STAGE (Science, Technology and Governance in Europe)
Discussion Paper 5
June 2004

Questioning the Finnish model – Forms of Public Engagement in Building the Finnish Information Society

Antti Pelkonen
University of Helsinki, Department of Sociology,
Research Group for Comparative Sociology
antti.pelkonen@helsinki.fi

STAGE is a thematic network under the Fifth Framework Programme (HPSE-CT2001-50003). STAGE gratefully acknowledges the support of the European Commission.

1 Introduction

In the mid 1990s the fast rise of the Finnish information and communication technology cluster started to receive international attention. In particular, the enthusiasm of the Finnish people to use mobile phones, the success and transformation of Nokia from a rubber boot manufacturer into a global leader in mobile communications as well as Linus Torvalds, the creator of Linux, were objects of international interest. The Finnish economy was taken as an example of how the production and use of ICT can change the economic structure, increase productivity and promote economic wellbeing. International competitiveness rankings ranked Finland in the top positions and the ICT-driven economic recovery was termed as the "Finnish miracle" (e.g. Brenner 2003).

Recently, Manuel Castells and Pekka Himanen have considered Finland as a paradigmatic model of societal transformation in that it has been able to combine a highly competitive economy with an inclusive welfare state (Castells & Himanen 2002). They regard the Finnish model as an information society that is open and based on well-being and argue that the strong emphasis on the welfare dimension differentiates the Finnish model from two other highly competitive information societies, the U.S. and Singapore. For Castells and Himanen, the Finnish case shows that a competitive information society and inclusive welfare state do not rule out but support each other and can be developed simultaneously. The information society creates the economic basis of the welfare state while the welfare state is responsible for the educational, health and social services needed in order to have educated people in the economic sector.

The Castells' and Himanen's account of the Finnish transformation can however be problematized in several ways. In particular the welfare dimension of the "model" must be scrutinized. Even though Castells and Himanen conclude that the Finnish welfare state has not been dramatically cut, several recent studies point to significant transformations in the Finnish social and health policies during the 1990s (e.g. Julkunen 2001). These accounts refer to reduction of the functions of the state and to the rise of market orientation (e.g. Häyrinen-Alestalo 1999; Julkunen 2001; Kantola 2001). According to these views, the market oriented state has emphasized economic competitiveness and restricted its welfare dimension.

Moreover, Castells and Himanen pay only little attention to citizens and their concept of social inclusion tends to ignore aspects of public participation. Although they emphasize the social inclusiveness and talk about "social hackerism" as examples of civic initiatives, their model does not seem to take the problem of the role of the public in the Finnish model very seriously. Social inclusiveness is used mainly as catchword and what the inclusiveness actually means it is not analysed. Furthermore, the particularly high unemployment rate in Finland already points to severe problems of social exclusion.

This paper aims at specifying and criticizing Castells' and Himanen's model by looking at the building of the Finnish information society from the perspective of public participation and engagement. Given the significance of the information and communication technologies in the Finnish context it is important to look at the ways and degree in which the public is included and excluded in the governance of information and communication technologies.

How is the role of the public understood in the Finnish ICT policy? What kind of opportunities for public participation have there been?

The paper applies a conceptual framework that looks at the role of public participation in the governance of science and technology (see Hagendijk & Kallerud 2003). This typology includes six types of governance which vary in respect to the role played by the public and the experts, openness of the process, tendency towards hegemonic power constellations and whether the process is likely to take place in public or private arenas. In the governance of the Finnish information society, the state-centred corporatist model as well as a commercially oriented market model are the most visible forms of governance. Moreover, educational governance seems to remain strong, in particular in the public information society strategies, while there are only limited traces of deliberative and agonistic forms of governance.

The paper comprises three chapters. The first chapter aims at giving an overview of the context of the ICT cluster in Finland. The second chapter analyses the general ICT policy from the governance perspective while the third chapter looks more closely at the role of the public through three examples: the conception of the public in the national information society strategies, the local initiatives for building the information society and a recent government initiated online debate on the future of the Finnish information society. Various types of data have been used in the analysis. Besides official policy documents on ICT policy and information society, 10 interviews with representatives from the public organisations responsible for ICT issues have been carried out. In addition, the online debate consists of'its own source of data.[1]

2 The "Finnish Miracle" in Mobile Communications

In the early 1990s the Finnish economy was hit by a severe economic recession which was due in particular to the collapse of the trade with the Soviet Union and to a severe bank crisis. In the end of 1980s the Finnish GDP had grown 5 per cent annually, but in 1991 and 1992 the growth turned into a decrease of 7 and 4 per cent respectively. The downswing of the economy was particularly severe: in similar economic crises in industrialized countries the decrease of GDP has often been 2 per cent. The rise of unemployment was remarkably fast: in 1992 the unemployment rate in Finland was one of the smallest in Europe, but in 1993 it was nearly 20 per cent, the highest in Europe after Spain. Such transition from a country of almost full employment into a country with high unemployment is unique in the OECD countries after the second world war (Kantola 2002).

In the middle of the 1990s the breakthrough of the GSM-technology and the rise of the ICT cluster led the whole economy back onto the growth track and the information and communication technology cluster became the most dynamic and competitive sector of the

[1] Saara Kupsala and Emilia Pöyhönen from the Research Group for Comparative Sociology have helped in analysing the data.

economy. In the history of Nokia, the leading ICT company, the economic crisis is actually regarded a key feature behind the subsequent rise of the company and the whole sector as the crisis forced to it modernize and rationalize structures and activities (Häikiö 2001). In the early 2000s the ICT cluster has become the largest industrial cluster in the country. The transformation from an economy dominated by forest and metal industries into a high tech driven economy has been remarkably fast. The share of electronic and electrical industry of the value of the industrial production has grown from 6,7 per cent in 1989 into 22 percent in 2002 (Statistics Finland 2000; 2004). Also the structure of the exports has changed radically. The share of electronic and electrical industry in Finnish exports has grown from 4 percent (in 1980) into 35 percent (in 2002) and it has become the largest export industry (Tullihallitus 2001; Paija 2001; Statistics Finland 2004). These changes meant that Finland became globally the leading country as regards to the surplus value of high tech trade and most notably in the export of telecommunications equipment (OECD 2001: 249-257). While the economic recovery has been particularly fast, the unemployment rate has remained high, around 11 per cent.

Mobile communications has been the most successful sector in the Finnish ICT cluster which centres upon communications equipment manufacturing and service provision (Paija 2001: 15). The cluster is largely formed around one dominant firm, Nokia. At the end of 1990s Nokia represented a fifth of the country's total exports and at its peak in March 2000 Nokia's stock worth was $ 300 billion, more than any other company in Europe. Although Nokia is currently known as a global leader in mobile communications, it has a history of over 140 years with experience in business in several fields such as pulp and paper and cable manufacturing. Given its current success, it is worthwhile to note that in the late 1980s Nokia was nearly bankrupt. At that stage Nokia sold a majority of its other lines of business and concentrated on mobile communications, mobile phones and networks which opened the way for the breakthrough. At that time Nokia also chose its current strategy where it aims at building strong networks with its subcontractors and customers (Castells & Himanen 2002). Indeed, the network of subcontractors and other firms that has developed around Nokia has been essential for the Finnish ICT cluster. Although Nokia accounts directly for 30 per cent of the cluster's employment, for a half of the sales of the cluster and around 70 percent of its exports, the three hundred subcontractors and almost 3 000 other firms of the cluster have been able to grow and take advantage of the success of Nokia.

The success and fast growth of Nokia has made it dominant and very influential in Finnish society. The statements of its leaders on Finnish tax rates have been taken very seriously by governments and the question of how long Nokia will keep its headquarters in Finland has become a issue of national interest. Thus it has been argued that Nokia has become a "state within a state" and it has also been questioned whether it has become too big for a small country like Finland (cf. Cowell 2002).

2.1 New exclusions and inenqualities

Finns have been considered to have a very positive attitude towards new technologies (e.g. Miettinen 2002) and the success of Nokia and the Finnish ICT cluster owes a lot to this fact.

In the introduction and use of mobile phones Finland has indeed been one of the top countries. The first commercial GSM network in the world was opened in Finland in 1991 and Finland was also the first country to give out the licences for the building of the 3rd generation UMTS networks in 1999. In the sparsely populated country with long distances, the mobile phone penetration is one of the highest in the world: in 2002 87 percent of the population had a mobile phone (Statistics Finland 2003). The growth in mobile phone use was very fast during the 1990s as the share was 4,5 in 1990 and 25 in 1995 (Statistics Finland 2001; Koski et al. 2002).

Internet penetration and use of personal computers are also very high in Finland: in 2000 Finland ranked second after the U.S. in the number of internet hosts and among the top countries in the use of personal computers (Statistics Finland 2001). Internet connections from homes are still not, however, that common. Currently about 40 per cent of households have Internet connection (Tietotyhteiskunnan kehittämiskeskus 2003). In electronic commerce and business Finland is an average European country but still clearly behind the U.S. (Koski et al. 2001).

The adoption of new technologies has, however, brought about new tensions and tendencies towards new exclusions. Changes in banking services provides one example. The banking sector has been the most active sector in the Finnish economy to adopt information and communication technologies. Both mobile services and on-line bank services are the most advanced in the world: in 2002, 92 per cent of the payment transactions between banks and customers were based on electronic data transfer (Statistics Finland 2003). The introduction of ICT in the banking sector has led to drastic rationalisations and reductions in outlets and jobs as well as discussions on the quality and pricing of traditional banking services: especially old people prefer to pay bills and withdraw money at the bank desk but banks have raised the price of such services dramatically.

The ICT boom of the 1990s has also had important effects in the regional development of the country. Regional polarisation between the capital region and more peripheral regions is remarkable in Finland and in general Finland has the largest regional variations among the Nordic countries (Hanell et al. 2002). Variations in unemployment rates between regions in Finland are so striking that among EU countries it is rivalled only by the split between southern and northern Italy and that between eastern and western Germany (Ibid. 15). Furthermore, the migration towards capital region in Finland has been notable in recent years, matched only by that of Iceland among the Nordic countries (Ibid., 20).[2]

The ICT-driven growth has contributed to the regional polarization and tended to increase regional inequalities. The Helsinki region and Tampere in the south and Oulu in the north have been the fastest growth poles as the new ICT entrepreneurship has tended to concentrate on areas where there already are firms in the same cluster. Currently these three regions account for nearly 70 per cent of the total R&D expenditure in the country (Statistics Finland 2002a). The peripheral regions in the northern and eastern parts of the country have been

[2] In Finland, the capital region's share of national population was 22 per cent in 1970 and 27 per cent in 2000 (Hanell et al. 2002, 20).

increasingly losing population and lacking entrepreneurship. The growth of Nokia has also increased regional income differences: the regions where Nokia mainly operates – Helsinki, Salo and Oulu – correspond with regions where household incomes are among the highest. Between 1995 and 2000 household incomes have grown fastest in these three regions with Salo having the highest rate of growth (Statistics Finland 2002b). Spreading the success of the few growth poles to larger parts of the country has indeed become an important challenge for the policy makers (Hanell et al. 2002; Pelkonen forthcoming). Since the electoral victory of the formerly agrarian Centre party and the formation of the new government of the centre party and social democrats in spring 2003, regional aspects have regained increasing weight in government policy.

2.2 After the recession of the new economy

In the early 2000, the global ICT recession also hit Finland. At that time the ICT cluster had become the third strong industrial cluster alongside the traditional forest and metal clusters. The criticism and suspicion on the continuity of the ICT-driven growth model started to increase as the growth of the global economy slowed down, the bankruptcies of the internet companies got underway and the value of the "new economy" firms vanished on the stock exchange (e.g. Koski et al. 2002). These changes were particularly dramatic in the US but they had similar influences in Finland as well. While Nokia's success in the mobile phones has continued, the company has had troubles in particular on the side of network production. In early 2000 Nokia lost 80 per cent of its stock value and fired 7000 employees.

The telecom operator Sonera's problems have been even more severe. In the mid 1990s Sonera, the former state Post and Telegraph Office, was considered as one of the most advanced operators in the world, but investments in the German UMTS licence nearly destroyed the company. Sonera's investment of 4,3 billion euros in the German market has been considered as the biggest misinvestment in the Finnish economic history and has been compared to the war indemnity that Finland had to pay to the Soviet Union after the second world war (Mölsä 2002). The state still is the principal shareholder in Sonera and a lot of criticism has been directed to state's ownership policy in the Sonera case. Also Sonera's problems have led to a reduction of employees: Sonera fired 1000 employees in 2001 and continued in 2002 and 2003. Although generally the numbers of fired employees are quite small in Finland compared for instance to Nokia's Swedish rival Ericsson (40000 employees fired in two years from[or 'by'?] early 2000), the particular case of another telecom operator, Elisa, led to a vivid public discussion on corporate social responsibility. Elisa fired 1300 employees in 2003 and particularly the fact that Elisa was already making a profit when it gave the employees notice made the employees as well as the general public furious.

Recently the so called China phenomenon – the transfer of industrial production to countries with low labour costs – has raised serious questions about the future of the ICT sector and industrial production in Finland more generally. The praise of "ICT as the third permanent industrial bedrock" (Sasi 2001) has turned into an increasing political need to merge the "new" and the "old" economy (Mönkäre 2002; Prihti et al. 2001). Subsequently, the

discussion on whether the Finnish economy is dangerously dependent on the ICT cluster and on Nokia in particular has been going on (e.g. Mönkäre 2001; Alkio 2001; Junkkari 2001). Indeed, also many of Nokia's contractors have had to cut down their activities in a dramatic way. Recent studies estimate, however, that Nokia's network has been able to survive the recession (Koski et al. 2002). As a consequence of the downswing of the ICT cluster, increasing expectations have been directed at the commercial prospects of modern biotechnology. Currently it seems, however, that it is highly questionable whether biotechnology is able to fulfill its economic promise and that patience of the political elite in waiting for commercial breakthroughs in biotechnology is coming to its end (Häyrinen-Alestalo & Snell 2004; Miettinen 2003).

Although Finland has undoubtedly been one of the leading countries in the breakthrough of information and communication technologies in the late 20th and early 21st century, recently there have been increasingly critical tones concerning the information and communication technology cluster in Finland. While Castells and Himanen (2002) emphasize the use of information technology in social, health and educational purposes, recent studies indicate that their view seems to be exaggerated. In general terms, the effect of ICT in the Finnish economy has mainly become from the production of ICT, while in the use of ICT Finland has been an average country. According to Rouvinen (2002), Finland is indeed the most competitive country in the production of ICT, but in the use of ICT Finland ranks only 17th after all other Nordic countries and Korea and Slovenia for instance. This indicates that Finland has not been able to spread the benefits of ICT to other sectors of the economy and society. In the U.S. for instance the situation is the opposite (Jalava & Pohjola 2002). The development of eGovernment in Finland has been particularly slow. In the use of ICT in health care, the Macro Pilot project (1999-2001) of the Ministry of Social Affairs and Health has been the a major initiative, the largest in Europe. Although Castells and Himanen are very optimistic about the project, the evaluations, however, show that the project was mainly a big failure: new IT solutions for health care were not found and reforms in social and health services were not created (Ohtonen 2001; Tarkiainen 2002). Moreover, recent studies indicate that while Finland invests heavily on knowledge and knowhow, it seems that these investments are not resulting in increasing use of information and communication technologies and increasing productivity and growing number of innovations, entrepreneurship and foreign investments (Naumanen 2004).

3 Fusion of Corporatist Market Governance – The Finnish National ICT Policy

Generally speaking, public policies related to ICT in Finland have been based on two main foundations. On one hand the national technology policy has been founded on a clear prioritization of technological fields with information technology being one of three main priority areas. The foundations of the current technology policy were laid in the early 1980s when information technology, biotechnology, material technology and energy technology were identified as the key future technologies (Komiteamietintö 1980: 141). During the following two decades ICT, biotechnology and material technology have indeed been the

main objects of public R&D funding. ICT has received more public funding than any other field of technology during the last two decades: in the 1980s the emphasis in the funding of the National Technology Agency Tekes was clearly in information technology and in the 1990s approximately one fourth of the funding of Tekes was directed to ICT (Pelkonen 2003). In the late 1980s Tekes was criticized for overemphasizing the ICT field (Lemola 2001: 41). On the other hand, in telecommunications policy the emphasis has been put on market liberalisation and deregulation instead of state regulation since the early 1980s. In the following, the national ICT policy is analysed in the light of the types of governance.

The Finnish ICT policy can be mainly described in terms of corporatist and market models of governance. In a way however there is an underlying tendency towards discretionary governance. There still seems to be quite large implicit public trust towards science and technology policy and ICTs as well. There are only very weak signs of agonistic forms of governance in technological issues. On the contrary, the other side of the "Finnish model", the welfare dimension has been the object of public demonstrations, as in spring 2002 when proposals to close down public libraries, health and day care centres and playgrounds in the capital region cities led to demonstrations. Mobile phone radiation and safety is an issue related to information technology that could potentially develop agonistic forms of governance. So far it has been very weakly discussed theme in Finland although there is one NGO that strongly opposes the current economy and market based framing of technological issues. The Finnish Association for the Electro Sensitive considers that the issue should be framed in terms of health perspectives and claims that the current GSM technology should be changed to a safer technology. The issue has however been weakly dealt in the public arena. When it has been discussed in the media, references have often been made to protests in other countries (e.g. Palo 2002; Pugin 2002; Manninen 2003) rather than to the situation in Finland. The dominant economic significance of the ICT sector in the country may in this respect function as a factor that tends to censor the discussion.

Another issue that tends to develop agonistic forms of action relates to the above mentioned transformation towards electric banking services and the subsequent degradation of traditional banking services. Here in particular old people have opposed the again very economic framing of the issue. A third example of agonistic forms can be found in the late 1970s and early 1980 when information technology and automation was introduced to working places. The trade unions opposed the trend and was concerned that automation would destroy jobs and lead to bad working conditions. Here the issue was governed in a corporatist way as a broad committee was established to study the social and economic effects of information technology (see Komiteamietintö 1980). The committee concluded that the net effect of information technology on employment will not be negative and recommended the public sector to invest in new technologies and support their introduction in society.

3.1 Telecommunications policy by market forces

Although generally the state penetration into economic activities has been strong in Finland, the telecommunication sector is different in this respect. The Finnish telecom sector is peculiar in the European scale in the sense that it has never been dominated by a state

monopoly but it has always been based on competition among local telecom operators. Competition in telecommunications in Finland originates from the pre-independence era when Finland was part of Russia. In 1879 the Finnish Senate made a decision that – in order to avoid Russian intervention – Finnish telephone activities must be left to the private sector (Steinbock 2000, 20-21). In most European countries telephone was regarded as the exclusive right of the state which resulted in state monopolies. The Finnish model resulted in economic competition: at highest there has been over 800 Finnish telephone companies in the 1930s (ibid. 22), and currently there are about 50 operators.

Given the competitive basis in Finnish telecommunications starting the liberalization of markets in the mid 1980s was easier in Finland than in many European countries since there already were more than one actor in the market. The start of deregulation and liberalisation however happened in the midst of the still strong welfare state period with rigid state regulation. Compared to other European countries, Finland was early to adopt the strategy of market liberalisation. The main phases of liberalisation took place between 1987 and 1994 as competition in corporate networks and data transmission (1987), in data networks and GSM-networks (1990) and in local, long-distance and international telecommunications (1994) were liberalized. In practice the liberalisation has meant that new actors have been able to enter the market without heavy licence conditions. For instance, when the GSM-licences were granted in 1990 it was clear that the licences were granted to two camps instead of only giving it to the state-owned telecom operator. Recently also the Finnish broadband policy has been particularly market oriented.

Early liberalisation of telecommunications markets is often regarded as one of the success factors behind the "Finnish miracle" in mobile communications together with the early breakthrough of digital technologies (e.g. Pursiainen 2003; Häikiö 2001). The Finnish approach has been termed as "telecommunications policy by market forces" where the state regulation is as light as possible (Pursiainen 2003, 15) and the role of the state is limited to the creation of preconditions for firms to act in the markets. The policy is based on the belief that relying on competition and markets also provides the consumers with good services (e.g. Ministry of Transport and Communications 2003).

And I would understand it like that and why it is considered good is that it is the doctrine that currently dominates. So competition really produces efficiency which means benefits for customers and products and it promotes business development. (A representative of the Finnish Communications Authority, 25.3.2003.)

In the light regulatory framework the role of the public, then, is mainly played out in terms of consumer choices in the market place. The citizens are primarily regarded as consumers of the ICT products and services.

And it means in practice that, from the perspective of communications policy, it would be more descriptive to talk about an end-user who is actually a citizen who uses this equipment. And our objective is to make sure that these end users, citizens, have the best possible services in their use. (A representative of the Ministry of Transport and Communications, 7.5.2002.)

The rising importance of consumers alongside citizens has been a global trend in recent decades. While some have argued that the increasing influence of consumers in the market

increases democracy, consumers' influence in political decision-making is limited. Although consumer choices in the market may in some cases affect policy-making, primarily and more directly they have impact on firms' strategies and actions. Moreover, actions and preferences of a single consumer are not influential as such, but gain importance only in aggregate, in relation to actions and preferences of other consumers. In this respect, market governance is also sensitive to agonistic forms of governance through boycotts and consumer protests for instance. There have not however been such agonistic actions so far in the Finnish ICT scene.

The market orientation also tends to challenge old principles of the welfare state - such as equality - based on the idea of citizenship. Equality between regions and social groups has been one of the core ideas of the Finnish welfare state. As market governance is based on the functioning of the market mechanism and regards citizens primarily as consumers, the equality perspective tends to become marginalized. In Finland regional equality tends to become a challenge for market governance in ICT as the market mechanism is incapable of bringing certain ICT services such as broadband services to the more peripheral regions of the country.

3.2 Restricted deliberations inside the corporatist governance model

The prevalence of cooperative committees and a networked culture of action between the public and private sectors has been a peculiar feature in ICT policy in Finland (e.g. Huuhtanen 2001). In this model, the role of the trade unions has been particularly important together with representatives of the state administration and industry. Such corporatist arrangements have been characteristic in Finnish politics since the 1960s when the dominant politico-administrative ideology emphasized the creation of a uniform network of welfare services and the formation of an integrated negotiation and contract mechanism concerning central decisions in economic and labour market policy (Nousiainen 1998, 92). Since the end of the 1960s the consensual dimensions of the system have intensified as the state has granted interest organisations permanent positions in the planning and decision-making system in certain policy domains. The core of Finnish corporatism has been the general incomes policy settlement where since the 1970s the state, employees and employers have made a centralized agreement on the wage level and working conditions. The significant role of the trade unions has been related to the high degree of unionization, which has been nearly 80 per cent. In this respect the ICT sector has been exceptional since the employees in the ICT sector have not generally been active to unionize. During the ICT boom the sector was unorganised and it was only when the ICT recession came in the early 2000 that the employees started to join unions.

Strong corporatist tones can however be identified in the development of the governance of the sector. In the 1970s – when important public measures were carried out in order to promote research and development in ICT – the establishment of public sector based committees was seen as the key element for the development of the field in Finland. Such committees were established already in the 1950s within the scientific community while from the 1960s onwards state-led committees including representatives from industry, universities and the trade unions, became commonplace. The Committee for Computer Policy, established

in 1972 to govern the state computer procurement and the Advisory Board for Electronic Data Processing Industry, established in 1975 as a forum between public and private sectors, users and experts in the field were among the first state-led committees. The latter forum which was working until the 1990s can be regarded as a good example of the corporatist culture of action where the negotiative [negotiated? negotiation of?]links between the state and industry have been important. In addition to the representatives from the state administration, the board was comprised of representatives from higher education, research, industry, banking sector, and trade unions (Huuhtanen 2001: 16). The trade unions have been a key player in the corporatist governance system and it was particularly significant in the establishment and work of the above mentioned (pp. 7) technology committee (1979-80). The trade unions were concerned on the social and economic effects of microelectronics and automation and the committee was established to study this issue.

Traditionally the Finnish corporatist governance model has been consensus-seeking and has not been very inclusive. Recently, however the parliament and the government have started to consider how direct citizen participation can be increased and how representative and participatory democracy can complement each other (Council of State 2002). In the context of the recent reform of the central administration, the emphasis was put on increasing transparency and hearing the citizens (Ministry of Finance 2002). Although the civil society has long been active and well-organised (e.g. Siisiäinen 1999), non-governmental organisations are less integrated to policy-making than in other Nordic countries in general (Bouckaert et al. 2000: 15, 18). Representatives from the state administration tend to regard the significance of NGOs as rather small while the NGOs consider that their opportunities to take part in policy-making should be increased (Virtanen 2001: 43). Also the corporatist governance model in ICT has been exclusive even though in the late 1990s and early 2000s there have been attempts towards some kind of integration of NGOs in policy-making. The Information Society Advisory Board, a broad discussion forum on the ICT and information society issues, is an example of a more inclusive model. The board was headed by the Minister of Transport and Communications and its members included ministers as well as representatives from state administration, firms, employers and employees organisations as well as NGOs. The board was in office between 1999 and 2003 and there were representatives from such NGOs as the Mannerheim League for Child Welfare, the Regional Council of North Karelia, the Swedish Assembly of Finland and the Association of Finnish Local and Regional Authorities. Its successor, the current Information Society Council, is headed by the prime minister and its membership is even larger. The NGOs are represented by over 10 organisations including the Regional Council of Lapland, the Union for Rural Education, the Workers' Educational Association and the Finnish Consumer Association.

Similarly, there has recently been increasing integration of NGOs in the formulation process of the national information society strategies. The first Finnish information society strategy was formulated in 1994-1995 in a closed process by a small working group consisting of representatives from the state administration. The final strategy or draft versions were not circulated for comments. The outcome was a programme that emphasized economic and technological aspects and left social dimensions very much untouched (see e.g. Pelkonen 2003). The strategy was subsequently adopted as official information society strategy by the government. Due to the shortcomings of the first strategy a new strategy process was started

soon after the completion of the first and a new strategy was published in 1998. The second strategy process was more interactive and not only top down but also bottom up-approaches were used. NGOs were called to participate in the process and 53 NGOs took part in the strategy process. Public hearings or other participatory events were not organized. This programme, however, never gained the status of an official governmental strategy.

Although there are such signs of opening towards more inclusive models, the general model is still rather exclusive and shows only restricted deliberative potential. In the Finnish system, the market orientation and strong corporatist tradition tend to undermine the need for deliberative forms of governance. Currently, the deliberative forms take place inside the established corporatist decision-making system and the deliberative processes are not brought into the public arena nor are larger groups of public or NGOs firmly integrated into the deliberations. The collective nature of the corporatist structure excludes individual citizens from the processes. Firms, research institutions, state agencies and ministries are the principal parties in the deliberative models inside the corporatist system while contacts to NGOs are generally weak. The role of the NGOs is generally limited to the participation in commenting on certain proposals for new legislation and national strategies. According to the interviews, however, the NGOs have been passive in participating at least in relation to the communications legislation:

They (rounds of comments) are indeed broad, there are normally all media houses, telecommunications companies, there are all the ministries, municipalities, NGOs as much as we are able to think of, and normally we ask for a statement from all of them. - - - They (NGOs) are not very active, they do not aim at influencing things very much (A representative from the Ministry of Transport and Communications, 30.5.2003).

There are views, however, that there may be a need for increasing interaction with the public in future. Representatives from the public administration responsible for the information society issues have indeed promised that direct public participation will be increased and citizen panels have been mentioned as a possible means (see Sokala 2003). At the same time there are doubts whether new kinds of deliberative and participatory forums would actually fit the Finnish system.

Or if you look at wireless local area networks, somebody can always follow the data transmission if you use your PC in a hot spot at the airport. When people become aware of these risks, it is possible that there will be more interaction after that. But as there has not been any (problems), everything has gone very smoothly (A representative from the Ministry of Transport and Communications, 30.5.2003).

I would actually regard it as a part of the Finnish culture and our way of doing things, and somehow it just is that these forums do not fit our system very well (A representative of the Ministry of Transport and Communications, 7.5.2002).

Currently it seems however that the strong corporatist system does not leave very much space for public consultation. One of the interviewees put it like this:

But how does their (citizens') voice become heard? The voice of industry, firms becomes heard, we have advisory boards, working groups where they are represented, but we don't have consumer associations in these bodies. - - - But who speaks with the voice of the consumer? (A representative form the Finnish Communications Authority, 25.3.2003).

4 Conceptions of citizens and public participation in the Finnish information society – Educational governance and local initiatives

The analysis of the governance of the Finnish ICT cluster shows that the role played by the public at the national level is limited to the strict boundaries of corporatist and market models of governance. This chapter aims at shedding more light at the possible roles of the public by looking at three examples. Firstly, the conception of the public in the national information society strategies is analysed. Secondly, bottom-up approaches are examined through local information society initiatives and thirdly, recent online debate on "the future of the information society" is examined.

4.1 Conceptions of citizens in the national information society strategies

The 1990s was an era of national and supranational information society programmes. The economic recession and the need for modernizing economic structures as well as fast technological development provided the framework where information technology was regarded to have seminal effects on society. Influenced by the recession, the programmes were primarily formulated to enhance economic competitiveness but also included concerns of social inclusion (e.g. Häyrinen-Alestalo 2001). In 1993 the US government launched its programme *National Information Infrastructure* and in the same year the European Commission published its strategies *Growth, Competitiveness and Employment, The Challenges and Ways Forward Into the 21st Century* and *Europe and the Global Information Society.* As mentioned above, two information society strategies were also launched in Finland in the late 1990s . The first, *Finland as Information Society* was published in 1995 (Ministry of Finance 1995) and the second, *Quality of Life, Knowhow and Competitiveness* in 1998 (Sitra 1998).

In their account of the Finnish information society, Castells and Himanen (2002) emphasize the social orientation of the Finnish information society strategies. The strategies are indeed formed around the rhetorics of equality and justice as it is emphasized that the information society is "humane" and build for "us all" (Sitra 1998; Ministry of Finance 1995; also Vanhanen 2003). It can be argued however that the economic and technological aspects of competitiveness and rationalisation dominate the first strategy and are strongly present also in the second as well (e.g. Pelkonen 2003). As showed above, also the participatory aspects in the strategy formulation have been restricted: in the first there was no public consultation whatsover while in the second there were NGOs taking part in the process. Although citizens are rather invisible in the formulation process, a closer reading of the content of programmes gives insights to how the administrative elite considers the roles of citizens in the information society.

The strategies tend to be dominated by educational modes of thinking in which the experts provide citizens with 'adequate' information on the future society. The need to convince the public of the benefits of the information society project indicates a potential lack of public support (cf. Hagendijk & Kallerud 2003, 16-17). In this sense the programmes are based on top-down approach and hegemonic distribution of power. Moreover, the primary message of the programmes tends to be that the information society is a society of lifelong learning. The 'new' society provides a lot of new possibilities, but taking advantage of these possibilities requires new skills in all spheres of life. Moreover, citizens are expected to be active, educate themselves continuously and take increasing responsibility for their lives. The emphasis on "active citizenship" also implies a distancing from the ideology of the welfare state. In the first strategy, this is made explicitly by criticizing the welfare state for being paternalistic and too protective (Ministry of Finance 1995, 39). While citizens are provided with increasing responsibility, in the strategies they mainly gain power in the role of consumers. An emphasis on the role of consumers and users' needs as well as a distancing from the welfare state ideology tend to reflect a rise of market governance in the development of the information society.

The information society is also described as a society that provides individual citizens with better possibilities for personal development, interaction and societal participation, and, thus, promotes equality and justice among citizens. In this way, citizens are considered as equal and active individuals who use democratic power. Strategies tend to rely on the idea that quality between citizens is expected to improve as electric services are spreading although also the opposite development is clearly possible. While the first strategy did not discuss issues related to marginalisation, such issues are more pronounced in the second. It is worth to note however that inequality between men and women is not discussed at all.

The key emphasis in the latest official information society documents is the promotion of the generic use of ICTs in society. The strategies tend to rely on a rather one-dimensional and deterministic thinking: the more broadly ICT is used in the society, the 'better' the society will become. The possible social risks related to new communication technologies are only very weakly discussed. The widespread use of ICT is expected to generate competitiveness and well-being but the relationship between the two is regarded as straightforward and simplified. As growth of productivity is regarded as the link between them, the information society risks to be reduced to the economic dimension. According to a recent official document on the information society:

> The development of the information society is about how information and communication technologies can be used to promote productivity growth (Ministry of Transport and Communications 2002, 6).

The role of the citizens is then primarily to adopt and use new technologies. As the underlying assumptions are not questioned, many important questions are not asked and are consequently left without answers. Is it finally so that the more ICT is used in a society, the better the quality of life of its citizens will be? Should the competitiveness-based ideology of the information society be dissolved and the equation be turned upside down? Should the dimensions of wellbeing be considered more seriously? Could wellbeing be understood as factor that in itself creates preconditions for competitiveness?

4.2 Local information societies – a bottom up -approach

As described above, the role of the citizens and NGOs in formulation of the national level information society strategies has remained limited. It can be assumed that also the impacts of the national strategies and initiatives on the lives of ordinary citizens have remained distant and unspecified although a multitude of projects have been launched to promote the objectives of the strategies (e.g. Sitra 1998, 22-23). Local information society projects are examples of opposite development models where concrete and direct impacts on citizens' everyday life as well as forms of direct participation are pervasive. Bottom-up approach and strong emphasis on the importance of locality have been the key aspects of such projects.

The Upper Karelia Learning project is a good example of a successful project where social aspects and a bottom up approach have been the starting points in building a local information society. The Upper Karelia is a poor region in the Eastern Finland with about 20 000 inhabitants. The region suffers from the typical problems of remote rural areas: persistently high unemployment rate, declining incomes of households in agriculture and forestry and out-migration of young people (Oksa & Turunen 2000). The initiative for a local and rural social information society project was developed by the local inhabitants. The project focused on social objectives such as preventing social exclusion, supporting social innovations and improving social conditions and services. It was granted funding from the Regional Council of North Karelia as well as the National Foundation of Research and Development (Sitra) which linked it to the national level. At the time Sitra was formulating the above mentioned information society strategy which placed more emphasis on social aspects. The local information society was one of the new priorities and the Upper Karelia project was adopted as one of the main initiatives.

The core of the project was the construction of a community information network which aimed at the creation of an "intimate, virtual local community" (Tuuva & Koskikallio 2001, 43). The community information network consisted of discussion and information forums based on email systems. Another important feature in the project was that local unemployed people were educated to become trainers and support persons who taught computer skills to local people. During the two years of operation, nearly 40 unemployed persons were educated, over 30 free stands were established in public spaces where the network could be used and 25 per cent of the local population registered as users of the community network. Two enterprises were created on the basis of the project but generally the economic impacts of the project were rather small (Castells & Himanen 2002). The evaluation of the project stated that it was "definitely a success story" and regarded that the essential feature of the success was that the strong local emphasis on the project, that the project was "immersed in local life" (Oksa & Turunen 2000).

Due to the success of the project Sitra decided to launch similar projects on 8 localities around the country ranging from Northern Lapland to the southern islands and to an urban suburb in Helsinki. The aim was to find solutions to the "digital divide" and to help regions and population groups that are currently marginalized in respect to the development of

information technology to be integrated and drawn into the development. The focus was clearly on grass roots level and citizens' perspective. There were variations in the success of the different projects but generally it was harder than expected to attract citizens to use the information network. The network was mainly used as discussion and information exchange forum between public sector actors and different kinds of associations and as a platform for simple electric services. The role of firms in networks was smaller than expected (Karinen et al. 2004). Interestingly the model was successful in highly different kinds of environments such as Northern Lapland and Maunula, the suburb in Helsinki (Bäcklund 2003; Karinen et al. 2004) as they were able to both take advantage of and support local communities.

Despite some problems of attracting citizens to use the information networks, the local information society projects are examples of public participation at the local level. The success of local projects is however often strongly dependent on certain individuals. Although attractive, transferring such models to the national level seems problematic. The following example, an online debate on information society, is a light attempt to promote public participation in the national level.

4.3 Online debate on information society in 2004 – an educational approach to public dialogue

Compared to other Nordic countries and also more generally in Europe there is less public discussion on science and technology in Finland (e.g. Salo 2001). This holds in relation to the developments related to new biotechnology (Snell 2002) as well as to issues related to social impacts and applications of information and communication technologies. The public discussion and media coverage in ICTs is heavily focused on economic issues and firm performance. As the government's information society programme was started, however, a new approach was experimented through an online debate on the issues related to the information society, in February 2004.[3] The debate was organized on a government web site which was opened in 2000 for promoting dialogue and interaction between the public administration and citizens. During the 29 days of the information society debate 223 messages were sent to the forum by around 100 persons.

Although the discussion – like all online debates – is naturally very biased, the topics and comments in the discussion are interesting in terms of how people react to the issue and give some insights to public views on the development of the Finnish information society. As the agonistic tendencies in the Finnish ICT scene have been very limited, the information society debate is here examined by looking at the criticisms and antagonistic views that are presented in the discussion.

[3] The information society programme is one of the government's four horizontal policy programmes. The policy programmes are a new tool of the current government to promote inter sectoral cooperation and strengthen the governance of horizontal policy issues. The other three programmes are entrepreneurship policy, employment policy and civil participation policy programme. The information society programme aims at promoting competitiveness, social and regional equality and wellbeing by spreading the use of ICTs in the society and focuses on issues like telecommuncations networks, citizens' abilities to use ICTs, R&D, eGovernment, social and health care and electronic business (Valtioneuvoston kanslia 2003, 29-36).

In general, the debate can be seen as an attempt to draw the scarcely discussed topic to the public arena. Although it seems that the original idea was to get public opinions on the information society development, the way the debate was organised and implemented shows tendencies of educational rather than deliberative forms of governance. First, in the opening of the discussion, citizens were asked to answer certain questions by the programme director. In this respect, the opening of the debate was organised around top down approach rather than from an even-handed perspective. Naturally, a lot of issues were discussed in the forum that were not directly asked in the first place. Secondly, no clear indications were given as to whether the debate was to have actual impacts on policies. In the opening comment of the discussion the programme director stated only that the citizens' comments "will be helpful in evaluating the information society programme and in developing electronic services". Thirdly, representatives of the state administration did not take part in the debate, but citizens were left to discuss on their own.[4] The debate was not a debate between citizens and the administration but among citizens and in this respect it does not reflect a deliberative process where all parties should take part in the process. During the debate, several persons called for the representatives of the administration to take part in the debate. It was considered that only in this way the debate would have an impact. In this respect references were made to the limits of representative democracy and the increasing need of discursive forms of democracy. Enhanced public discussion was urged, not only in respect to the information society, but more generally also.

It is particularly interesting that there was more discussion on the risks and threats of the information society than of the benefits although both were asked about in the opening of the discussion. Two main types of criticism can be identified in the discussion. The first object of criticism was the state policy in ICT which was considered as too market-driven in general and particularly in relation to broadband networks. The state has relied on markets in delivering broadband connections to all regions in the country and has denied the possibility of state subventions. It has however recently been realized that the market mechanism does not bring the connections to peripheral regions. Issues related to regional equality – as well as equality between social groups – were indeed highly pronounced in the discussion. Several people considered that the state should build an open and fast network with public funds. Moreover, more state regulation and actions were called for in respect to the "monopolies" of the telecommunications companies as their pricing is regarded as "a catastrophic barrier to the development of the information society". The state was also criticized of being incapable of taking on new experiments in new technologies as the state's web services, for instance, are regarded as "half measures".

The second type of criticism – more rare in the debate – is more universal in nature. In these views people are considered as prisoners of information technology. There are also concerns that human qualities will vanish and negligence will increase as services are moved into information networks. In this respect reference was made to the banking services. Moreover, the Finnish information society is considered to overemphasize technology and to leave social

[4] There were one exception to this since the programme director once replied in the forum as she was explicitly asked a question by one person taking part in the debate.

dimensions aside. Public discussion was considered to be dominated by a technological jargon which is impossible for ordinary people to understand.

The discussion, thus, interestingly brings about a critique of market governance. The critique calls for increasing state intervention and claims that the market is incapable of taking care of the services. Moreover, important elements of the welfare state such as equality and justice tend to be highly valued.

References

Alkio, Jyrki (2001): Nokian riskit ovat Suomen riskejä. Helsingin Sanomat 2001. (Risks of Nokia's are risks of Finland).

Bouckaert, Geert, Ormond, Derry & Peters, Guy (2000): A Potential Governance Agenda for Finland. Turning 90˚ in the Adminstration's Tasks and Functions. Ministry of Finance, Finland.

Brenner, Mats (2003): The Scandinavian Challenge: The Future of Advanced Welfare States in the Knowledge Economy. Acta Sociologica 46:2, 132-149.

Bäcklund, Pia (ed.) (2003): Tietoyhteiskunnan osallistuva kansalainen. Tapaus Nettimaunula. Helsingin kaupungin tietokeskus, Helsinki. (The participative citizen of the information society. Case web-Maunula).

Castells, Manuel & Himanen, Pekka (2002): The Information Society and the Welfare State. The Finnish Model. Oxford University Press, Oxford.

Council of State (2002): Valtioneuvoston selonteko Eduskunnalle kansalaisten suoran osallistumisen kehittymisestä (VNS 3/2002 vp). Helsinki: Valtioneuvosto. (Council of State's account to the Parliament on the development of citizen's direct participation).

Cowell, Alan (2002): Not Finland Anymore? More like Nokialand. The New York Times, February 6, 2002.

Hagendijk, Rob & Kallerud, Egil (2003): Changing Conceptions and Practices of Governance in Science and Technology in Europe. STAGE Discussion Paper 2.

Hanell, Tomas & Aalbu, Hallgeir & Neubauter, Jörg (2002): Regional Development in the Nordic Countries. Nordregio Report 2002:2, Stockholm.

Häikiö, Martti (2001): Nokia Oyj:n historia. Osat 1-3. Edita, Helsinki. (History of Nokia).

Häyrinen-Alestalo, Marja (2001): Is Knowledge-based Society a Relevant Strategy for Civil Society? Current Sociology 49:6.

Häyrinen-Alestalo, Marja (1999): The University under the Pressure of Innovation Policy – Reflecting Some European and Finnish Experiences. Science Studies 12:1, 44-69.

Häyrinen-Alestalo, Marja & Snell, Karoliina (2004): Market orientations and mediation of public opinions in Finnish biotechnology. In Marja Häyrinen-Alestalo and Egil Kallerud (eds.): Mediating Public Concern in Biotechnology. Nifu, Oslo.

Huuhtanen, Heidi (2001): Tietoyhteiskuntaa rakentamassa. Tietoyhteiskunnan kehittämiskeskus, Helsinki. (Building the information society).

Jalava, Jukka & Pohjola, Matti (2002): Economic growth in the New Economy: Evidence from Advanced Economies. Information Economics and Policy 14:2, 189-210.

Julkunen, Raija (2001): Suunnanmuutos. 1990-luvun sosiaalipoliittinen reformi Suomessa. Vastapaino, Tampere. (Change of direction. The reform of social policy in Finland in the 1990s).

Junkkari, Marko (2001): It-riippuvuus painaa Suomea. Helsingin sanomat 21.11.2001. (Finland under the dependency of IT).

Kantola, Anu (2002): Markkinakuri ja managerivalta: poliittinen hallinta Suomen 1990-luvun talouskriisissä. Loki-kirjat, Helsinki. (The political governance in the Finnish economic crisis in the 1990s).

Karinen, Risto, Virtanen, Petri & Pekkala, Henrik (2004): Oppivat seutukunnat -hankkeen arvioinnin loppuraportti. Sitran raportteja 37. Sitra, Helsinki. (Final report of the evaluation of the Learning Regions project).

Komiteamietintö (1980): Teknologiakomitean mietintö. Komiteamietintö 1980:55. Valtion painatuskeskus, Helsinki. (Report of the Technology committee).

Koski, Heli & Rouvinen, Petri & Ylä-Anttila, Pekka (2002): Mitä ”uudesta taloudesta” jäi? Sitra, Helsinki. (What is left of the ”new economy”?).

Koski, Heli & Rouvinen, Petri & Ylä-Anttila, Pekka (2001): Uuden talouden loppu? The Research Institute of Finnish Economy (ETLA) & Sitra, Helsinki. (The end of the new economy?).

Lemola, Tarmo (2001): Tiedettä, teknologiaa ja innovaatioita kansakunnan parhaaksi: Katsaus Suomen tiede- ja teknologiapolitiikan lähihistoriaan. VTT, Helsinki. (Science, technology and innovation for the good of the nation. A look at the history of Finnish science and technology policy).

Manninen, Mari (2003): Ruotsalaiset kapinoivat 3G-mastoja vastaan. Helsingin Sanomat 8.8.2003. (The Swedes are revolting against the 3G towers).

Miettinen, Anssi (2003): Valtio keskittää tukirahat menestyjille. Helsingin Sanomat 5.12.2003. (The state concentrates its R&D funds to the successful).

Miettinen, Reijo (2002): The National Innovation System. Scientific Concept of Political Rhetoric. Sitra, Helsinki.

Ministry of Finance (2002): Valtion keskushallinnon uudistaminen. Ministerityöryhmän loppuraportti.28.6.2002. (The reform of the state central administration).

Ministry of Finance (1995): Suomi tietoyhteiskunnaksi. Valtiovarainministeriö, Helsinki. (Finland as a information society).

Ministry of Transport and Communications (2003): Finnish Telecom Policy. Ministry of Transport and Communications, Helsinki.

Ministry of Transport and Communications (2002): Kuinka Suomesta tehdään kilpailukykyinen tietoyhteiskunta? Suuntana hyödyntäminen. 15.11.2002. (How to develop Finland into a competitive information society?).

Mölsä, Jouni (2002): Soneran tappio vastaa yhden vuoden sotakorvauksia. Helsingin Sanomat heinäkuu 2002. (Sonera's loss is equivalent to one year's war indemnity).

Mönkäre, Sinikka (2002): A speach in the Anniversary of the National Technological Agency, 13.3.2002, Helsinki..

Mönkäre, Sinikka (2001): A speach in the Anniversary of the National Technological Agency, 6.3.2001, Helsinki.

Naumanen, Mika (2004): Tekbaro: teknologiabarometri kansalaisten asenteista ja kansakunnan suuntautumisesta tietoon perustuvaan yhteiskuntaan. Tekniikan Akateemisten Liitto, Helsinki. (Tekbaro: Technology barometer on citizen's attitudes and nation's orientation towards knowledge-based society).

Nousiainen, Jaakko (1998): Suomen poliittinen järjestelmä. WSOY, Juva. (Finnish political system).

OECD (2001): Communications Outlook 2001. OECD, Paris.

Ohtonen, Jukka (2001): Kokemuksia strategisen kehittämisprojektin arvioinnista. Esimerkkinä Satakunnan makropilotti 1999-2001. Impakti 8:6, 4-6. (Experiences on the evaluation of a strategic developement project).

Oksa, Jukka & Turunen, Jarno (2000): Local Community Net. Evaluation Study of the Learning Upper Karelia Project. University of Joensuu, Joensuu.

Paija, Laura (ed.) (2001): Finnish ICT Cluster in the Digital Economy. The Research Institute of Finnish Economy (ETLA), Helsinki.

Palo, Jyrki (2002): Espanjassa kuluttajat epäilevät tukiasemien aiheuttavan syöpää. Helsingin Sanomat 18.1.2002. (Consumers in Spain are suspecting that GSM towers cause cancer).

Pelkonen, Antti (forthcoming): The Glocal State and Urban Growth Policy – Building the Helsinki Region 'Ideopolis'. Accepted (subject to revisions) for publication in European Planning Studies.

Pelkonen, Antti (2003): Tieto- ja viestintäteknologia teknologiavetoisen yhteiskunnan rakentajana ja yhteiskuntapolitiikan välineenä. Politiikka 45:1, 50-61. (The political objectives of information and communication technologies – Towards a technology-driven society?).

Pugin, Leo (2002): Ruotsissa antenneja ei haluta talojen katoille. Helsingin Sanomat 18.1.2002. (People don't want masts in the roofs in Sweden).

Pursiainen, Harri (2003): Finnish Telecom Policy is Removing Obstacles and Encouraging the Markets. In ICT Cluster Finland Review. Tieke, Helsinki.

Prihti, Aatto, Georghiou, Luke, Helander, Elisabeth, Juusela, Jyrki, Meyer-Krahmer, Frieder, Roslin, Bertil, Santamäki-Vuori, Tuire, Gröhn, Mirja (2000): Assessment of the Additional Appropriation for Resarch. Sitra, Helsinki.

Rouvinen, Petri (2002): Competitiveness in the New Economy. ETLA Discussion Papers, 786.

Salo, Ahti (2001): Arvio teknologian ennakoinnin kehittämistarpeista. KTM, Helsinki. (Evaluation of the developmental needs of technology foresight).

Sasi, Kimmo (2001): ICT:stä pysyvä tukijalka metsän ja metallin rinnalle. Speech at the 10 years Anniversary of Innopoli, Espoo, 20.8.2001. (ICT as a permanent bedrock alongside forest and metal industries).

Siisiäinen, Martti (1999): Voluntary associations and social capital in Finland. In J. Van Deth, M. Maraffi, K. Newton, and P. Whiteley (eds.): Social Capital and Demoncracy. Routledge, London.

Sitra (1998): Elämänlaatu, osaaminen ja kilpailukyky: Tietoyhteiskunnan strategisen kehittämisen lähtökohdat ja päämäärät. Sitra, Helsinki. (Quality of life, knowhow and competitiveness: Premises and objectives for the strategical development of the information society).

Snell, Karoliina (2002): Biotekniikkapolitiikan kansalaiskuva: kansalaiset, kuluttajat ja ihmiset Suomessa ja Euroopan unionissa. Sosiologia 39 (4): 285-295. (The Conceptions of Citizens in Biotechnology Policy).

Sokala, Hannu (2003): Tulevan rakentajat. Tietoyhteiskuntaneuvosto aloitti toimintansa. Interview with Katrina Harjuhahto-Madetoja, programme director of the governmental information society programme. Signaali 4/2003. (Builders of the future. The new information society council started its work).

Statistics Finland (2004): Teollisuuden ja rakentamisen rakennetilasto 1995-2002. http://www.stat.fi (Statisics on industry and construction 1995-2002).

Statistics Finland (2003b): Tiedolla tietoyhteiskuntaan IV. Statistics Finland, Helsinki. (On the road to the Finnish information society IV).

Statistics Finland (2002a): Tutkimus- ja kehittämistoiminta 2000. Tiede, teknologia ja tutkimus 2001:4. (Research and Development 2000).

Statistics Finland (2002b) Kotitalouksien aluetilit 1995-2000. Tulojen muodostuminen ja uudelleenjako alueittain Euroopan kansantalouden tilinpitojärjestelmän (EKT 95) mukaisena. SVT Kansantalous 2002:2. Tilastokeskus, Helsinki. (Household income by regions).

Statistics Finland (2001): Tiedolla tietoyhteiskuntaan III. Statistics Finland, Helsinki. (On the road to the Finnish information society III).

Statistics Finland (2000): Teollisuuden ja rakentamisen rakennetilasto 1998. Teollisuus 2000:4. SVT. Helsinki: Yliopistopaino. (Statisics on industry and construction 1998).

Steinbock, Dan (2000): Finland's Wireless Valley: From Industrial Policies toward Cluster Strategies. Ministry of Transport and Communications, Helsinki.

Tarkiainen, Ari (2002): Miksi suuresta tuli niin pieni – pohdintoja Makropilotista ja sen arvioinnista. Janus 14:4, 360-365. (How did the big become so small – reflecting on the Macro Pilot and its evaluation).

Tietoyhteiskunnan kehittämiskeskus (2003): ICT Cluster Finland Review. Tietoyhteiskunnan kehittämiskeskus, Helsinki.

Tullihallitus (2001): Ulkomaankauppa 2000. Taskutilasto. (Foreign Trade 2000).

Tuuva, Sari & Koskikallio, Ilpo (2001): Keskustelua kansalaisverkosta. In Uotinen, Johanna, Tuuva, Sari, Vehviläinen, Marja & Knuuttila, Seppo (eds.): Verkkojen kokijat. Paikallista tietoyhteiskuntaa tekemässä. Suomen kansantietouden tutkijain seura, Helsinki. (Discussions on the citizens' information network).

Valtioneuvoston kanslia (2003): Hallituksen strategia-asiakirja 2003. Hallituksen poikkihallinnolliset politiikkaohjelmat ja politiikat. VNK:n julkaisusarja 14/2003. (The strategy document of the Government. Government's transsectoral policy programmes and policies).

Vanhanen, Matti (2003): Prime minister's speech at the opening seminar of the Government's information society programme. Valtioneuvoston kanslia, 25.11. 2003.

Virtanen, Petri (2001): Karavaani kulkee ja koirat haukkuvat: kansalaisjärjestöjen osallistuminen yhteiskunnalliseen päätöksentekoon. Valtiovarainministeriö, Helsinki. (Participation of NGOs into public decision-making).