connection. To meet this need we must have long-term and predictable regulation that does not present an obstacle for investment in the area by operators and other players. Nor should there be any inappropriate competition through tax financed expansion of broadband networks. A system involving buying services in a competitive environment should ensure that even individuals and businesses in areas where market players are not investing fully will also have access to broadband.

### **A business-friendly climate**

The prospects for starting, expanding and operating businesses must be as good or better than in the countries with which we are competing. This involves everything from exploiting innovation to seed financing and having a simple set of rules. The rules need to support foreign citizens and people with the necessary skills with the desire to work and live in Sweden, enabling them to do so.

### **The distance between steps on the digital ladder will be reduced through increased competence**

In the past we have talked about a digital gap between those within the information society and those on the outside. Now we see a digital ladder where new steps keep appearing – for all users. There are many different levels of digital competence, and the different levels (steps on the ladder) are not static, but are instead constantly changing as the technology is developed. In order for Sweden to take the lead as a prominent Internet nation in 2015, we need a conscious effort to help and inspire people to climb the digital ladder. This needs to be a joint effort of the public sector, schools, labour market players and citizens' organisations.

## A flexible working life

In 2015 there will be a strong demand for a new order in the labour market. Distance work could be a success factor for Swedish industry and the public sector. New forms of communication are supporting regional development. Systems and applications that facilitate more personal contact from a distance via the Internet are necessary if Swedes are to climb the digital ladder. In order to attract competence, reduce the need for physical meetings, free up resources, reduce personal stress levels and help to reduce environmental impact, it is important to promote a more flexible working life using the Internet as a tool. The various parties in the labour market need to develop a new order for a flexible future working life.

## Introduce computer studies and IT-based teaching in schools

We need to develop teaching methods for all subjects that make better use of the opportunities offered by IT and the Internet. Investment in this area should include resources for pedagogical research, teacher training in technology use and development of the appropriate tools. In this context, Swedish innovation companies could play an important role, both nationally and internationally. We would also like to see a new compulsory subject – computer studies – introduced into the school curriculum. Computer studies should cover technology, ethics and media scrutiny, all of which are important skills to possess in order to climb the digital ladder.

## Research and innovation that places Sweden at the top

In Sweden we have teams of world class researchers as well as numerous researchers with the potential to become world-class experts. Maintaining and expanding this research front is essential if Sweden is to be a successful Internet nation. We propose the establishment of an "Internet of the Future" committee tasked, among other things, with producing the basis for a research budget. Internet foresight must help to ensure that Swedish industry is competitive and stimulate the creation of new enterprises.

## International profiling

Swedish players need to continue to actively participate in international organisations that focus on Internet use and standardisation, particularly within mobile Internet, e-administration, green IT and digital media distribution. Swedish players must actively participate in important, tone-setting conferences. The fact that both Swedish and foreign companies have a positive view of being established in Sweden reinforces our position. In order to achieve coordination at the national level and to be in concordance at the international level, we propose the creation of a network. The main purpose of the network would be to work with initiatives that are structured, long-term and predictable.

With the initiatives and measures in the above-mentioned areas, we believe that Sweden can achieve its goal of being a leading Internet nation in 2015. To ensure that this happens, we would like to establish a programme – *Ambient Sweden* – to realise the proposals generated by *Internet Foresight*. The *Ambient Sweden* programme will drive the development and implementation of the proposals. IVA is an appropriate organisation to continue to promote these efforts and initiatives, which should be carried out in cooperation with a broad range of other players. The programme should be launched in the first half of 2008 as this could generate additional detailed materials to use during Sweden's chairmanship of the EU in autumn 2009.